ALHAMBRA
INVESTMENTS

An SEC-registered Investment Advisor

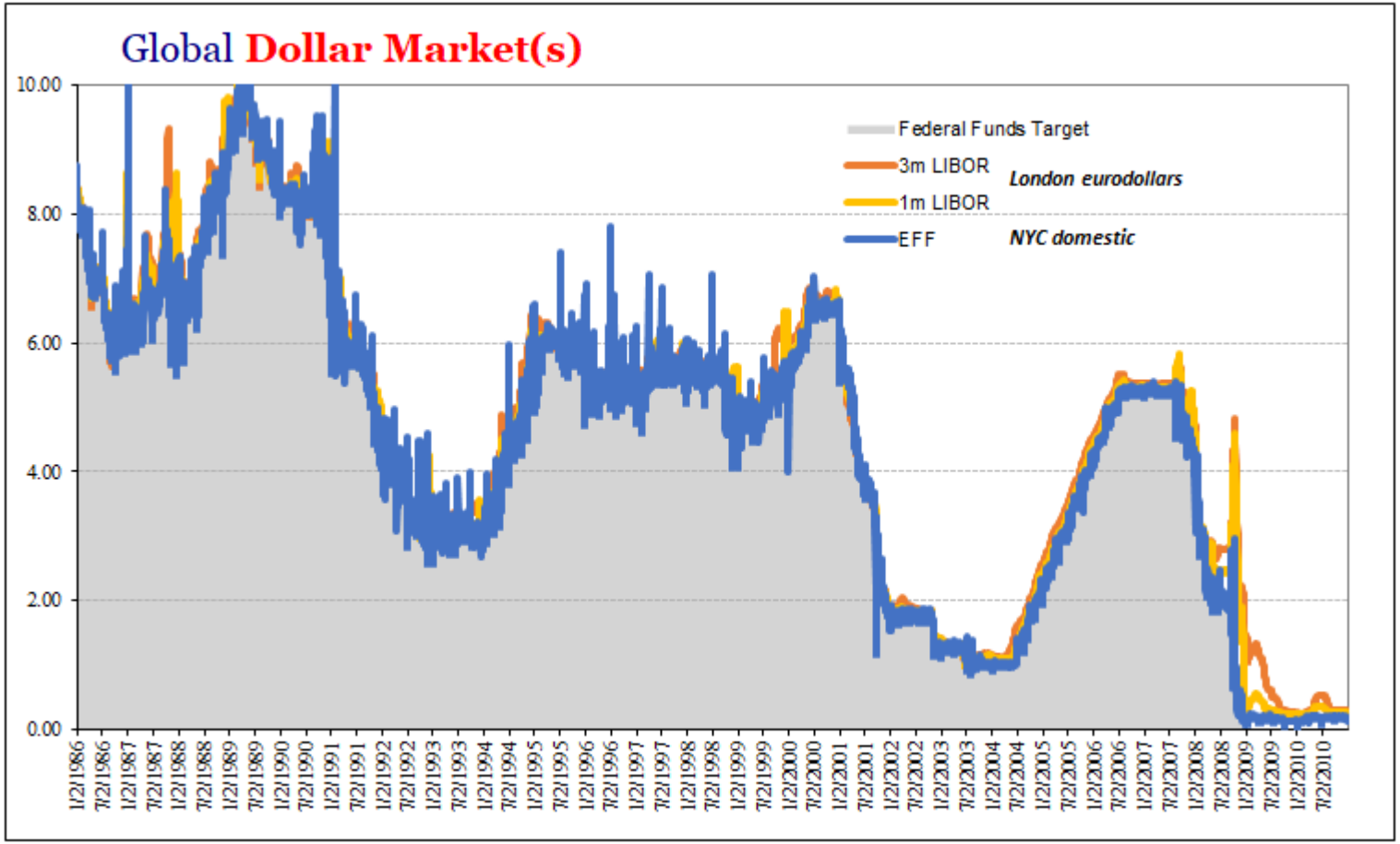
EURODOLLAR UNIVERSITY

Part 2: What Goes Up Must Come Down

By the Textbook

EURODOLLAR

失われた10年


Global Dollar Market(s)
Federal Funds Target
3m LIBOR
1m LIBOR
EFF
London eurodollars
NYC domestic
10.00
8.00
6.00
4.00
2.00
0.00
1/2/1986
7/2/1986
1/2/1987
7/2/1987
1/2/1988
7/2/1988
1/2/1989
7/2/1989
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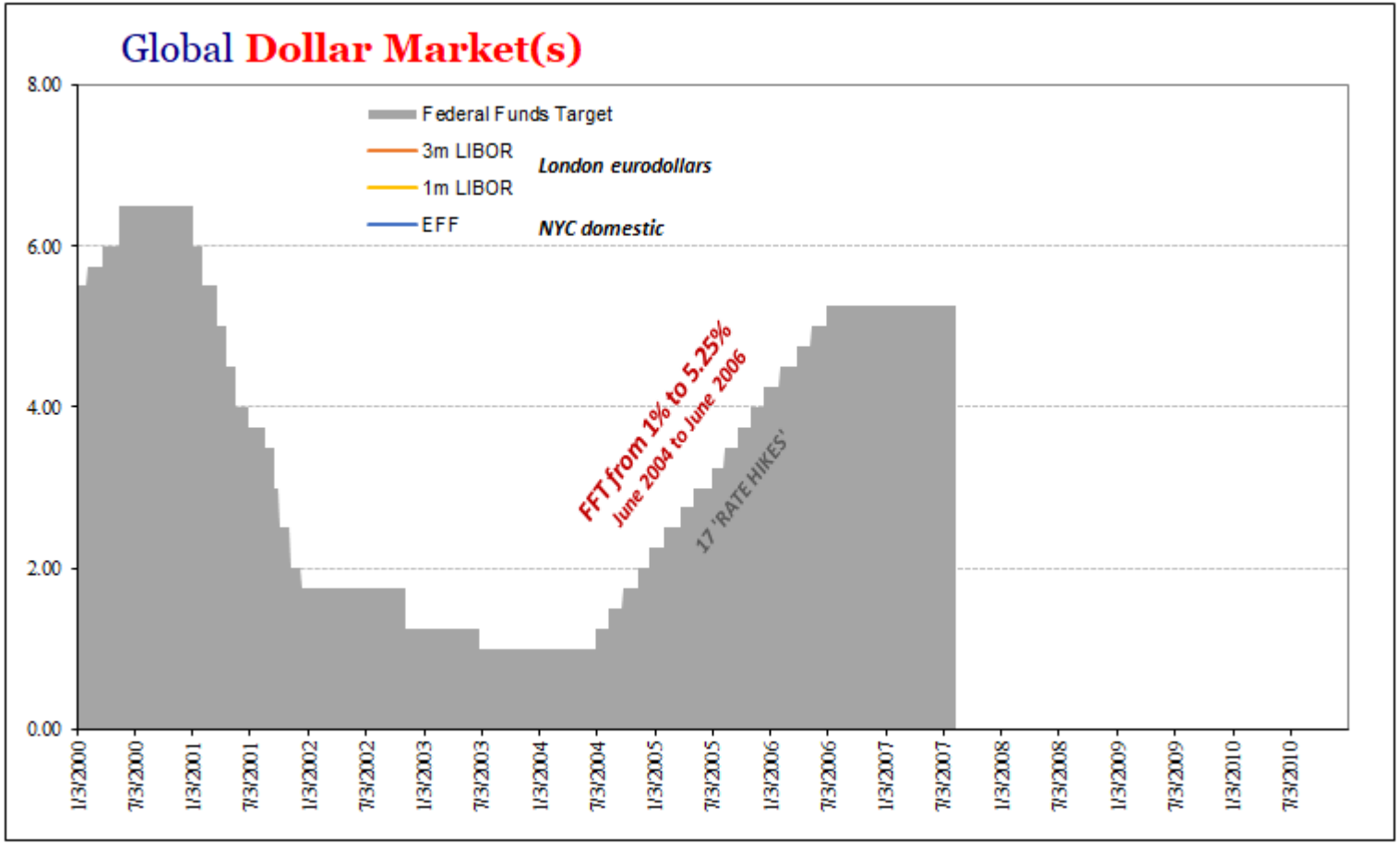
7/2/2010


Global Dollar Market(s)
Federal Funds Target
3m LIBOR
1m LIBOR
EFF
London eurodollars
NYC domestic
FFT from 1% to 5.25%
June 2004 to June 2006
17 'RATE HIKES'
8.00
6.00
4.00
2.00
0.00
1/3/2000
7/3/2000
1/3/2001
7/3/2001
1/3/2002
7/3/2002
1/3/2003
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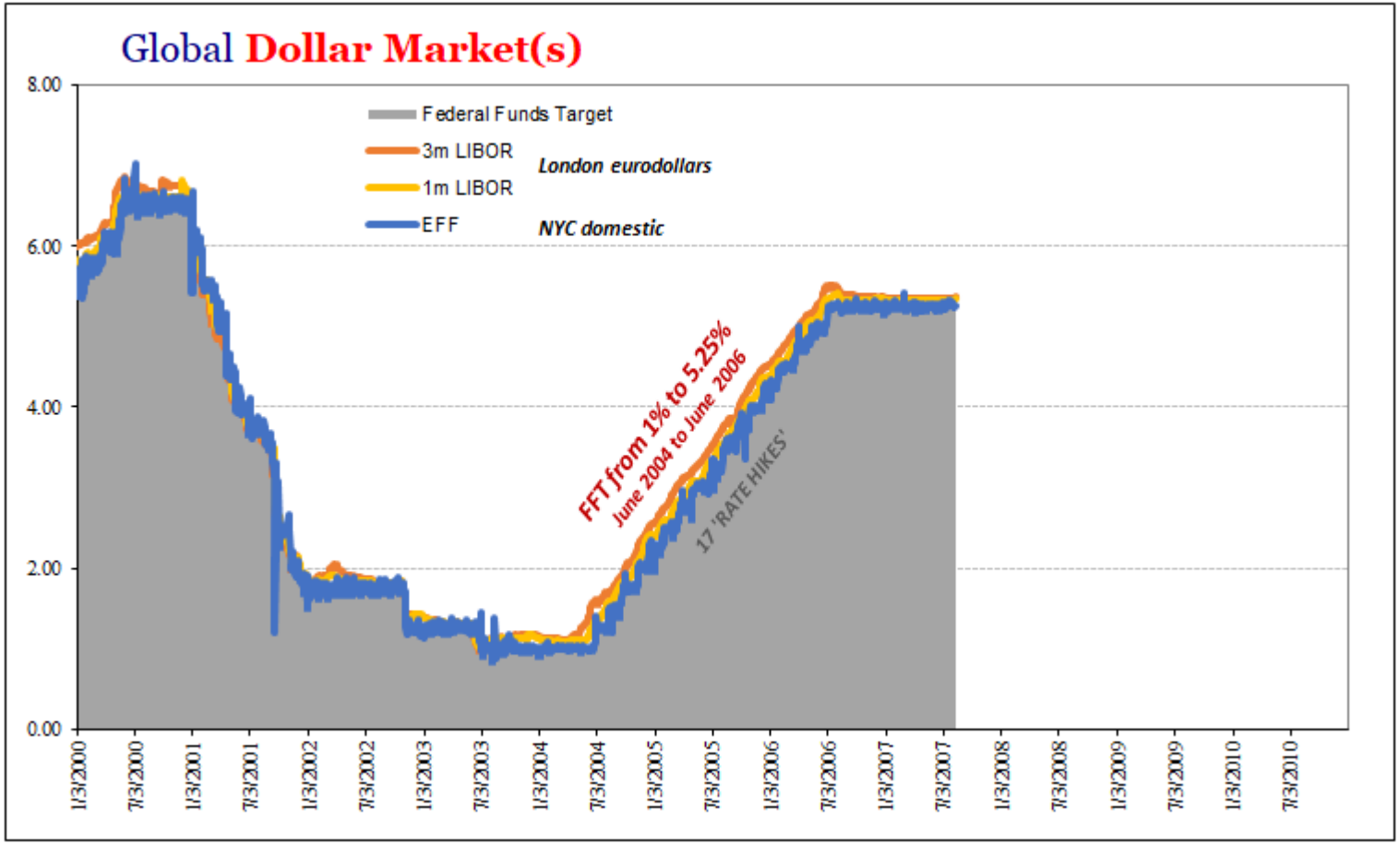
7/3/2010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FFT from 1% to 5.25%
June 2004 to June 2006
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6.00
4.00
2.00
0.00
1/3/2000
7/3/2000
1/3/2001
7/3/2001
1/3/2002
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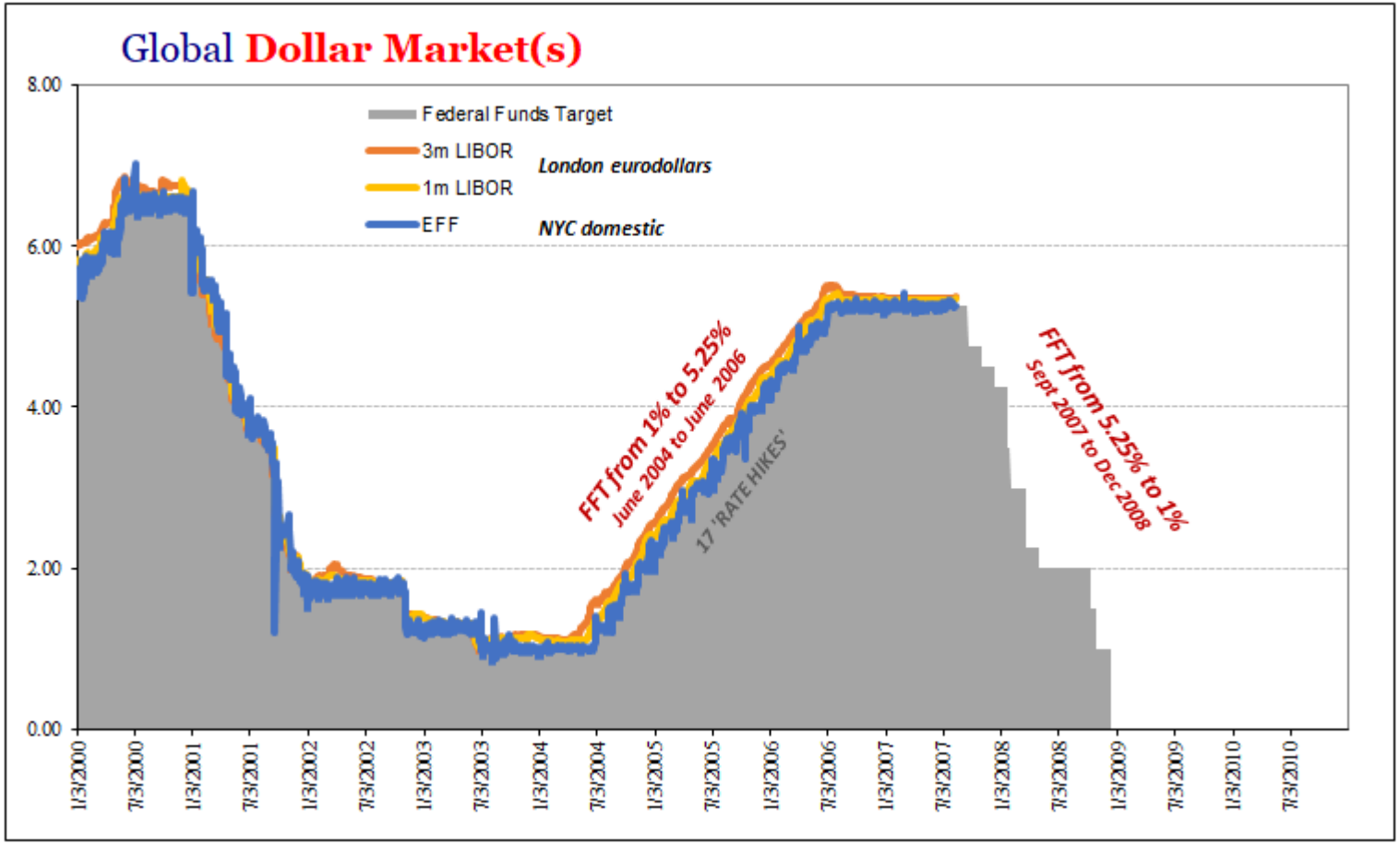
Global Dollar Market(s)
Federal Funds Target
3m LIBOR
1m LIBOR
EFF
London eurodollars
NYC domestic
FFT from 1% to 5.25%
June 2004 to June 2006
17 'RATE HIKES'
FFT from 5.25% to 1%
Sept 2007 to Dec 2008
8.00
6.00
4.00
2.00
0.00
1/3/2000
7/3/2000
1/3/2001
7/3/2001
1/3/2002
7/3/2002
1/3/2003
7/3/2003
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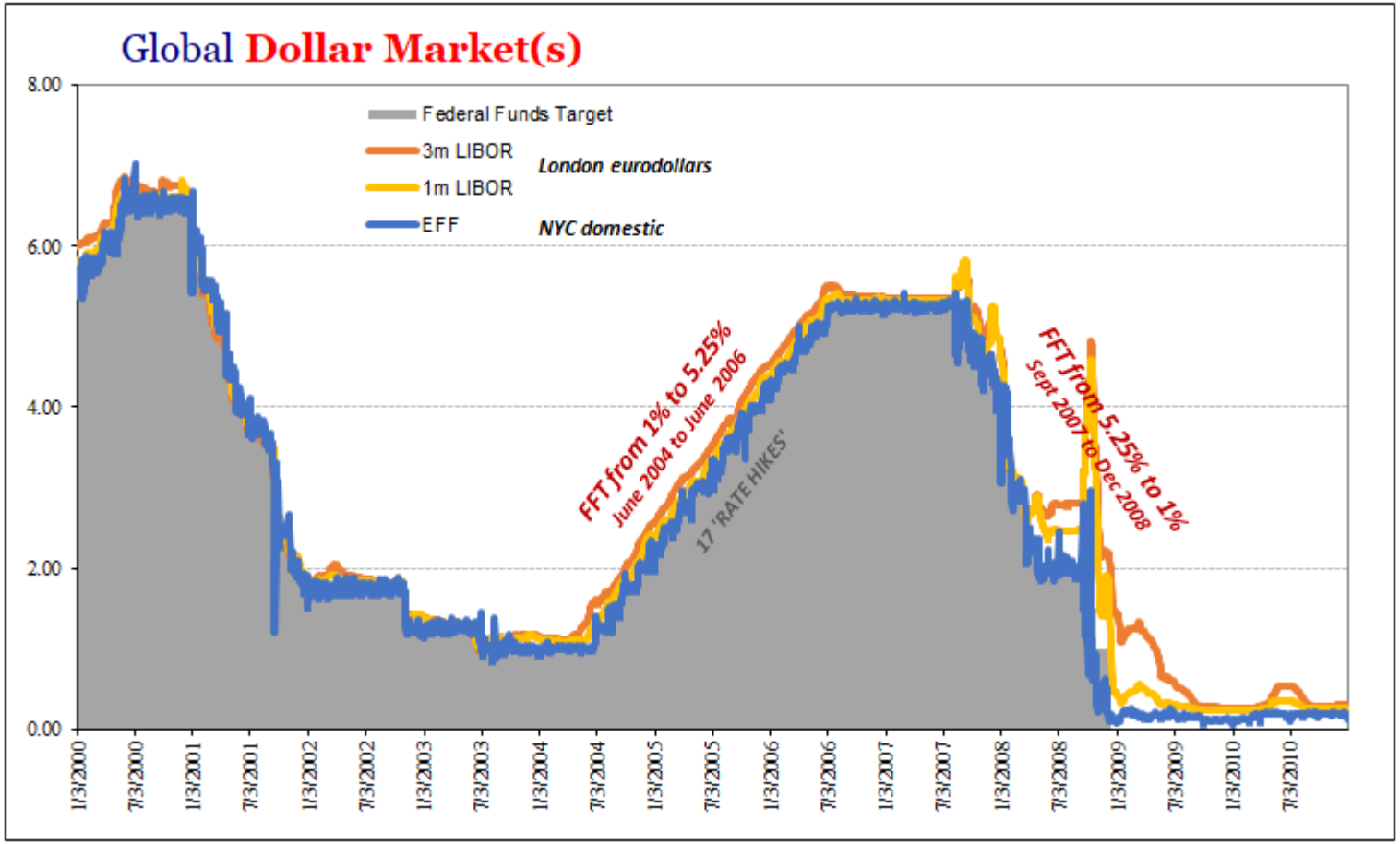
1/3/2010
7/3/2010


Global Dollar Market(s)
Federal Funds Target
3m LIBOR
1m LIBOR
EFF
London eurodollars
NYC domestic
FFT from 1% to 5.25%
June 2004 to June 2006
17 'RATE HIKES'
FFT from 5.25% to 1%
Sept 2007 to Dec 2008
8.00
6.00
4.00
2.00
0.00
1/3/2000
7/3/2000
1/3/2001
7/3/2001
1/3/2002
7/3/2002
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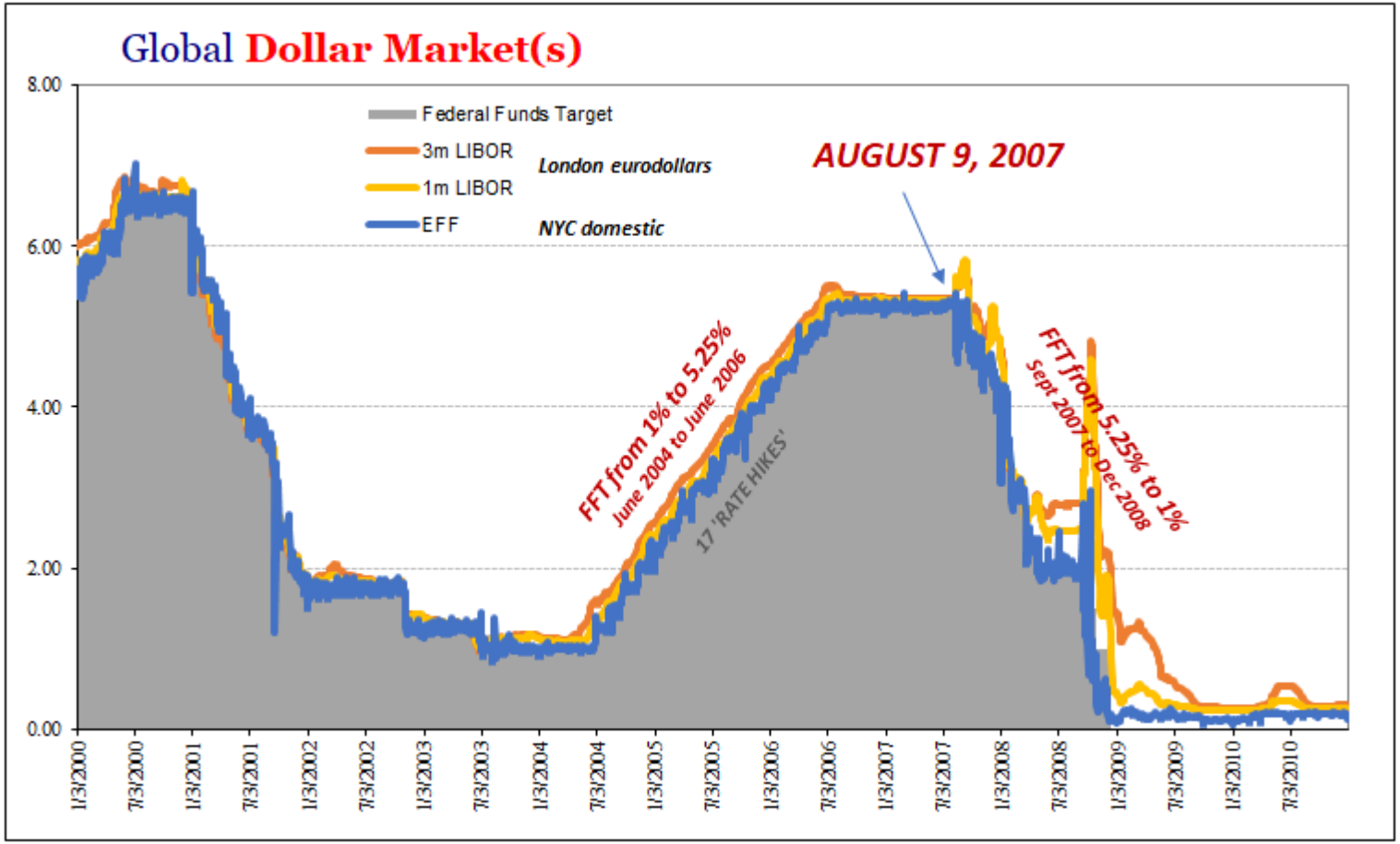
1/3/2010
7/3/2010


Global Dollar Market(s)
Federal Funds Target
3m LIBOR
1m LIBOR
EFF
London eurodollars
NYC domestic
AUGUST 9, 2007
FFT from 1% to 5.25%
June 2004 to June 2006
17 'RATE HIKES'
FFT from 5.25% to 1%
Sept 2007 to Dec 2008
8.00
6.00
4.00
2.00
0.00
1/3/2000
7/3/2000
1/3/2001
7/3/2001
1/3/2002
7/3/2002
1/3/2003
7/3/2003
1/3/2004
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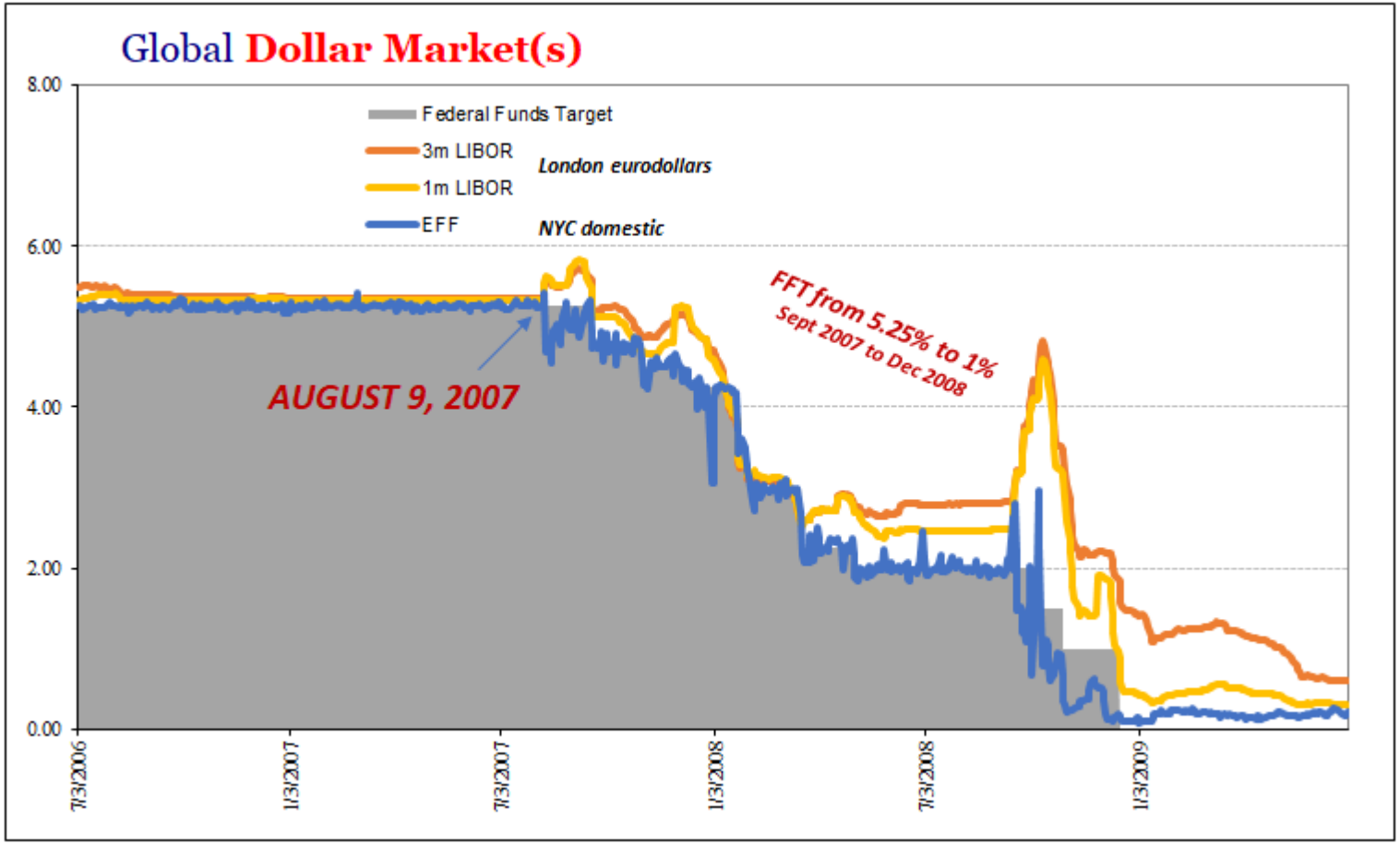
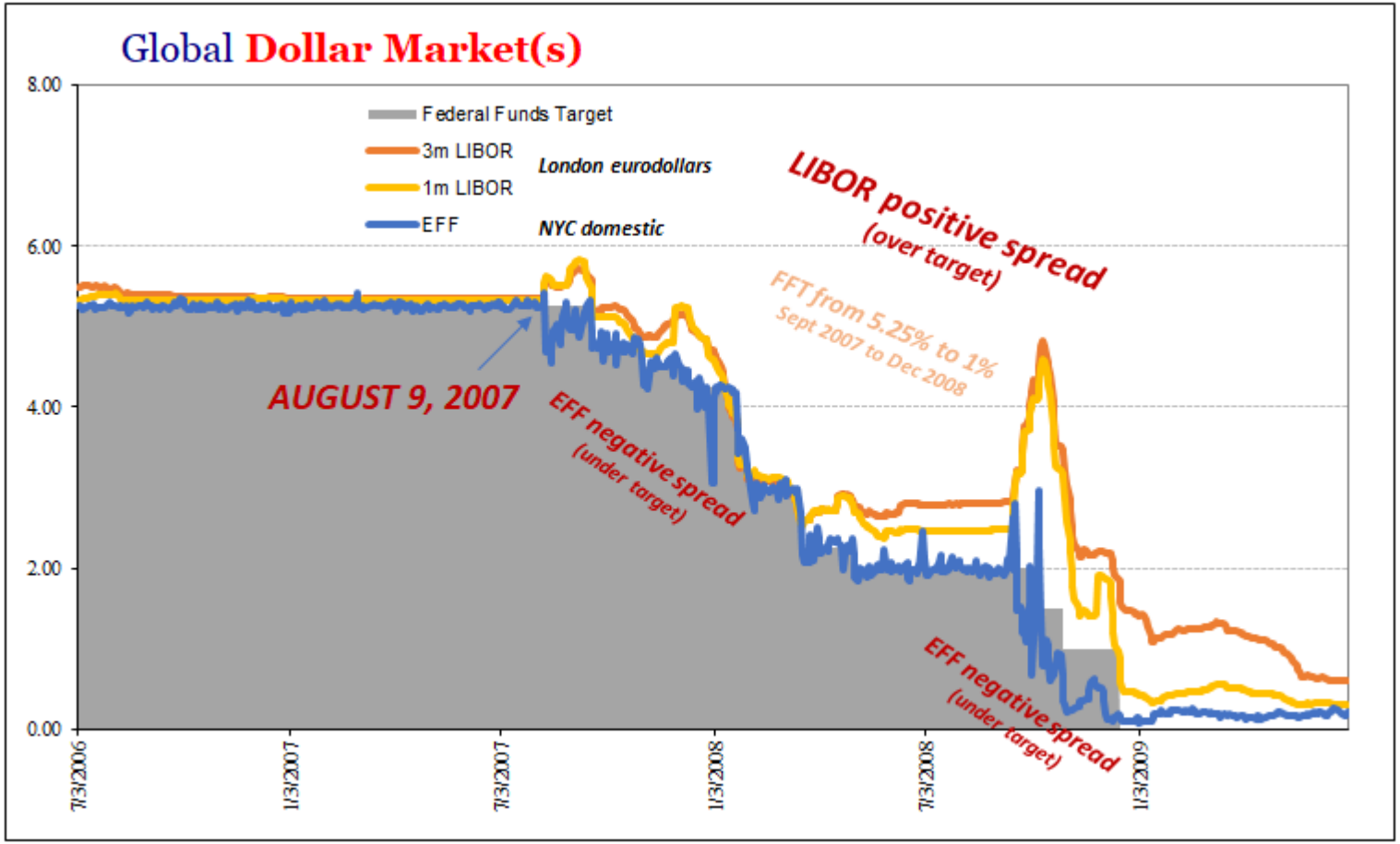
7/3/2010


Global Dollar Market(s)
Federal Funds Target
3m LIBOR
1m LIBOR
EFF
London eurodollars
NYC domestic
AUGUST 9, 2007
FFT from 5.25% to 1%
Sept 2007 to Dec 2008
8.00
6.00
4.00
2.00
0.00
7/3/2006
1/3/2007
7/3/2007
1/3/2008
7/3/2008
1/3/2009


Global Dollar Market(s)
Federal Funds Target
3m LIBOR
1m LIBOR
EFF
London eurodollars
NYC domestic
LIBOR positive spread
(over target)
FFT from 5.25% to 1%
Sept 2007 to Dec 2008
AUGUST 9, 2007
EFF negative spread
(under target)
EFF negative spread
(under target)
8.00
6.00
4.00
2.00
0.00
7/3/2006
1/3/2007
7/3/2007
1/3/2008
7/3/2008
1/3/2009

August 7, 2007

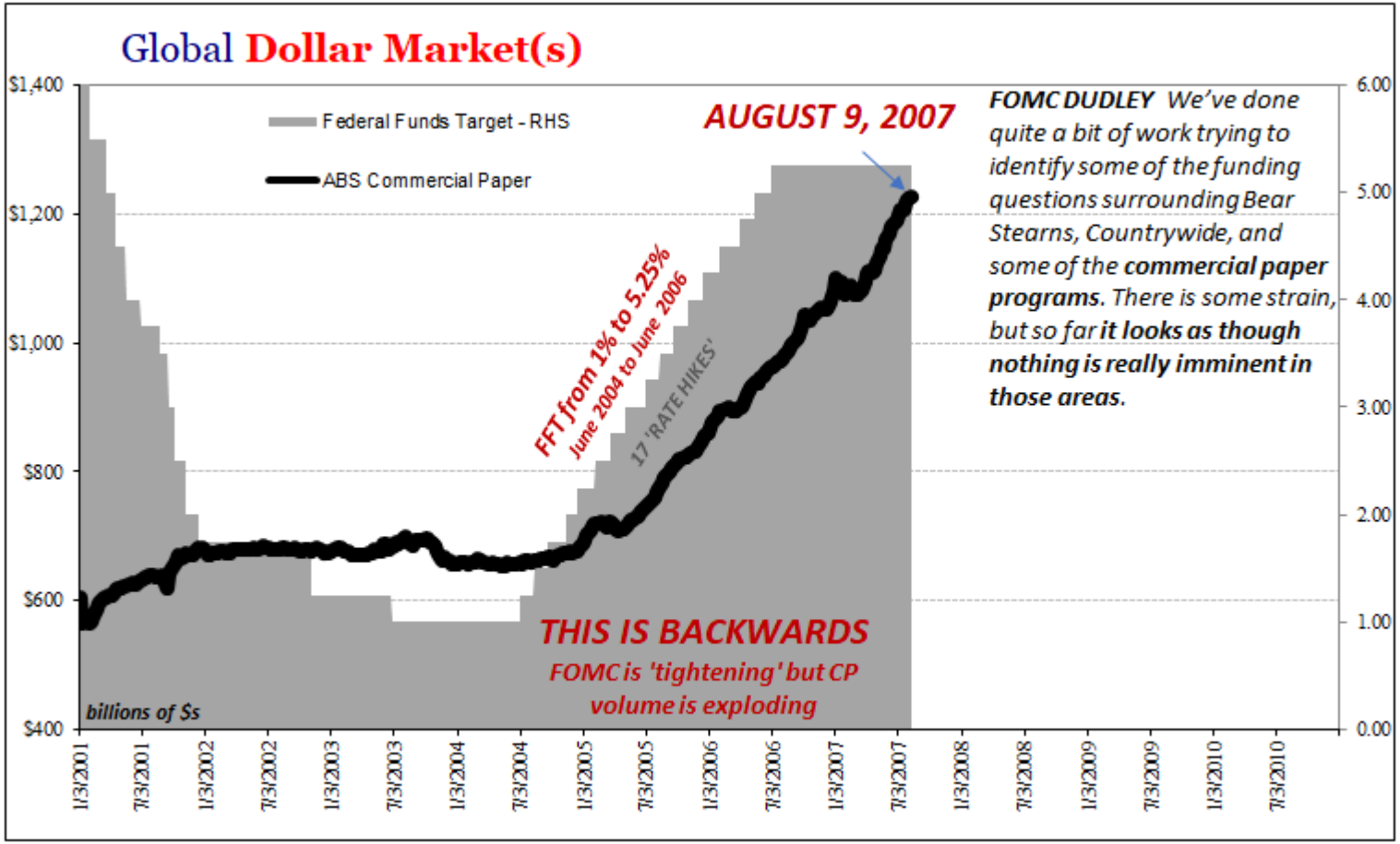
"As far as the issue of material nonpublic information that shows worse problems than are in the newspapers, I'm not sure exactly how to characterize that because I guess I wouldn't know how to characterize how bad the newspapers think these problems are. [Laughter] We've done quite a bit of work trying to identify some of the funding questions surrounding Bear Stearns, Countrywide, and some of the **commercial paper programs**. There is some strain, but so far **it looks as though nothing is really imminent in those areas**.

Bill Dudley
FRBNY Manager System Open Market Account
Policy Discussion at regular FOMC policy meeting

August 9, 2007

> The world stopped on August 9. It's been astonishing, gobsmacking. Look across the full range of financial products, across the full geography of the world, the entire system has frozen.

Adam Applegarth
CEO of Northern Rock


Global Dollar Market(s)
Federal Funds Target - RHS
ABS Commercial Paper
AUGUST 9, 2007
FFT from 1% to 5.25%
June 2004 to June 2006
17 'RATE HIKES'
THIS IS BACKWARDS
FOMC is 'tightening' but CP volume is exploding
billions of $s
FOMC DUDLEY We've done quite a bit of work trying to identify some of the funding questions surrounding Bear Stearns, Countrywide, and some of the commercial paper programs. There is some strain, but so far it looks as though nothing is really imminent in those areas.
$1,400
$1,200
$1,000
$800
$600
$400
6.00
5.00
4.00
3.00
2.00
1.00
0.00
1/3/2001
7/3/2001
1/3/2002
7/3/2002
1/3/2003
7/3/2003
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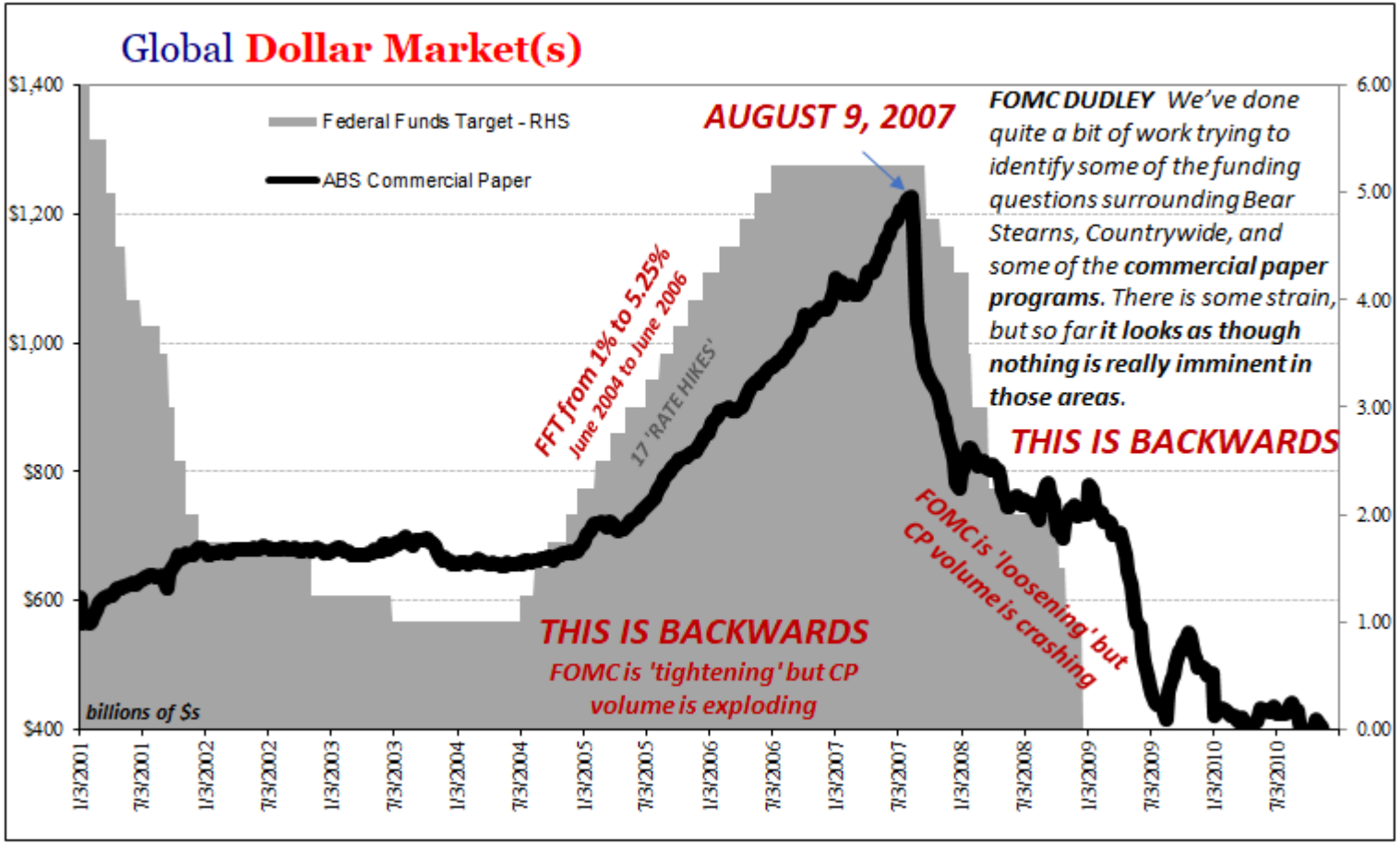
Global Dollar Market(s)
Federal Funds Target - RHS
ABS Commercial Paper
AUGUST 9, 2007
FOMC DUDLEY We've done quite a bit of work trying to identify some of the funding questions surrounding Bear Stearns, Countrywide, and some of the commercial paper programs. There is some strain, but so far it looks as though nothing is really imminent in those areas.
FFT from 1% to 5.25% June 2004 to June 2006
17 'RATE HIKES'
THIS IS BACKWARDS
FOMC is 'tightening' but CP volume is exploding
FOMC is 'loosening' but CP volume is crashing
THIS IS BACKWARDS
billions of $s
$1,400
$1,200
$1,000
$800
$600
$400
6.00
5.00
4.00
3.00
2.00
1.00
0.00
1/3/2001
7/3/2001
1/3/2002
7/3/2002
1/3/2003
7/3/2003
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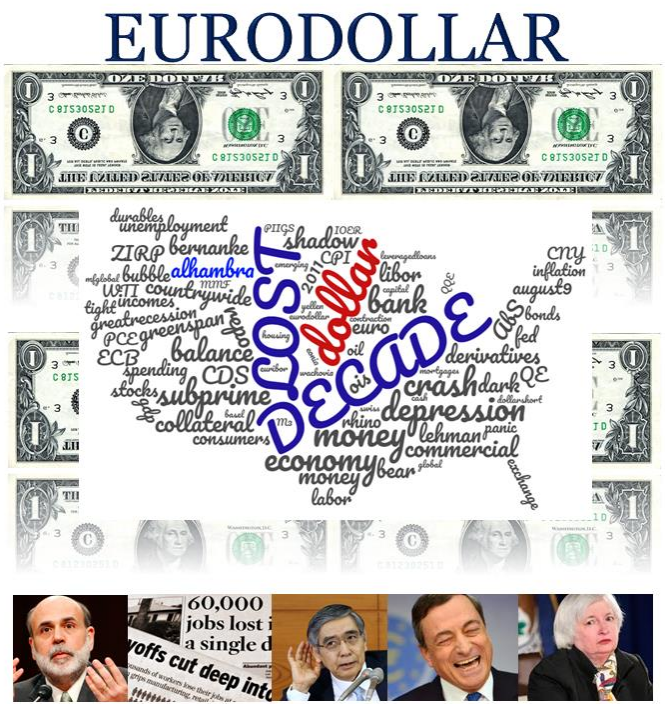
1/3/2010
7/3/2010

Into The Shadows



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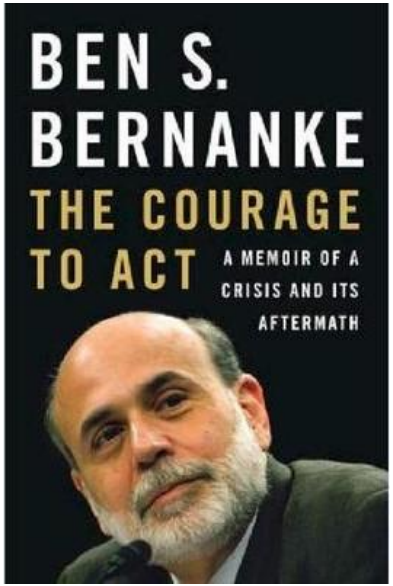
Into The Shadows



Memoir, or post-crisis image rehabilitation, particularly in the monetary arena?

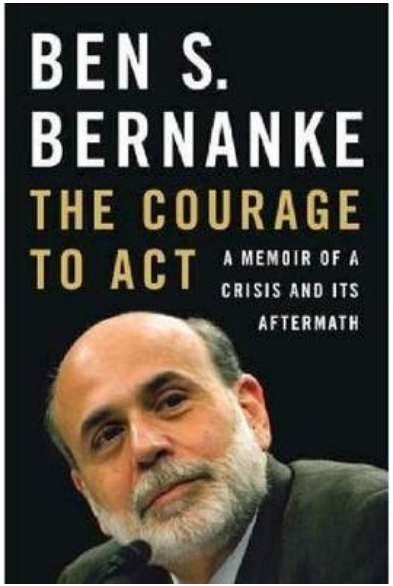
> At this juncture, however, the impact on the broader economy and financial markets of the problems in the subprime market seems likely to be contained.

Chairman Ben Bernanke
Testimony to US Congress
March 28, 2007

> I and others were mistaken early on in saying that the subprime crisis would be contained. The causal relationship between the housing problem and the broad financial system was very complex and difficult to predict.

Chairman Ben Bernanke
New Yorker Magazine Interview
December 1, 2008 Edition

Into The Shadows

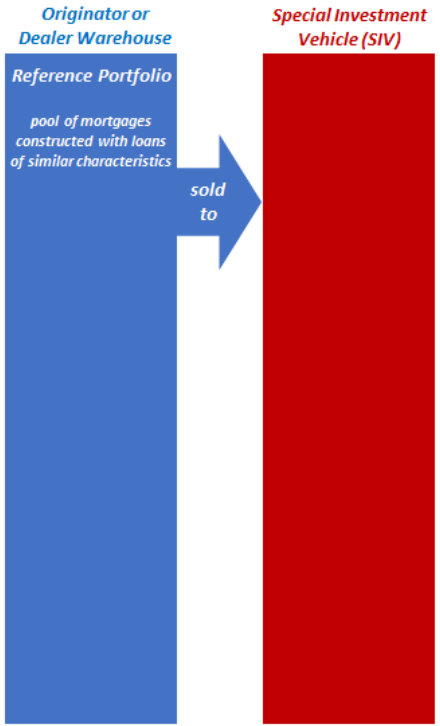


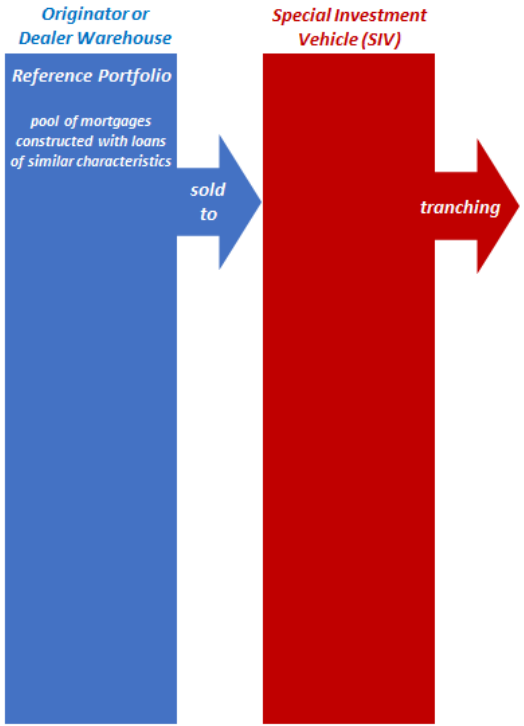
Memoir, or post-crisis image rehabilitation, particularly in the monetary arena?

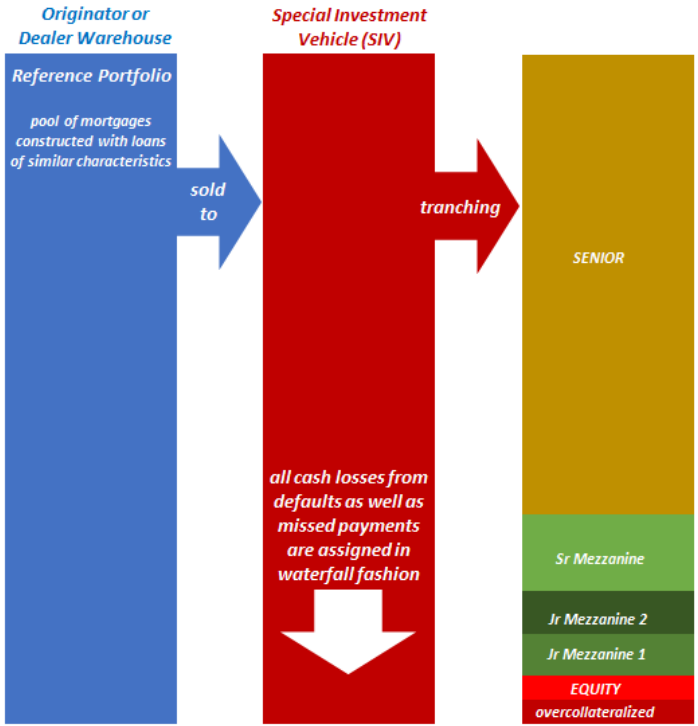
> "The principal conclusion of this paper has been stated several times. In brief, it is that flexible inflation-targeting provides an effective, unified framework for achieving both general macroeconomic stability and financial stability. Given a strong commitment to stabilizing expected inflation, it is neither necessary nor desirable for monetary policy to respond to changes in asset prices, except to the extent that they help forecast inflationary or deflationary pressures.

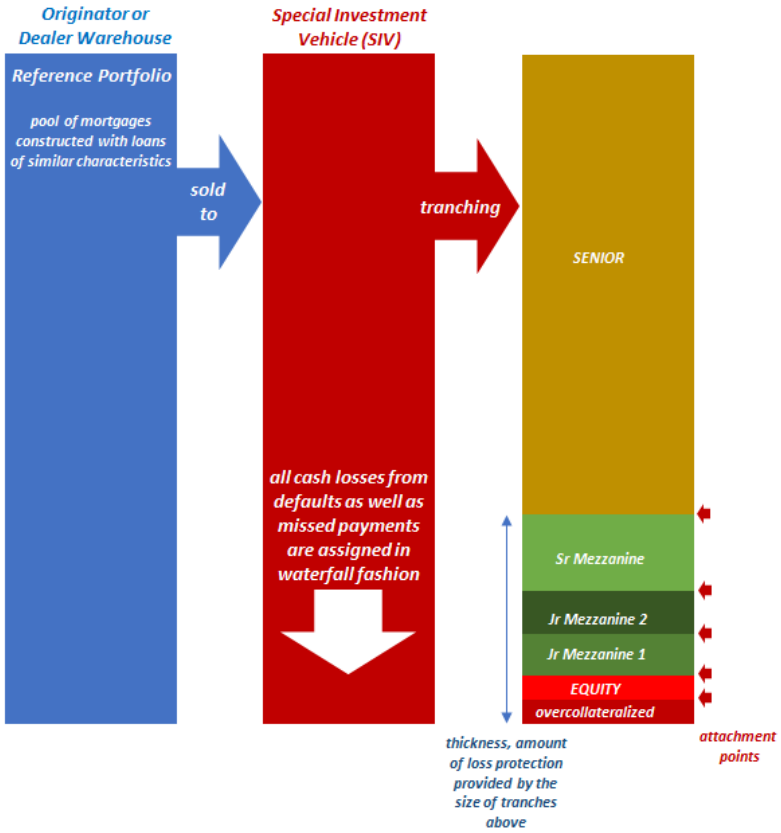
Ben Bernanke
co-author Mark Gertler
Paper presented at KC Fed Symposium (Jackson Hole)
August 26, 1999
FORUM TOPIC: NEW CHALLENGES FOR MONETARY POLICY

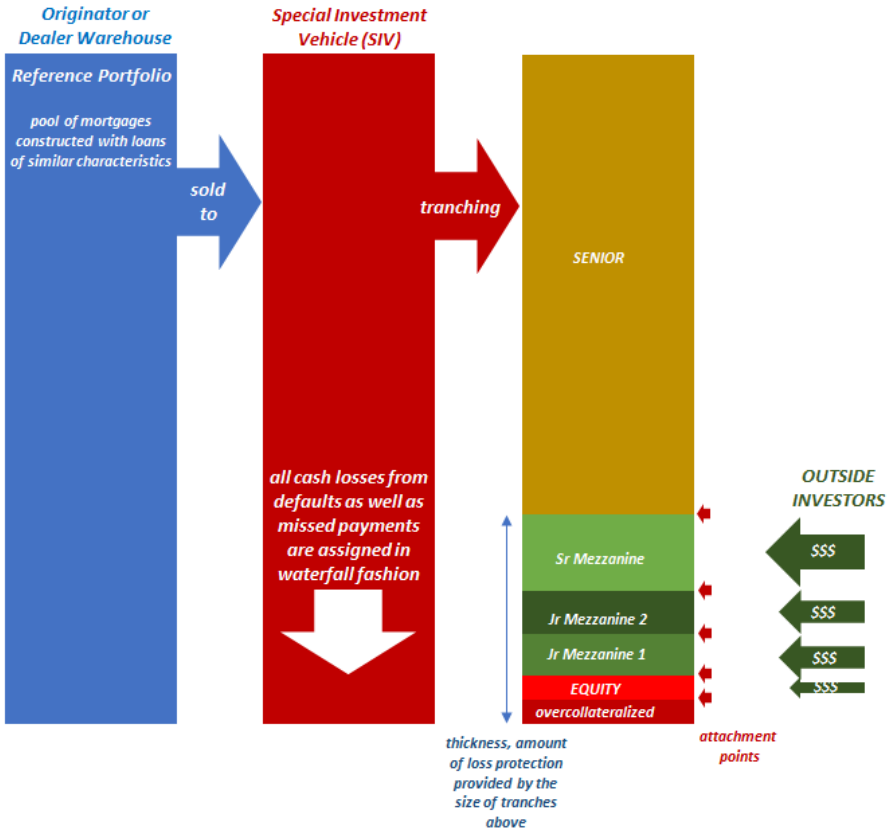

Originator or
Dealer Warehouse
Reference Portfolio
pool of mortgages
constructed with loans
of similar characteristics

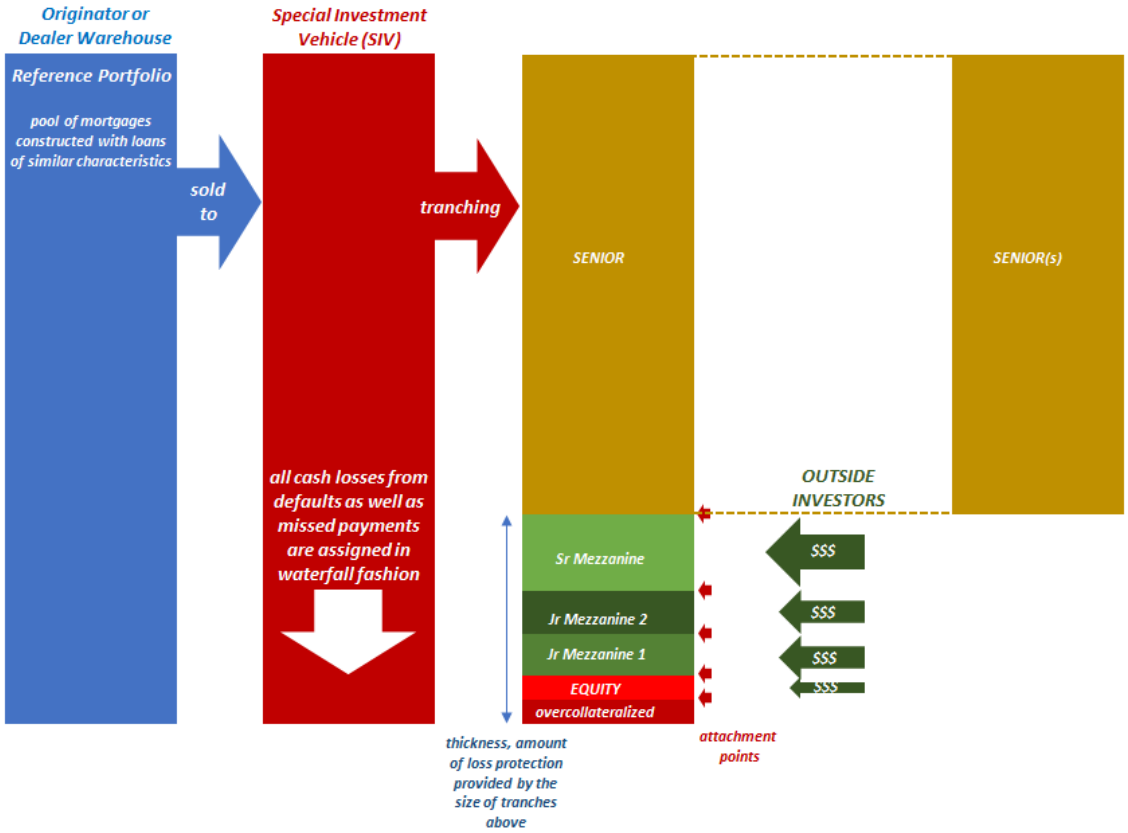

Originator or Dealer Warehouse
Special Investment Vehicle (SIV)
Reference Portfolio
pool of mortgages constructed with loans of similar characteristics
sold to


Originator or Dealer Warehouse
Special Investment Vehicle (SIV)
Reference Portfolio
pool of mortgages constructed with loans of similar characteristics
sold to
tranching


Originator or Dealer Warehouse
Special Investment Vehicle (SIV)
Reference Portfolio
pool of mortgages constructed with loans of similar characteristics
sold to
tranching
SENIOR
all cash losses from defaults as well as missed payments are assigned in waterfall fashion
Sr Mezzanine
Jr Mezzanine 2
Jr Mezzanine 1
EQUITY
overcollateralized


Originator or Dealer Warehouse
Special Investment Vehicle (SIV)
Reference Portfolio
pool of mortgages constructed with loans of similar characteristics
sold to
tranching
SENIOR
all cash losses from defaults as well as missed payments are assigned in waterfall fashion
Sr Mezzanine
Jr Mezzanine 2
Jr Mezzanine 1
EQUITY
overcollateralized
thickness, amount of loss protection provided by the size of tranches above
attachment points


Originator or Dealer Warehouse
Special Investment Vehicle (SIV)
Reference Portfolio
pool of mortgages constructed with loans of similar characteristics
sold to
tranching
SENIOR
all cash losses from defaults as well as missed payments are assigned in waterfall fashion
OUTSIDE INVESTORS
Sr Mezzanine
Jr Mezzanine 2
Jr Mezzanine 1
EQUITY
overcollateralized
$$$
$$$
$$$
$$$
thickness, amount of loss protection provided by the size of tranches above
attachment points


Originator or Dealer Warehouse
Special Investment Vehicle (SIV)
Reference Portfolio
pool of mortgages constructed with loans of similar characteristics
sold to
tranching
SENIOR
SENIOR(s)
OUTSIDE INVESTORS
all cash losses from defaults as well as missed payments are assigned in waterfall fashion
Sr Mezzanine
Jr Mezzanine 2
Jr Mezzanine 1
EQUITY
overcollateralized
$$$
$$$
$$$
$$$
thickness, amount of loss protection provided by the size of tranches above
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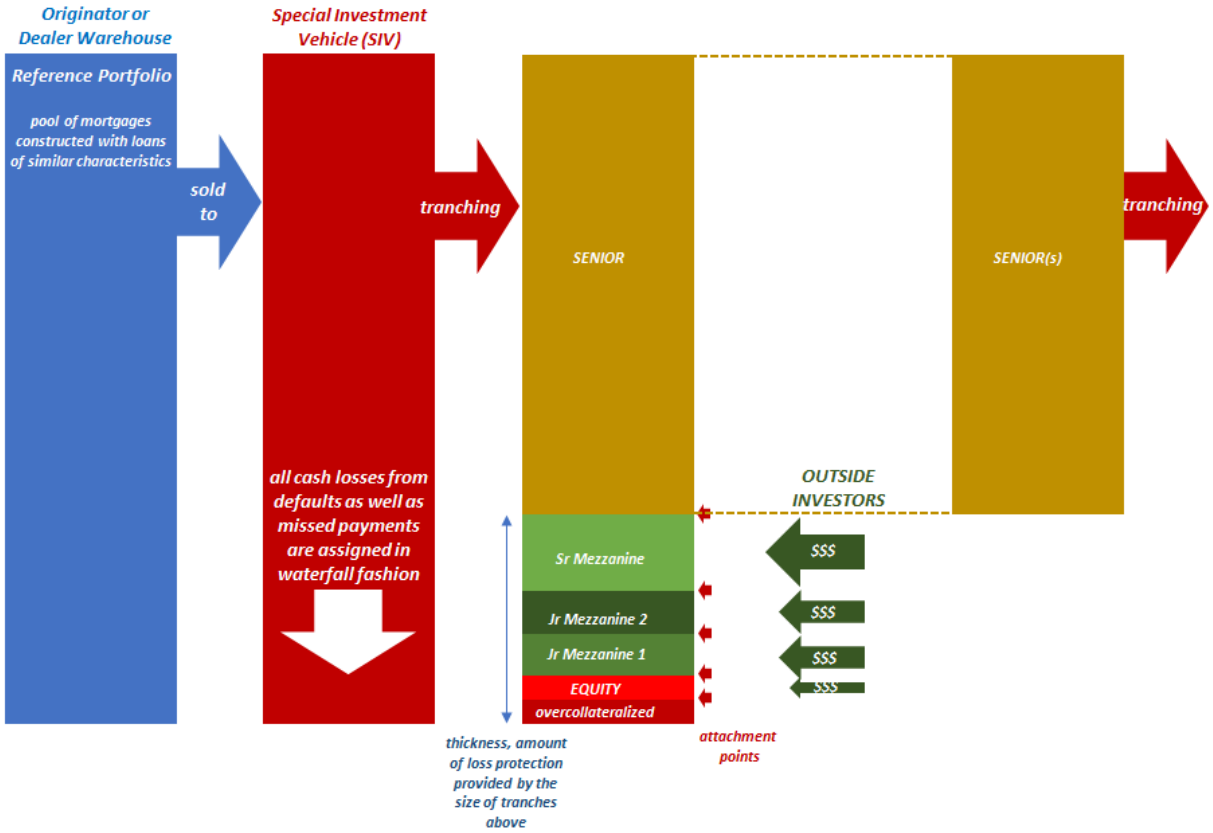
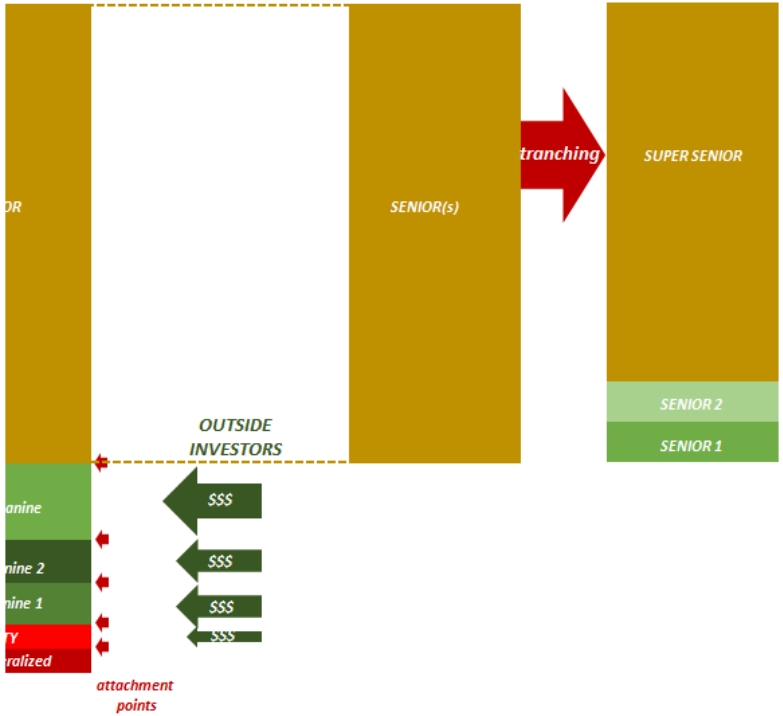
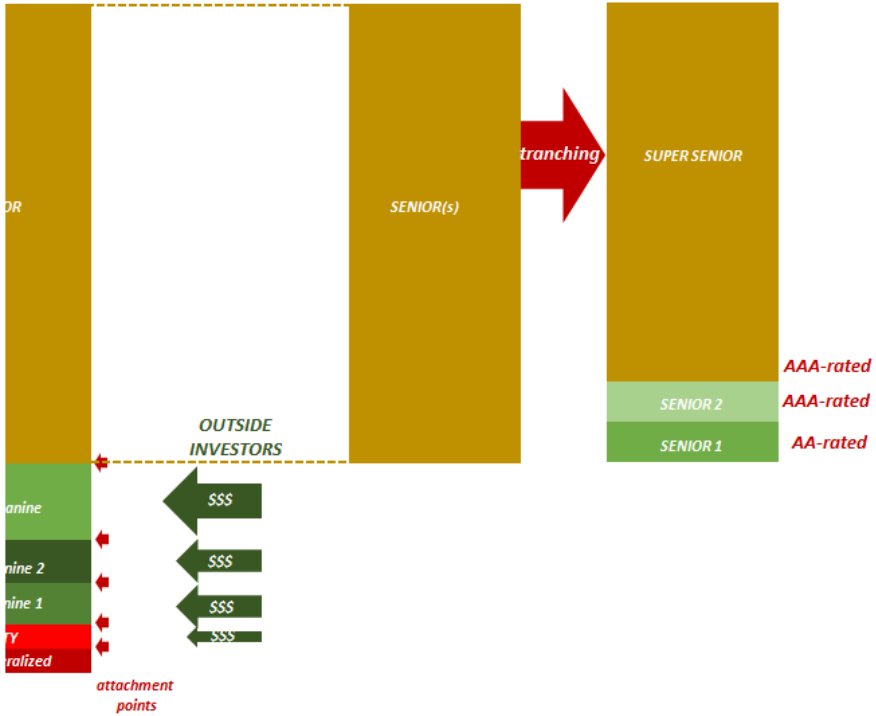
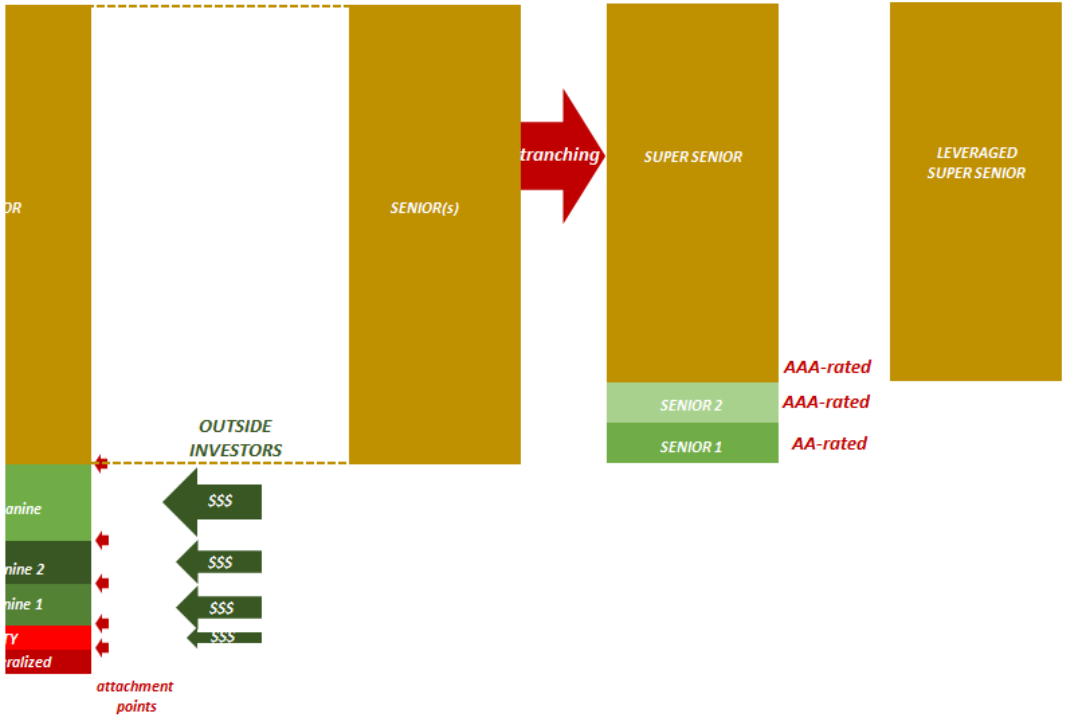
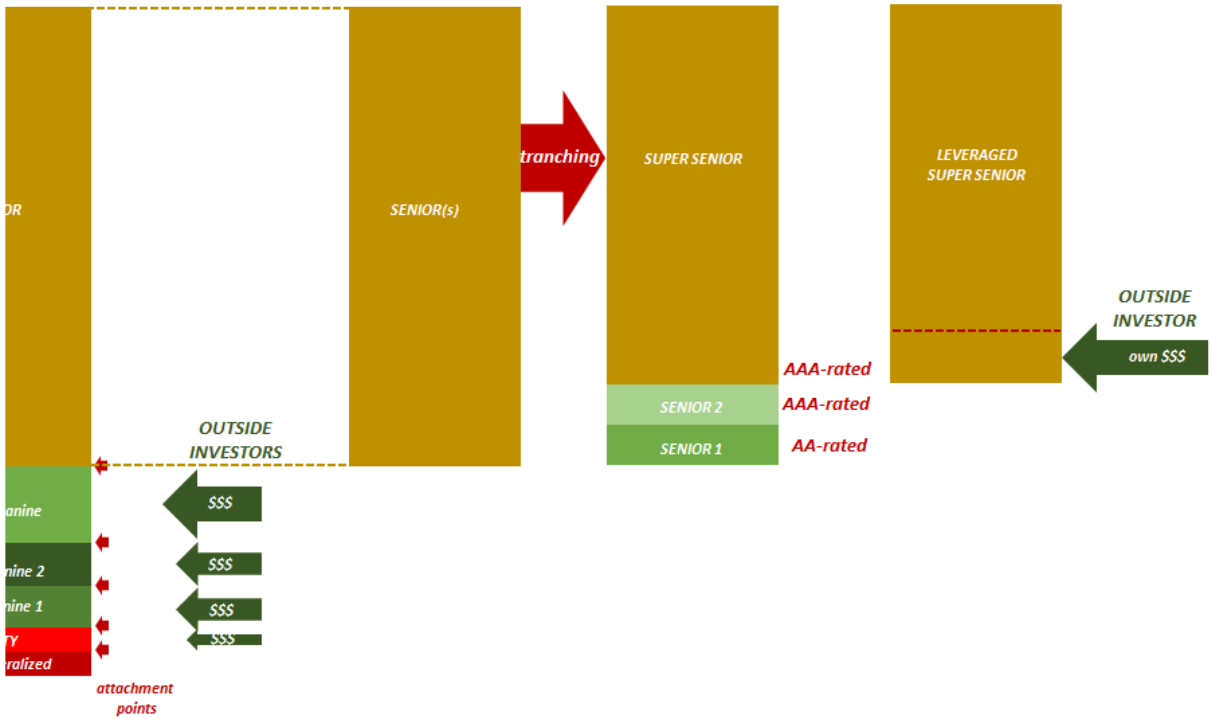
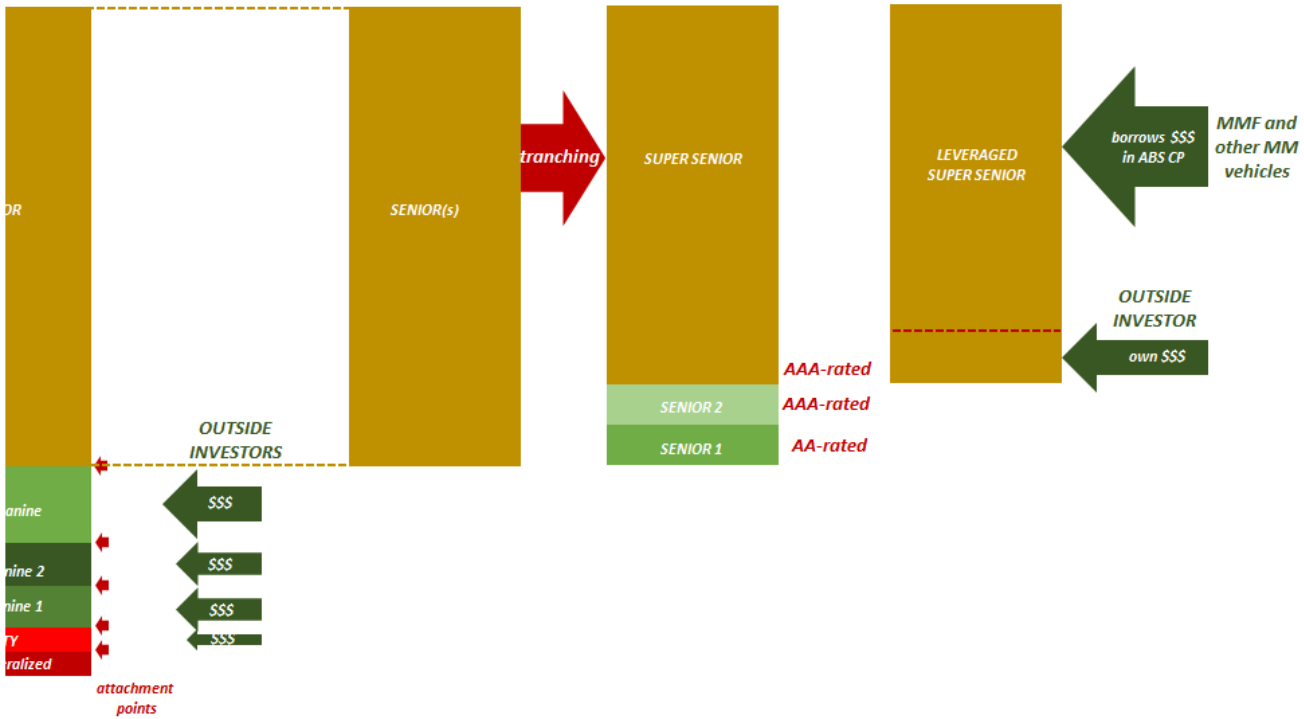

Originator or Dealer Warehouse
Special Investment Vehicle (SIV)
Reference Portfolio
pool of mortgages constructed with loans of similar characteristics
sold to
tranching
SENIOR
SENIOR(s)
tranching
all cash losses from defaults as well as missed payments are assigned in waterfall fashion
OUTSIDE INVESTORS
Sr Mezzanine
Jr Mezzanine 2
Jr Mezzanine 1
EQUITY
overcollateralized
$$$
$$$
$$$
$$$
thickness, amount of loss protection provided by the size of tranches above
attachment points

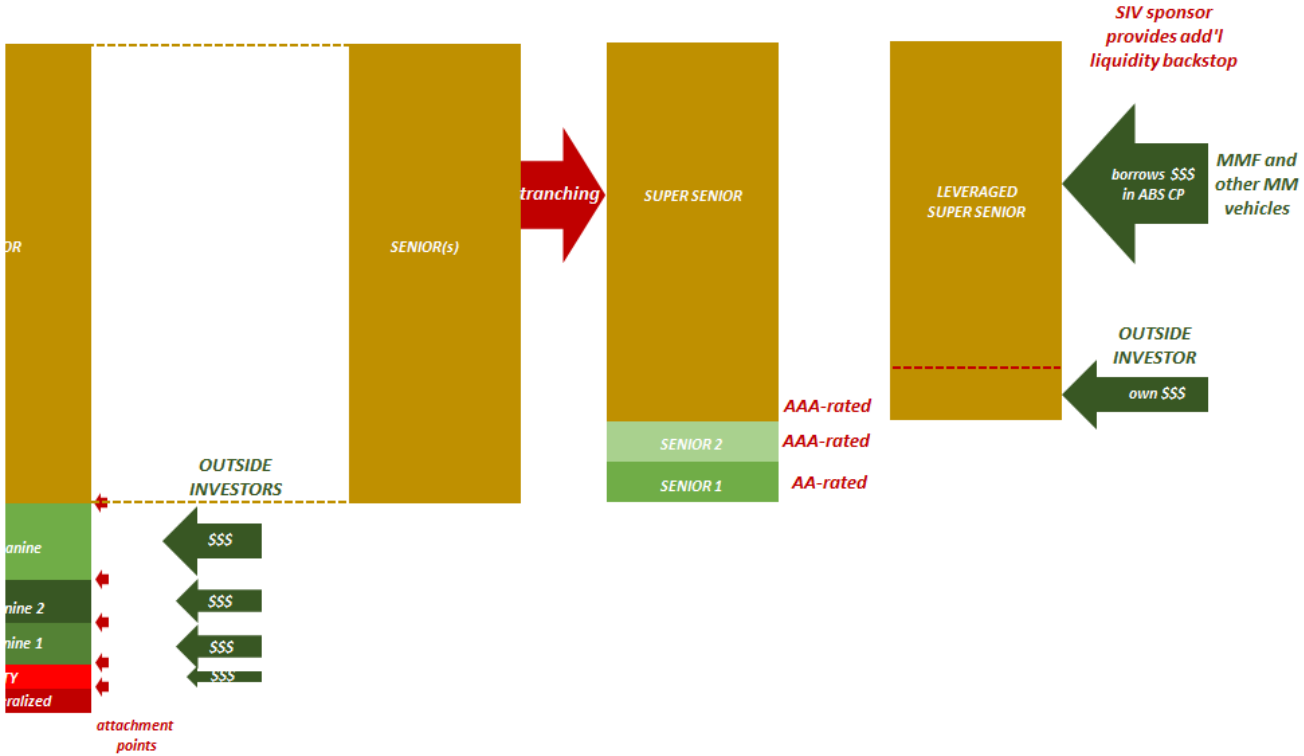

SENIOR(s)
tranching
SUPER SENIOR
SENIOR 2
SENIOR 1
OUTSIDE INVESTORS
$$$
$$$
$$$
$$$
attachment points

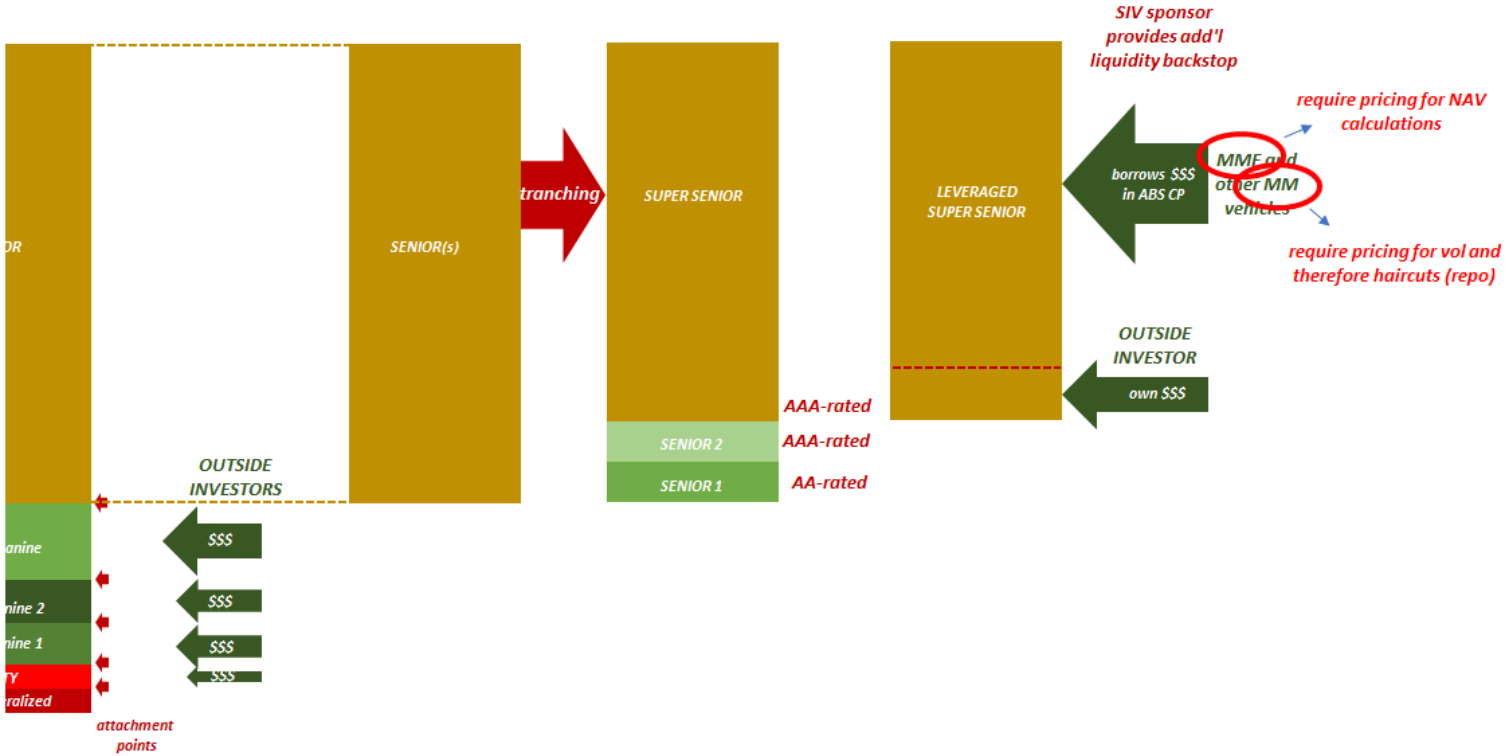

SENIOR(s)
tranching
SUPER SENIOR
AAA-rated
SENIOR 2
AAA-rated
SENIOR 1
AA-rated
OUTSIDE INVESTORS
$$$
$$$
$$$
$$$
attachment points

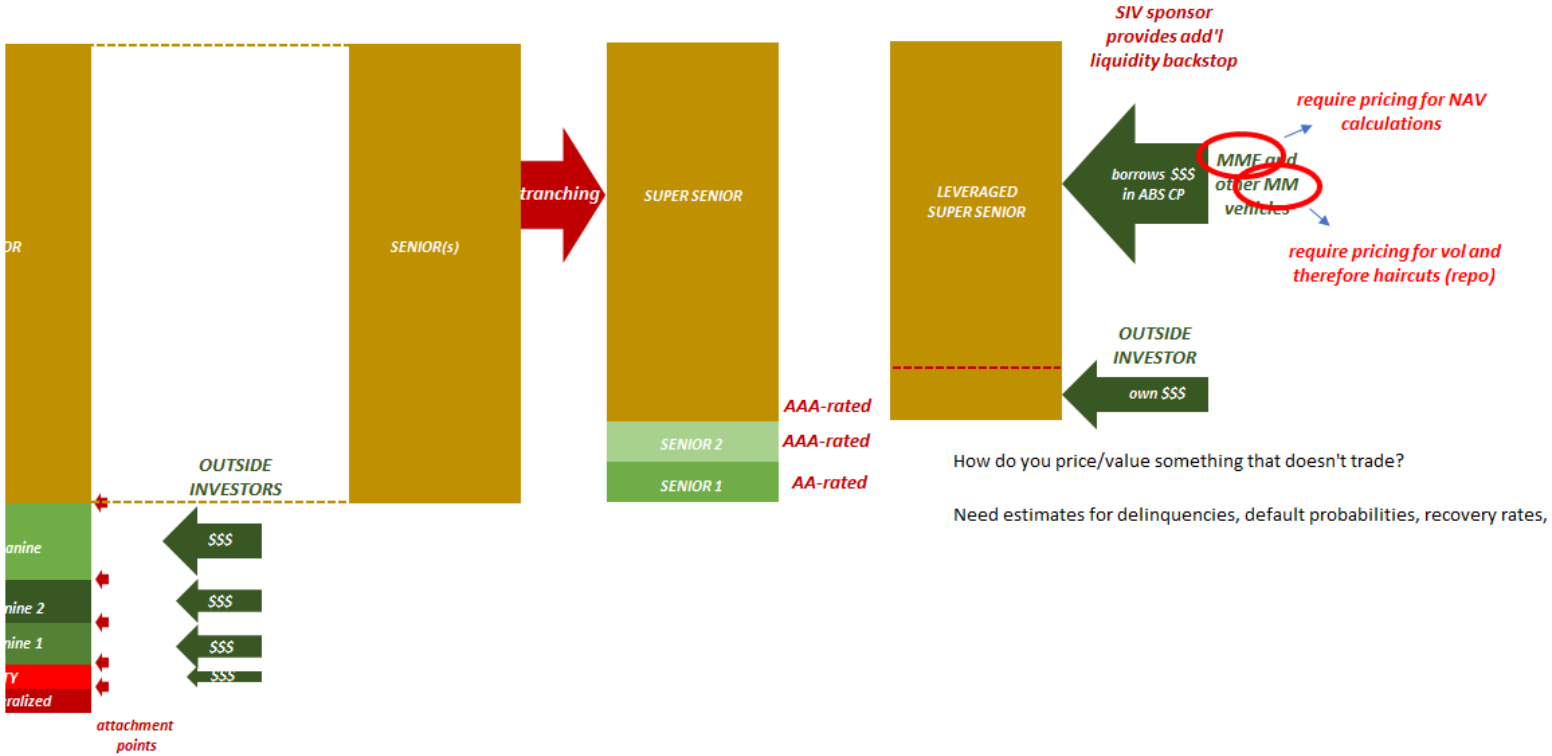

SENIOR(s)
tranching
SUPER SENIOR
LEVERAGED SUPER SENIOR
AAA-rated
SENIOR 2
AAA-rated
SENIOR 1
AA-rated
OUTSIDE INVESTORS
$$$
$$$
$$$
$$$
attachment points

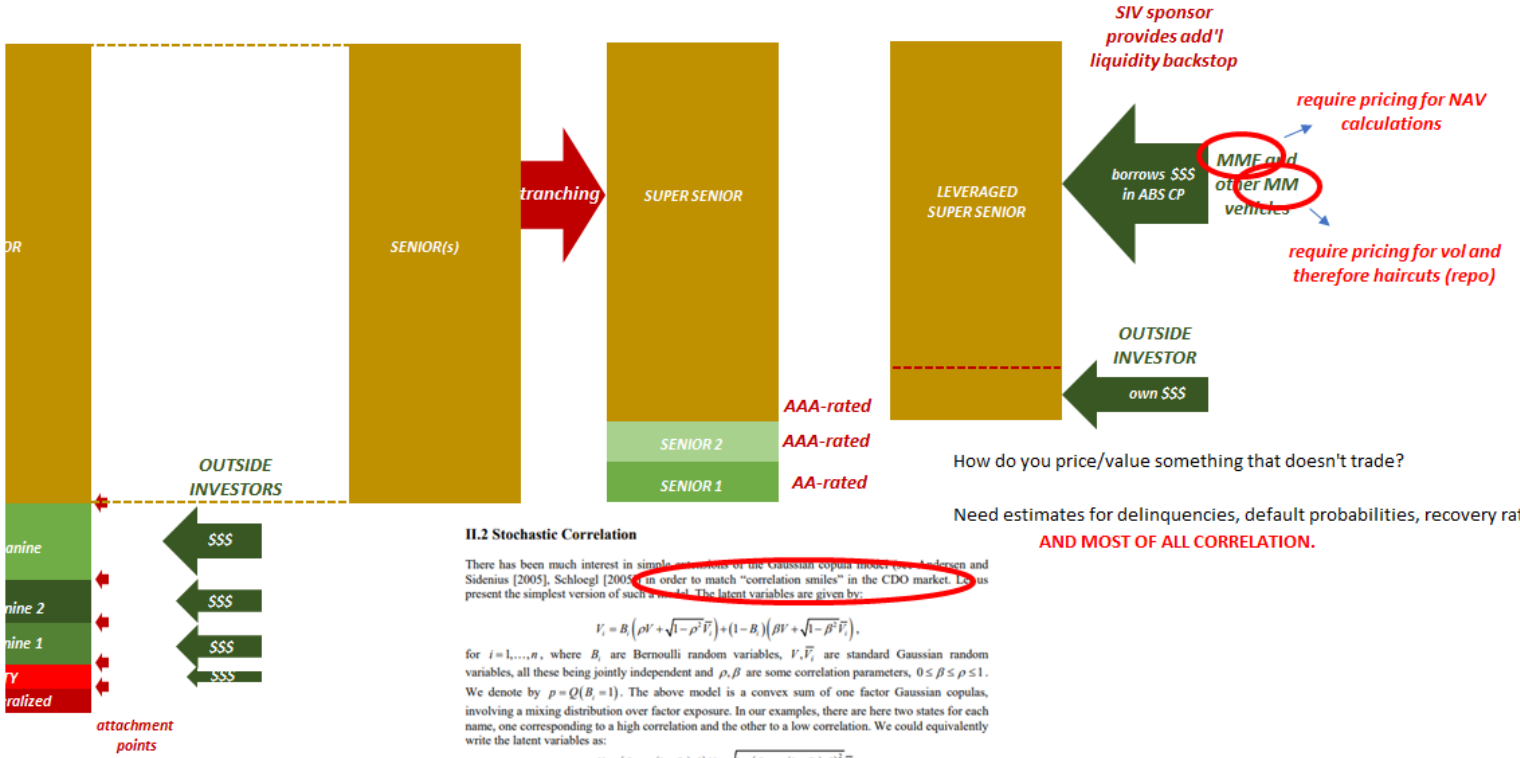

SENIOR(s)
tranching
SUPER SENIOR
LEVERAGED SUPER SENIOR
OUTSIDE INVESTOR
own $$$
AAA-rated
SENIOR 2
AAA-rated
SENIOR 1
AA-rated
OUTSIDE INVESTORS
$$$
$$$
$$$
$$$
attachment points


SENIOR(s)
tranching
SUPER SENIOR
SENIOR 2
SENIOR 1
AAA-rated
AAA-rated
AA-rated
LEVERAGED SUPER SENIOR
borrows $$$ in ABS CP
MMF and other MM vehicles
OUTSIDE INVESTOR
own $$$
OUTSIDE INVESTORS
$$$
$$$
$$$
$$$
attachment points


SIV sponsor provides add'l liquidity backstop
SENIOR(s)
tranching
SUPER SENIOR
LEVERAGED SUPER SENIOR
borrows $$$ in ABS CP
MMF and other MM vehicles
OUTSIDE INVESTOR
own $$$
AAA-rated
SENIOR 2
AAA-rated
SENIOR 1
AA-rated
OUTSIDE INVESTORS
$$$
$$$
$$$
$$$
attachment points


SIV sponsor provides add'l liquidity backstop
require pricing for NAV calculations
require pricing for vol and therefore haircuts (repo)
MMF and other MM vehicles
borrows $$$ in ABS CP
LEVERAGED SUPER SENIOR
OUTSIDE INVESTOR
own $$$
tranching
SUPER SENIOR
SENIOR(s)
AAA-rated
SENIOR 2
AAA-rated
SENIOR 1
AA-rated
OUTSIDE INVESTORS
$$$
$$$
$$$
$$$
attachment points


SIV sponsor provides add'l liquidity backstop
require pricing for NAV calculations
require pricing for vol and therefore haircuts (repo)
SENIOR(s)
tranching
SUPER SENIOR
LEVERAGED SUPER SENIOR
borrows $$$ in ABS CP
MMF and other MM vehicles
OUTSIDE INVESTOR
own $$$
AAA-rated
SENIOR 2
AAA-rated
SENIOR 1
AA-rated
OUTSIDE INVESTORS
$$$
$$$
$$$
$$$
attachment points
How do you price/value something that doesn't trade?
Need estimates for delinquencies, default probabilities, recovery rates,



How do you price/value something that doesn't trade?

Need estimates for delinquencies, default probabilities, recovery rates,
AND MOST OF ALL CORRELATION.

II.2 Stochastic Correlation

There has been much interest in simple extensions of the Gaussian copula model [see Andersen and Sidenius [2005], Schloegl [2005]] in order to match "correlation smiles" in the CDO market. Let us present the simplest version of such a model. The latent variables are given by:

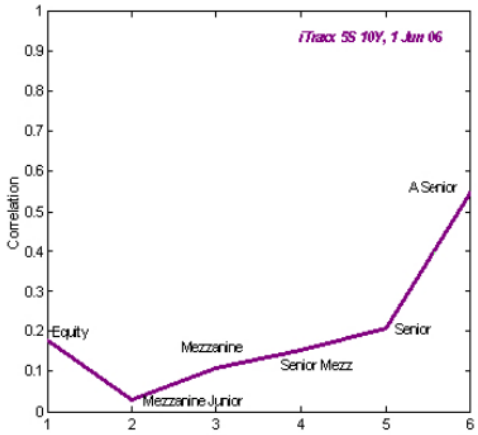
$$V_i = B_i\left(\rho V + \sqrt{1-\rho^2}\,\overline{V}_i\right) + (1-B_i)\left(\beta V + \sqrt{1-\beta^2}\,\overline{V}_i\right),$$

for $i = 1,\ldots,n$, where B_i are Bernoulli random variables, $V, \overline{V}_i$ are standard Gaussian random variables, all these being jointly independent and ρ, β are some correlation parameters, $0 \le \beta \le \rho \le 1$. We denote by $p = Q(B_i = 1)$. The above model is a convex sum of one factor Gaussian copulas, involving a mixing distribution over factor exposure. In our examples, there are here two states for each name, one corresponding to a high correlation and the other to a low correlation. We could equivalently write the latent variables as:

$$V_i = \left(B_i\rho + (1-B_i)\beta\right)V + \sqrt{1-\left(B_i\rho + (1-B_i)\beta\right)^2}\,\overline{V}_i.$$

This makes clear that we deal with a stochastic correlation Gaussian model. We have a factor exposure ρ with probability p and β with correlation $1-p$. It can be easily checked that the marginal distributions of the V_i's are Gaussian. As above, we define the default dates as $\tau_i = F_i^{-1}(\Phi(V_i))$ for $i = 1,\ldots,n$.

Into The Shadows

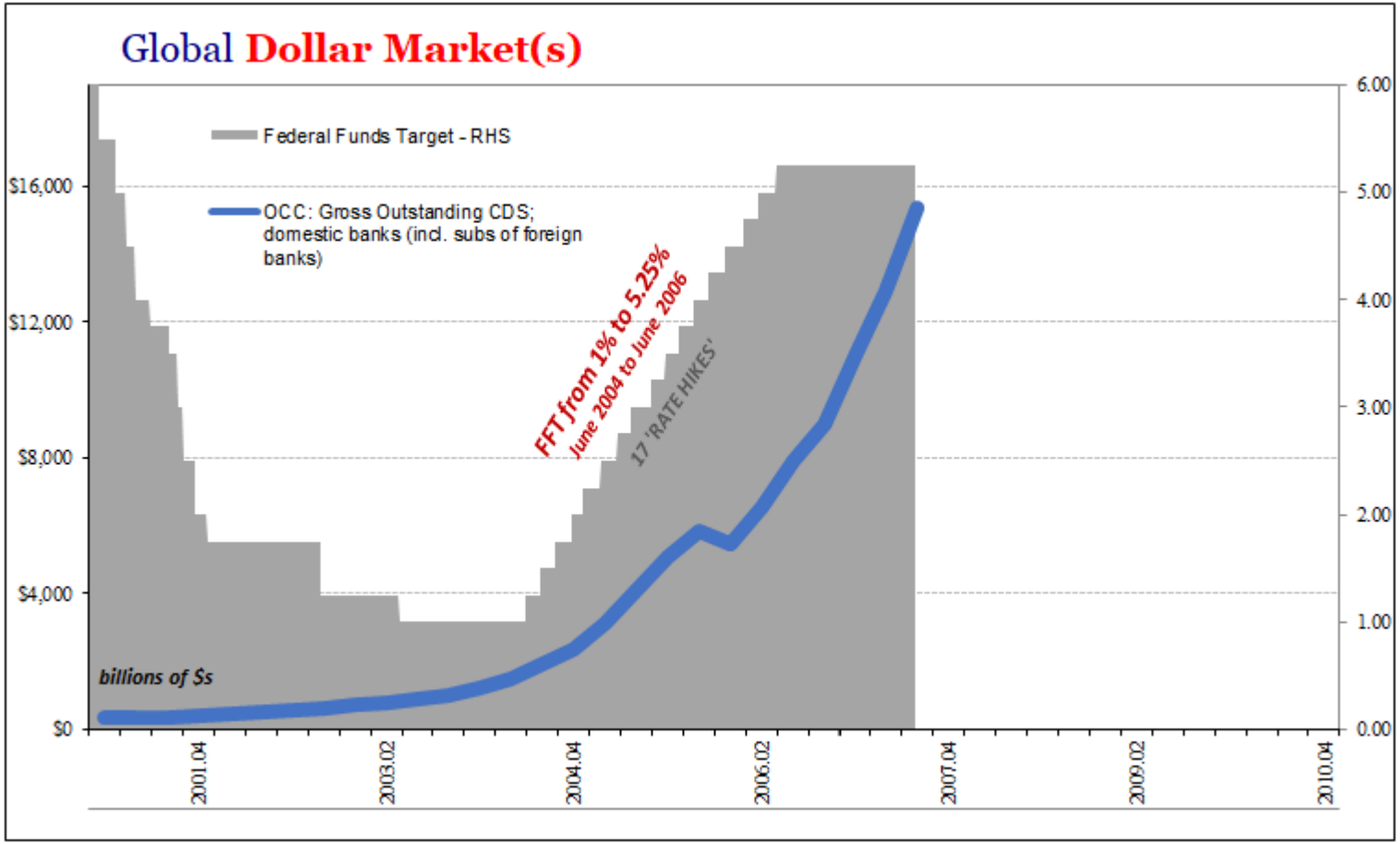


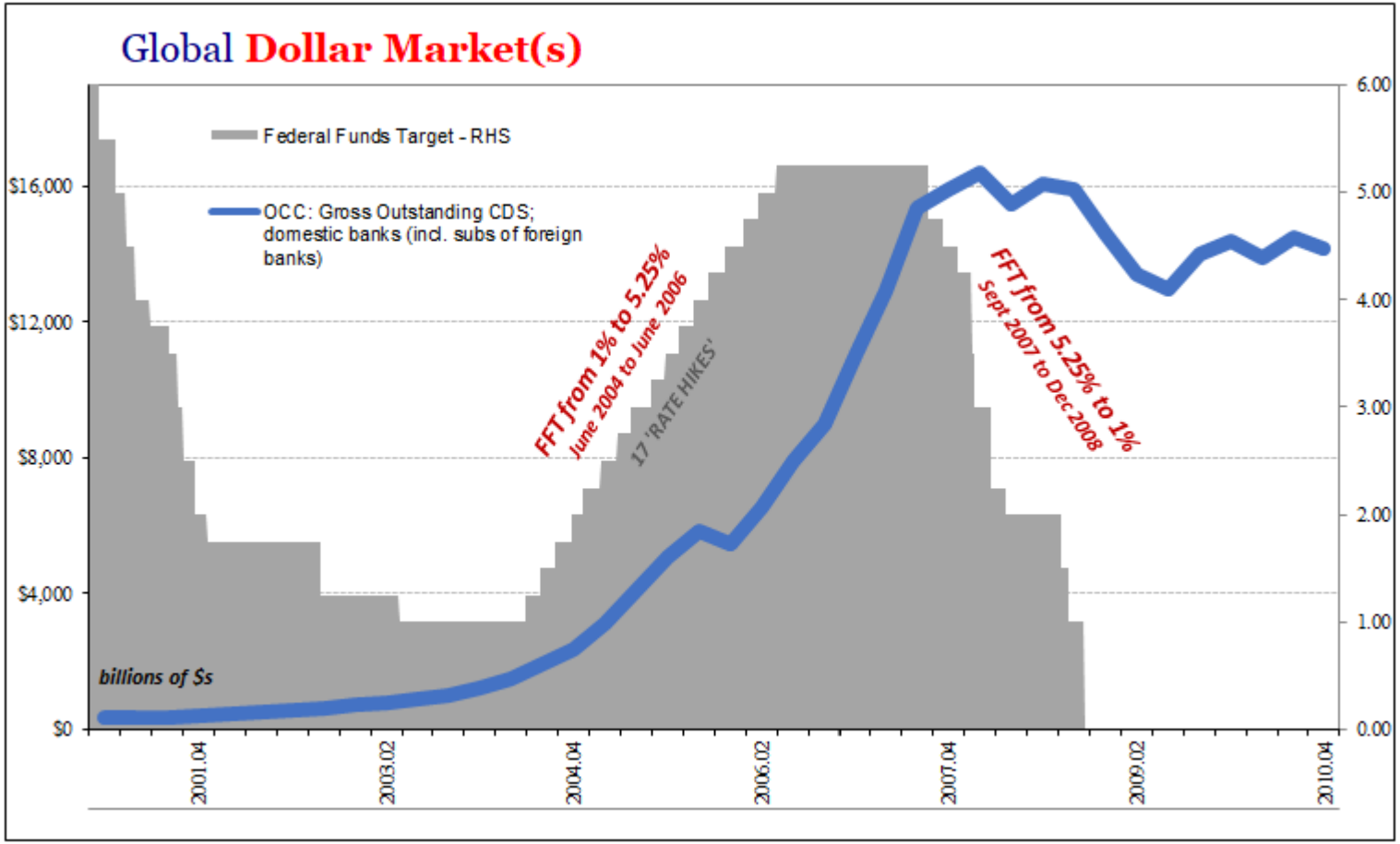
$$C^{\mathrm{Gau}}(u,z) = \Phi_{\rho_{\mathrm{Gau}}}(\Phi^{-1}(u), \Phi^{-1}(z))$$
$$= \int_{-\infty}^{\Phi^{-1}(u)} \int_{-\infty}^{\Phi^{-1}(z)} \frac{1}{2\pi\sqrt{1-\rho_{\mathrm{Gau}}}}$$
$$\times \exp\left\{\frac{-\left(x^2 - 2\rho_{\mathrm{Gau}}xy + y^2\right)}{2\left(1-\rho_{\mathrm{Gau}}^2\right)}\right\} \mathrm{d}x\,\mathrm{d}y \qquad (1)$$

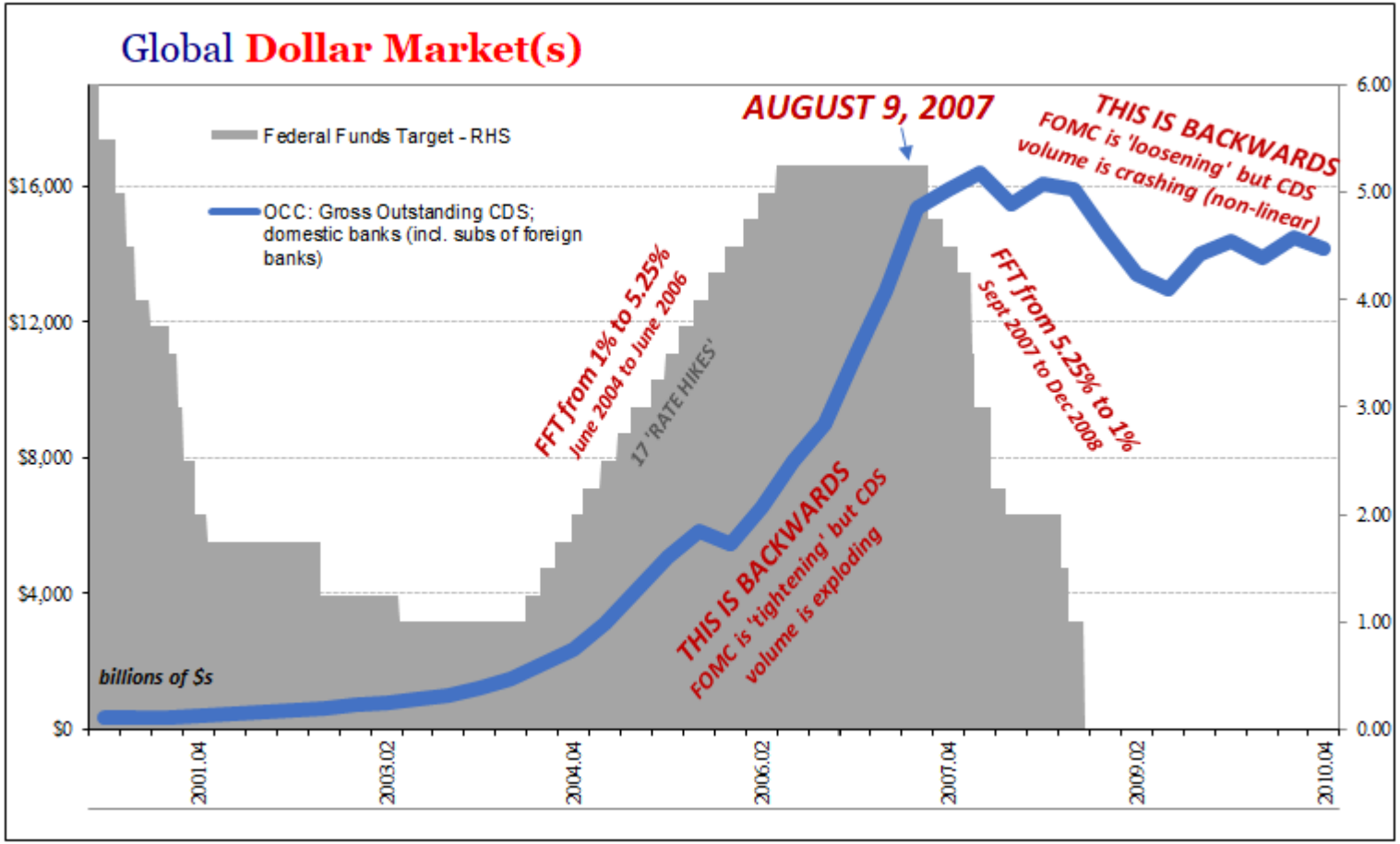
"Credit default swaps through the Gaussian copula had been used since 2000 to obtain (meaning infer from market prices) correlation, which had meant up to that point mass production of even subprime MBS. The idea of senior tranches, including super senior, was overcollateralization; a thickness of protection where waterfall losses should never be able to wipe out all the mezzanines and equity pieces above. Yet, it was the senior tranches that were throughout of the greatest concern.

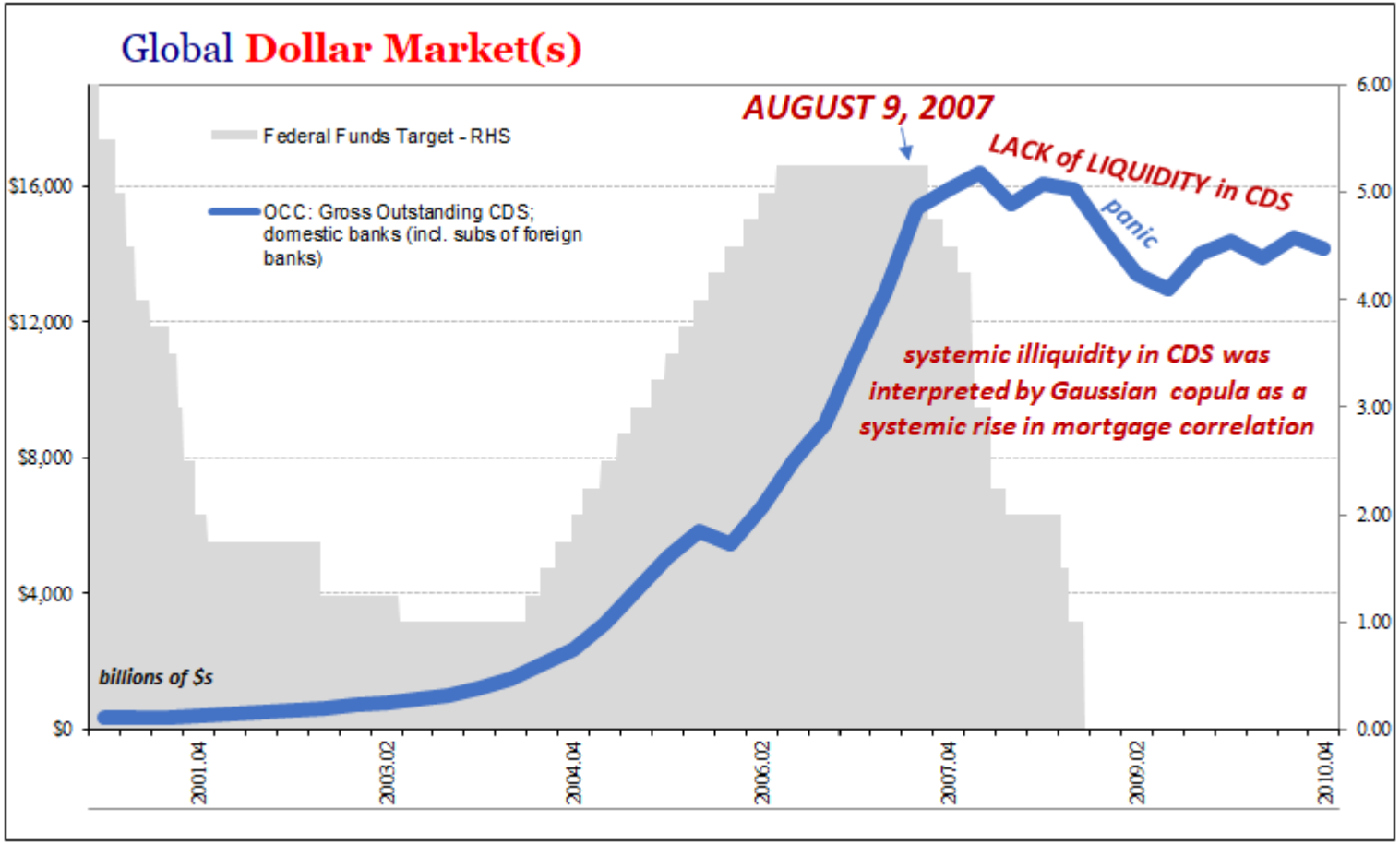
This structure, however, didn't matter to correlation, or **implied correlation**. CDO's were known to exhibit a skew, or **correlation "smile."** This irregularity was how **pricing at the ends**, **the equity as well as the senior or any super seniors**, would almost always **imply greater correlation** than in the middle mezzanines. In other words, the market was pricing each piece differently, and the Gaussian copula meant to extract correlation from those prices was giving (often drastically) different correlations for what were parts of the same security.

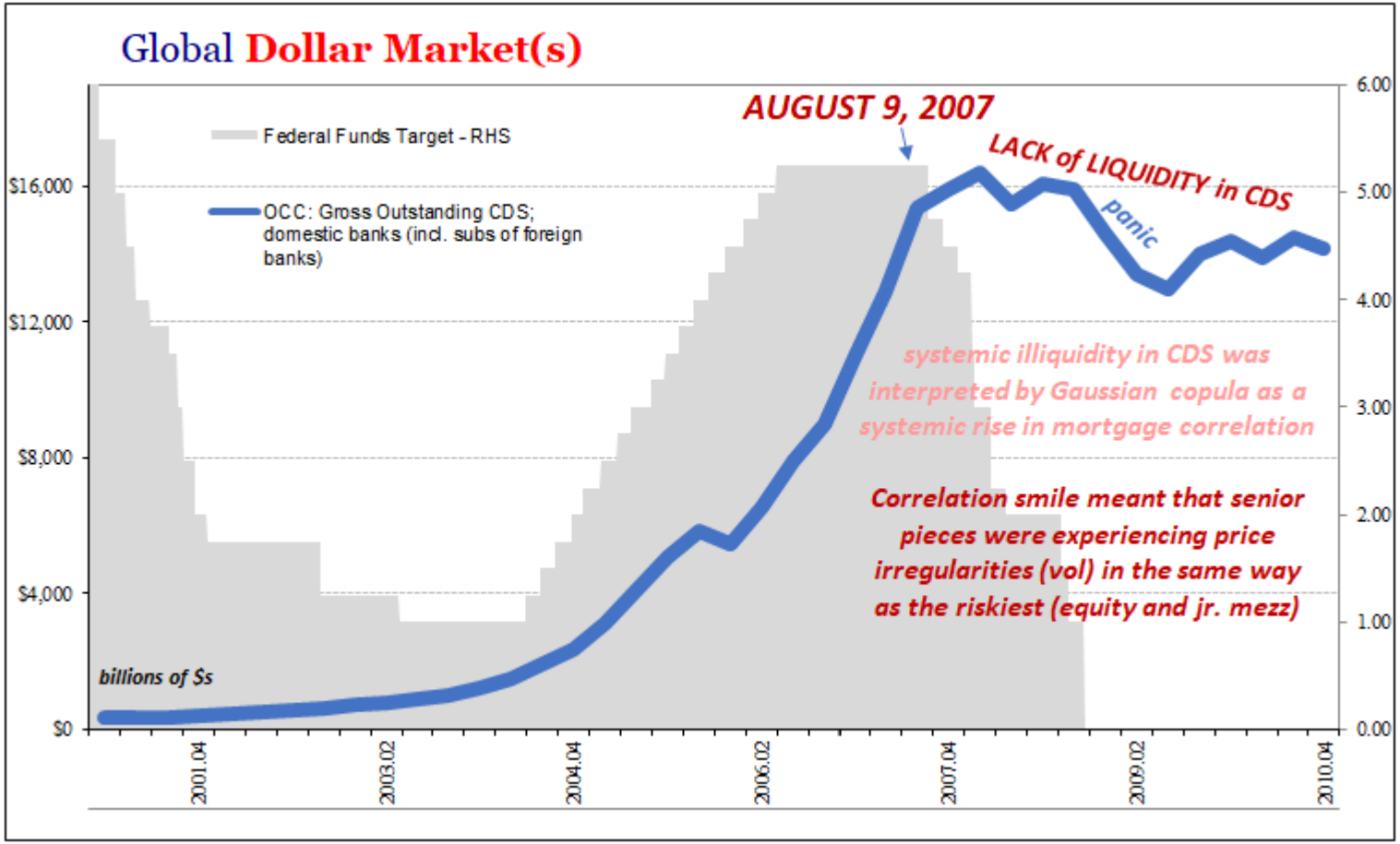
Alhambra Research
A Decade of Fallacy
July 18, 2017


Global Dollar Market(s)
Federal Funds Target - RHS
OCC: Gross Outstanding CDS; domestic banks (incl. subs of foreign banks)
FFT from 1% to 5.25%
June 2004 to June 2006
17 'RATE HIKES'
billions of $s
$16,000
$12,000
$8,000
$4,000
$0
6.00
5.00
4.00
3.00
2.00
1.00
0.00
2001.04
2003.02
2004.04
2006.02
2007.04
2009.02
2010.04


Global Dollar Market(s)
Federal Funds Target - RHS
OCC: Gross Outstanding CDS; domestic banks (incl. subs of foreign banks)
FFT from 1% to 5.25%
June 2004 to June 2006
17 'RATE HIKES'
FFT from 5.25% to 1%
Sept 2007 to Dec 2008
billions of $s
$16,000
$12,000
$8,000
$4,000
$0
6.00
5.00
4.00
3.00
2.00
1.00
0.00
2001.04
2003.02
2004.04
2006.02
2007.04
2009.02
2010.04


Global Dollar Market(s)
Federal Funds Target - RHS
OCC: Gross Outstanding CDS; domestic banks (incl. subs of foreign banks)
AUGUST 9, 2007
THIS IS BACKWARDS
FOMC is 'loosening' but CDS volume is crashing (non-linear)
FFT from 1% to 5.25%
June 2004 to June 2006
17 'RATE HIKES'
FFT from 5.25% to 1%
Sept 2007 to Dec 2008
THIS IS BACKWARDS
FOMC is 'tightening' but CDS volume is exploding
billions of $s
$16,000
$12,000
$8,000
$4,000
$0
6.00
5.00
4.00
3.00
2.00
1.00
0.00
2001.04
2003.02
2004.04
2006.02
2007.04
2009.02
2010.04


Global Dollar Market(s)
AUGUST 9, 2007
LACK of LIQUIDITY in CDS
panic
Federal Funds Target - RHS
OCC: Gross Outstanding CDS; domestic banks (incl. subs of foreign banks)
systemic illiquidity in CDS was interpreted by Gaussian copula as a systemic rise in mortgage correlation
billions of $s
$16,000
$12,000
$8,000
$4,000
$0
6.00
5.00
4.00
3.00
2.00
1.00
0.00
2001.04
2003.02
2004.04
2006.02
2007.04
2009.02
2010.04


Global Dollar Market(s)
AUGUST 9, 2007
LACK of LIQUIDITY in CDS
panic
Federal Funds Target - RHS
OCC: Gross Outstanding CDS; domestic banks (incl. subs of foreign banks)
systemic illiquidity in CDS was interpreted by Gaussian copula as a systemic rise in mortgage correlation
Correlation smile meant that senior pieces were experiencing price irregularities (vol) in the same way as the riskiest (equity and jr. mezz)
billions of $s
$16,000
$12,000
$8,000
$4,000
$0
6.00
5.00
4.00
3.00
2.00
1.00
0.00
2001.04
2003.02
2004.04
2006.02
2007.04
2009.02
2010.04

August 9, 2007

Reuters News Release, 2:44am ET:

PARIS (Reuters) - France's biggest listed bank, BNP Paribas, froze 1.6 billion euros ($2.2 billion) worth of funds on Thursday, citing the U.S. subprime mortgage sector woes that have rattled financial markets worldwide.

The complete evaporation of liquidity in certain market segments of the U.S. securitization market has made it impossible to value certain assets fairly, regardless of their quality or credit rating…BNP Paribas Investment Partners has decided to temporarily suspend the calculation of the net asset value as well as subscriptions/redemptions, in strict compliance with regulations, for these funds.

BNP Paribas Statement

August 9, 2007

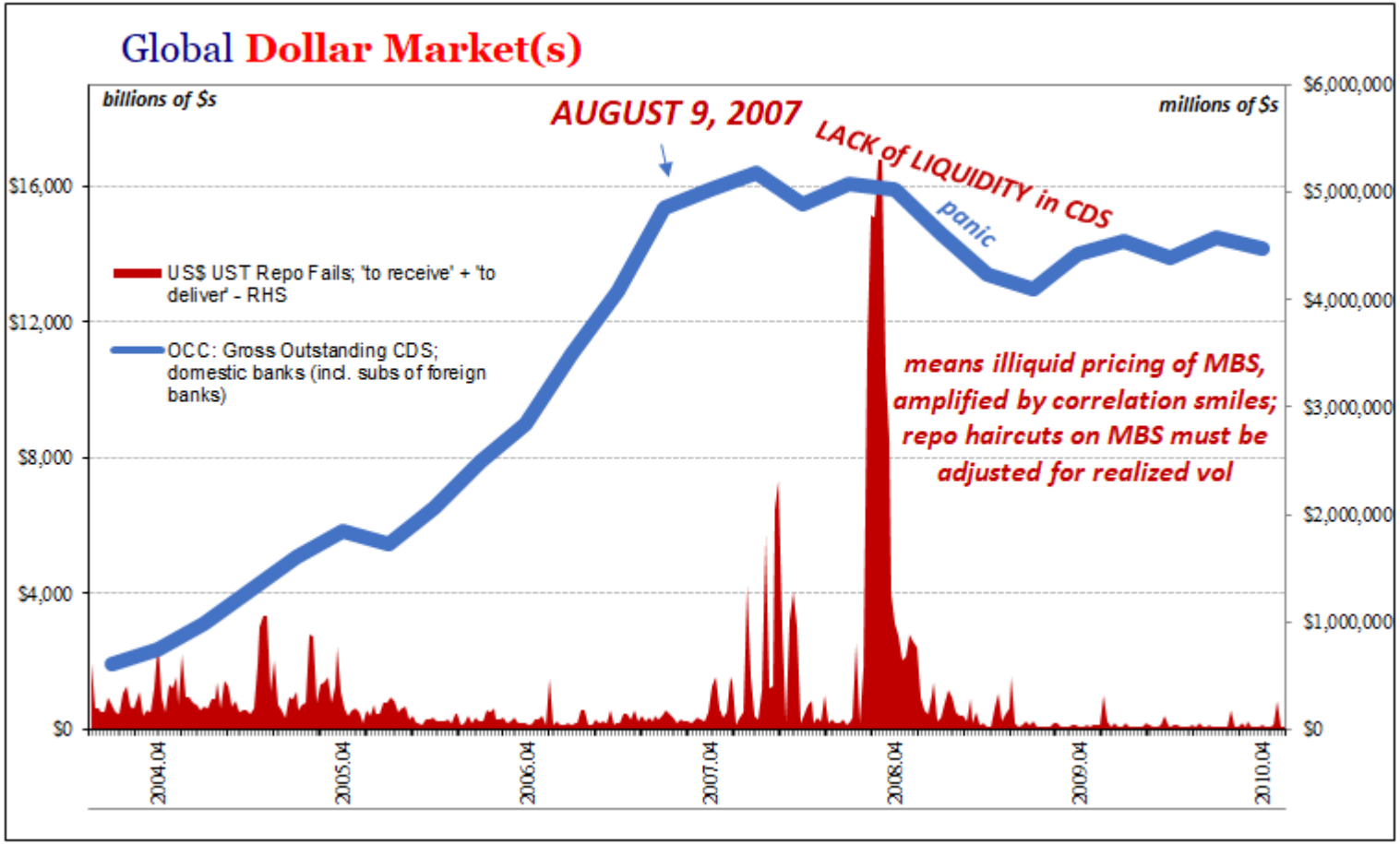
Reuters News Release, 2:44am ET:

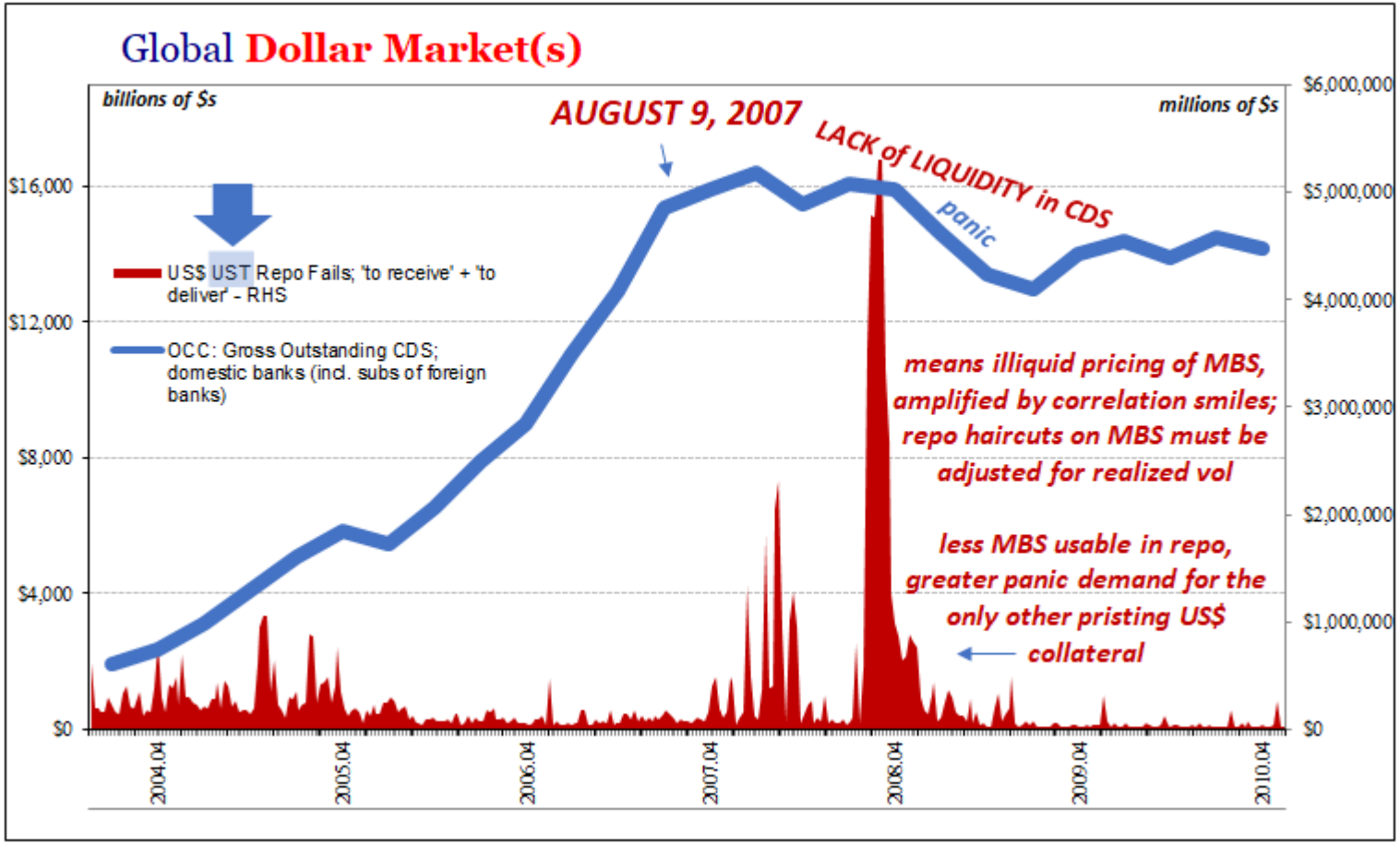
The chief executive of French insurer AXA said on Thursday that there was no systemic crisis at the moment while the finance chief of Germany's Commerzbank said the problems in the U.S. subprime market were not a "major issue".

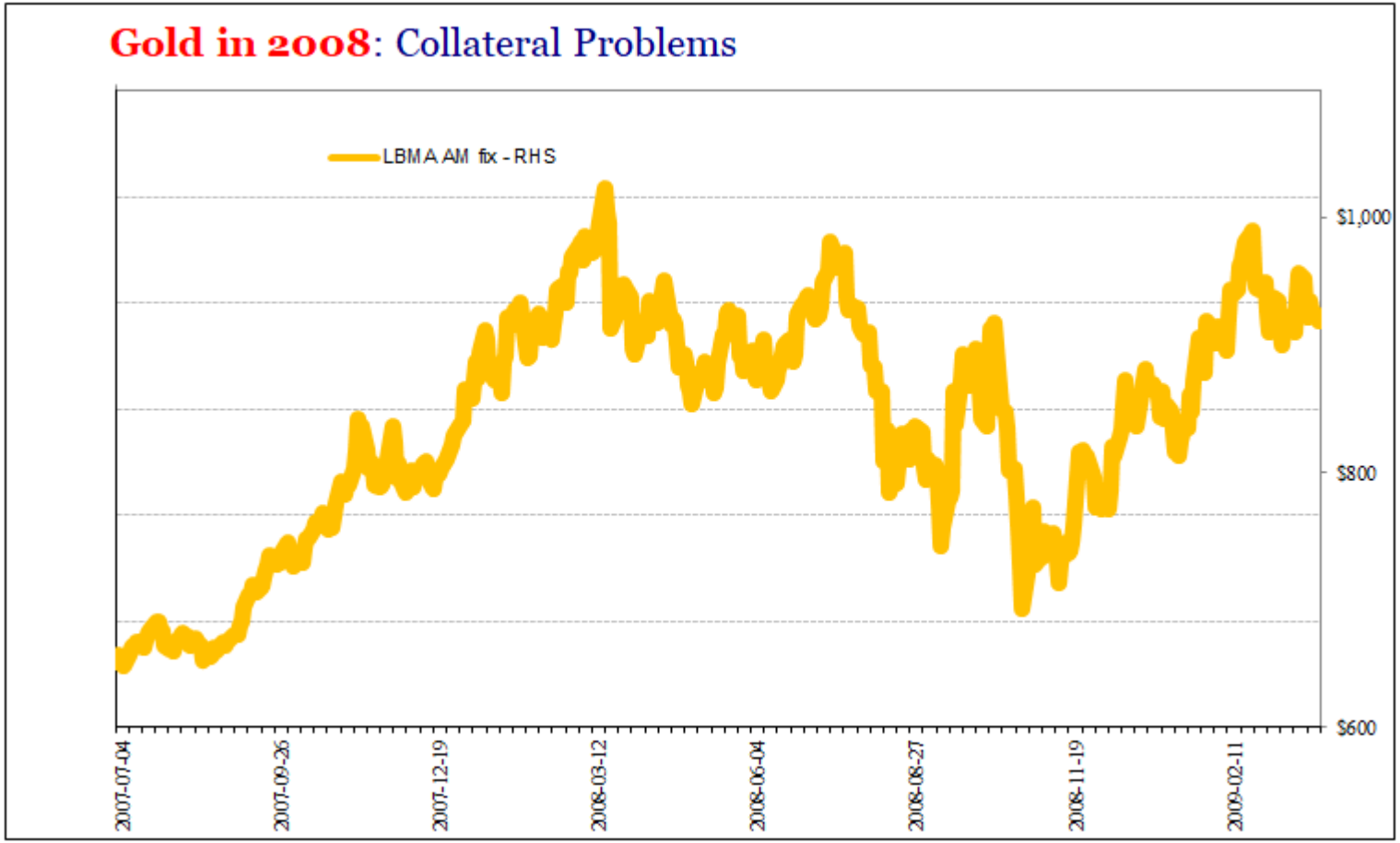
August 9, 2007

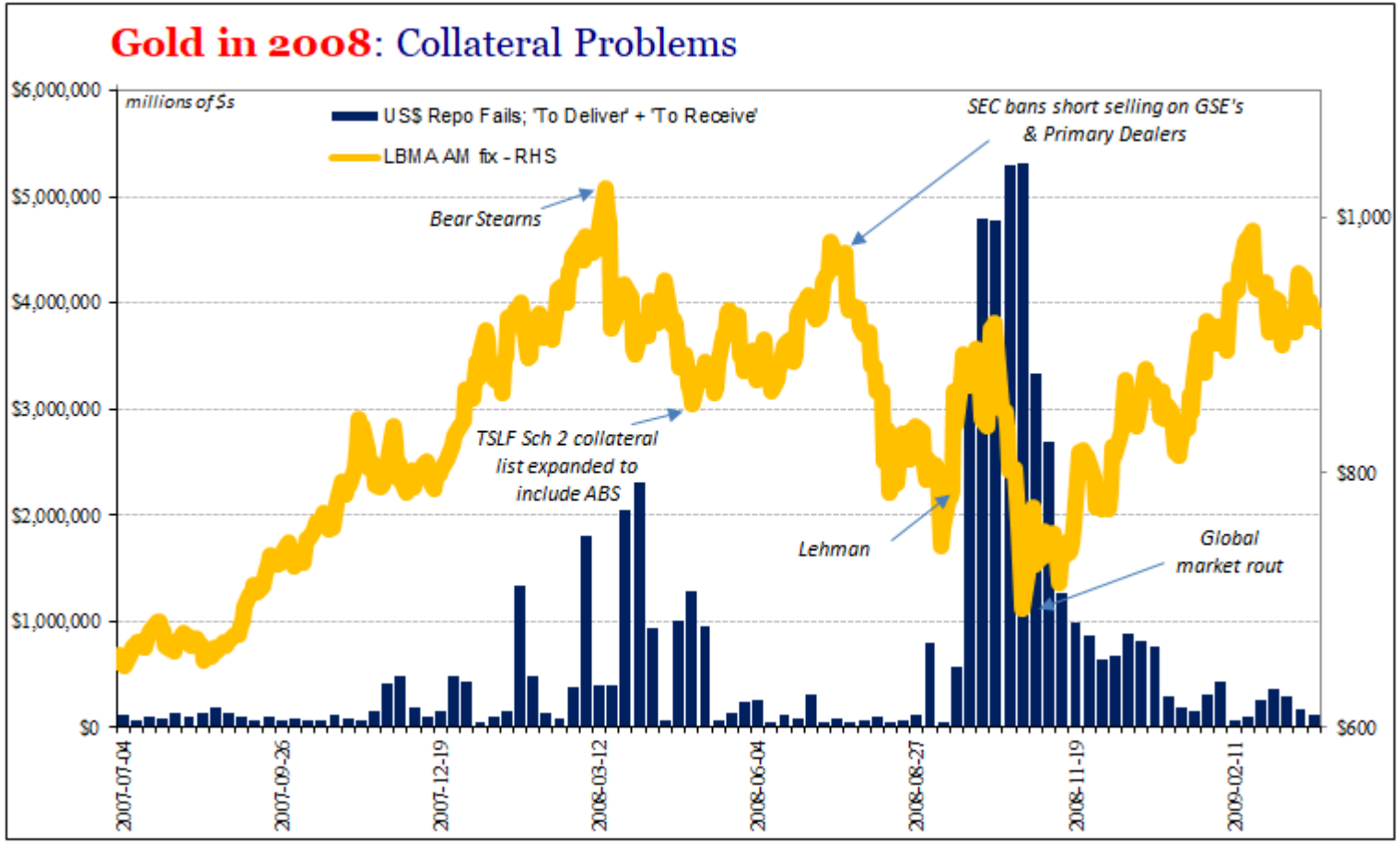
> From the outside, then, it is difficult to appreciate the role they played on August 9 in starting up what has been a total systemic break. The real clue comes to us not from "ABS" but references to Eonia and Euribor. Those were the benchmark interest rates used to compare performance. And they were money market rates in Europe, meaning that these [BNP] were *money market funds* rather than hedge funds.
>
> BNP's MMF's do more to express the utterly complicated (and often contradictory) nature of the mature eurodollar system in comprehensive fashion than perhaps anything else. **These were European money market funds domiciled in France and Liechtenstein sponsored by a French bank invested primarily in US$ ABS to beat *euro* money market rates**. What matters about geography here?

Alhambra Research
August 9, 2017


Global Dollar Market(s)
billions of $s
millions of $s
AUGUST 9, 2007
LACK of LIQUIDITY in CDS
panic
US$ UST Repo Fails; 'to receive' + 'to deliver' - RHS
OCC: Gross Outstanding CDS; domestic banks (incl. subs of foreign banks)
means illiquid pricing of MBS, amplified by correlation smiles; repo haircuts on MBS must be adjusted for realized vol
$16,000
$12,000
$8,000
$4,000
$0
$6,000,000
$5,000,000
$4,000,000
$3,000,000
$2,000,000
$1,000,000
$0
2004.04
2005.04
2006.04
2007.04
2008.04
2009.04
2010.04


Global Dollar Market(s)
billions of $s
millions of $s
AUGUST 9, 2007
LACK of LIQUIDITY in CDS
panic
US$ UST Repo Fails; 'to receive' + 'to deliver' - RHS
OCC: Gross Outstanding CDS; domestic banks (incl. subs of foreign banks)
means illiquid pricing of MBS, amplified by correlation smiles; repo haircuts on MBS must be adjusted for realized vol
less MBS usable in repo, greater panic demand for the only other pristing US$ collateral
$16,000
$12,000
$8,000
$4,000
$0
$6,000,000
$5,000,000
$4,000,000
$3,000,000
$2,000,000
$1,000,000
$0
2004.04
2005.04
2006.04
2007.04
2008.04
2009.04
2010.04


Gold in 2008: Collateral Problems
LBMA AM fix - RHS
$1,000
$800
$600
2007-07-04
2007-09-26
2007-12-19
2008-03-12
2008-06-04
2008-08-27
2008-11-19
2009-02-11


Gold in 2008: Collateral Problems
millions of $s
US$ Repo Fails; 'To Deliver' + 'To Receive'
LBMA AM fix - RHS
$6,000,000
$5,000,000
$4,000,000
$3,000,000
$2,000,000
$1,000,000
$0
$1,000
$800
$600
Bear Stearns
TSLF Sch 2 collateral list expanded to include ABS
SEC bans short selling on GSE's & Primary Dealers
Lehman
Global market rout
2007-07-04
2007-09-26
2007-12-19
2008-03-12
2008-06-04
2008-08-27
2008-11-19
2009-02-11

Into The Shadows

CARLYLE CAPITAL
CORPORATION LIMITED

"The last few days have created a market environment where the **repo counterparties'** margin prices for our **AAA-rated** U.S. government agency floating-rate capped securities issued by Fannie Mae and Freddie Mac are **not representative of the underlying recoverable value** of these securities.

Carlyle Capital Corp
Press Release
March 6, 2008

"The whole illiquidity of the market and pricing problems in the **high-rated** mortgage backed securities segment is a problem and not just for this one case but it is **fairly widespread**.

Jeroen Van Den Broek
Head of Credit Strategy, ING
March 6, 2008

Into The Shadows

Haircut 100
Reduction in value applied by lender, %

	2007*	2009*
US Treasuries	2.0	3.0
US agencies	3.0	2.0
Corporate bonds	3.2	5.0
Structured finance	4.2	*na*
Equities	5.0	10.0

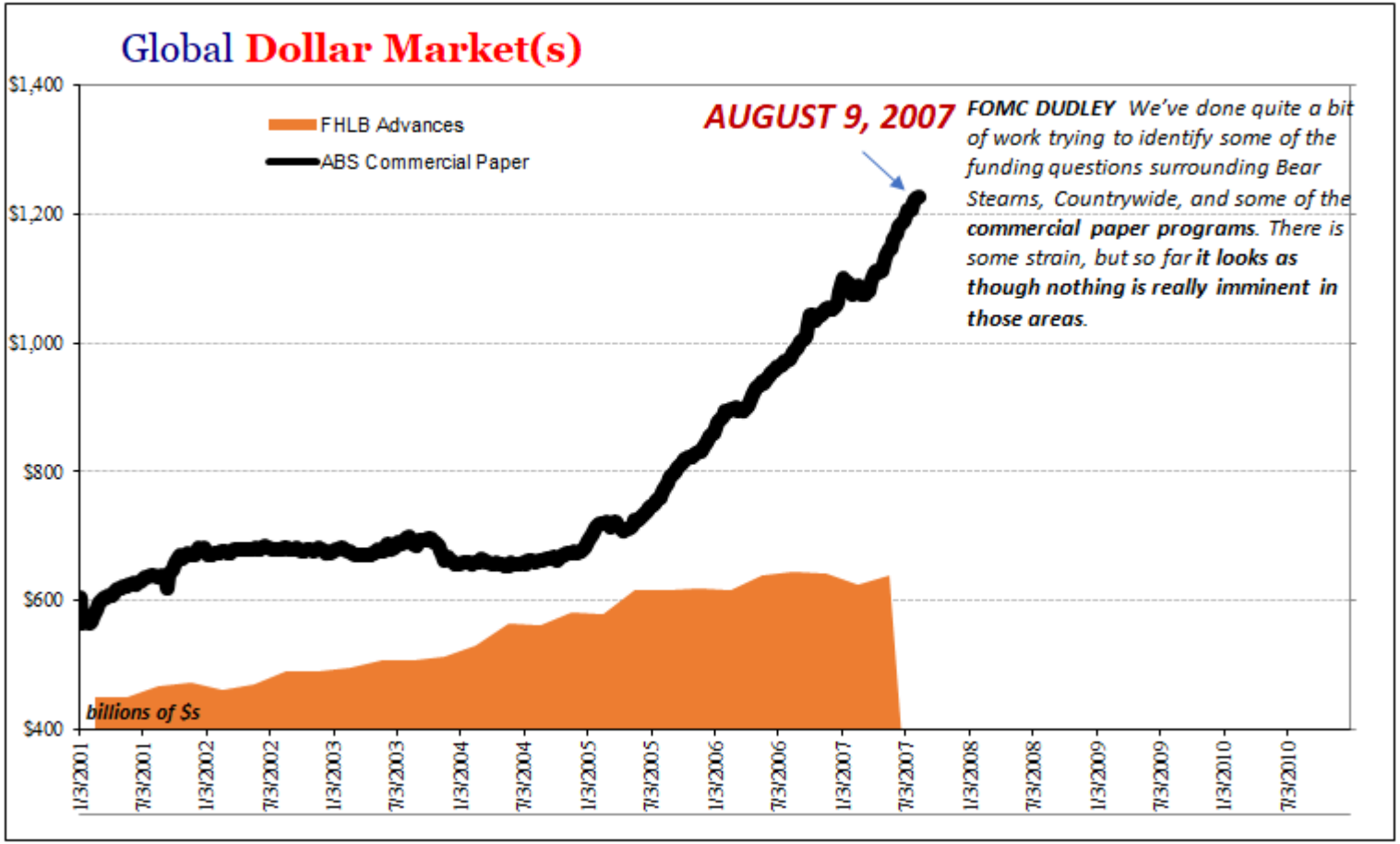
Source: Fitch *First six months

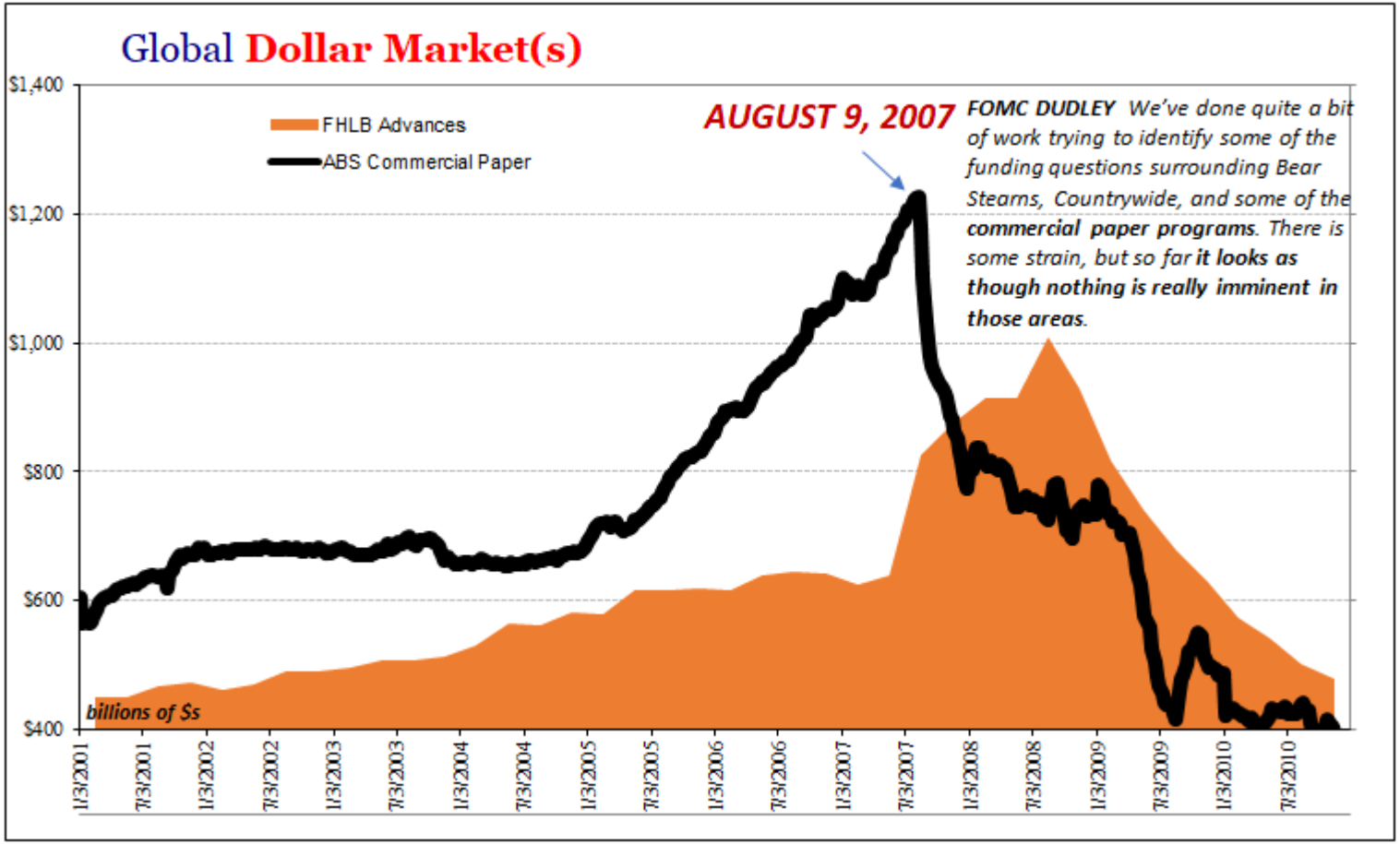
Economist.com

"The danger of subprime in early 2007 wasn't truly default – it was volatility knock-on effects in markets far and wide. Once liquidity started to drop purely in subprime, that created more volatile pricing which downstream models started to perceive. It didn't matter that a particular MBS security had no subprime mortgages in the structure, what mattered is that 3-4% haircuts were now modeled as perhaps not enough safety in the overall MBS collateral segment. That is exactly what happened from 2007 through 2009.

According to ICMA, a ***prime*, AAA-rated *agency* MBS** traded at **a 4% repo haircut** in June 2007, just before the fatal shift in eurodollars. By June 2009, that same MBS would find **instead a 10% haircut**. That was a massive change, which caused selling to beget selling and so on and so on. For unrated agency MBS, again *prime*, the haircut that in June 2007 was 10% had moved to 30% or even 100% by 2009. And that was not the full extent of the collateral/liquidity problem, either, as **certain strains of even prime MBS collateral became non-negotiable on any haircut terms**.

Alhambra Research
January 20, 2016


Global Dollar Market(s)
FHLB Advances
ABS Commercial Paper
AUGUST 9, 2007
FOMC DUDLEY We've done quite a bit of work trying to identify some of the funding questions surrounding Bear Stearns, Countrywide, and some of the commercial paper programs. There is some strain, but so far it looks as though nothing is really imminent in those areas.
billions of $s
$1,400
$1,200
$1,000
$800
$600
$400
1/3/2001
7/3/2001
1/3/2002
7/3/2002
1/3/2003
7/3/2003
1/3/2004
7/3/2004
1/3/2005
7/3/2005
1/3/2006
7/3/2006
1/3/2007
7/3/2007
1/3/2008
7/3/2008
1/3/2009
7/3/2009
1/3/2010
7/3/2010


Global Dollar Market(s)
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billions of $s
$1,400
$1,200
$1,000
$800
$600
$400
1/3/2001
7/3/2001
1/3/2002
7/3/2002
1/3/2003
7/3/2003
1/3/2004
7/3/2004
1/3/2005
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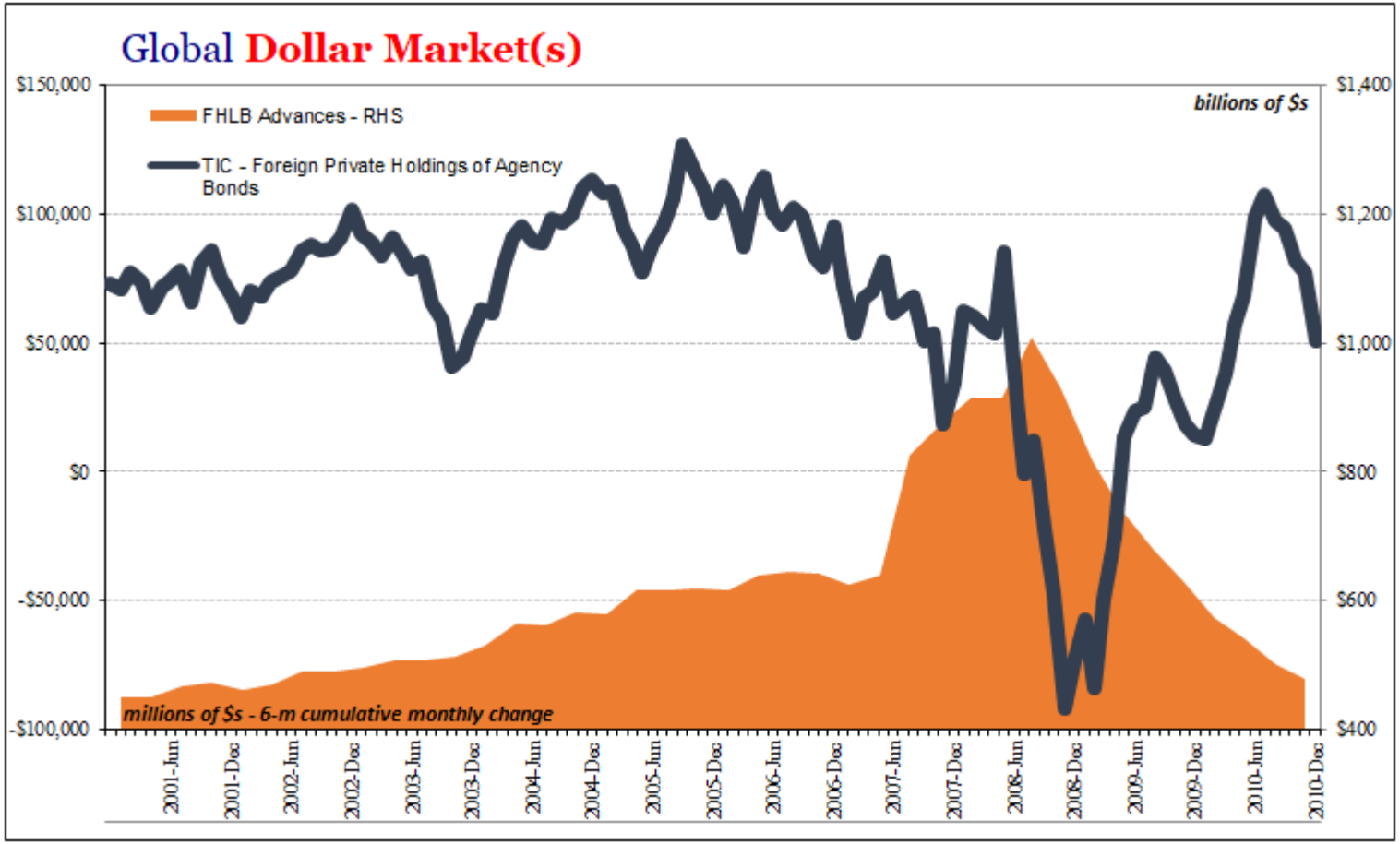
7/3/2009
1/3/2010
7/3/2010


Global Dollar Market(s)
FHLB Advances - RHS
TIC - Foreign Private Holdings of Agency Bonds
billions of $s
millions of $s - 6-m cumulative monthly change
$150,000
$100,000
$50,000
$0
-$50,000
-$100,000
$1,400
$1,200
$1,000
$800
$600
$400
2001-Jun
2001-Dec
2002-Jun
2002-Dec
2003-Jun
2003-Dec
2004-Jun
2004-Dec
2005-Jun
2005-Dec
2006-Jun
2006-Dec
2007-Jun
2007-Dec
2008-Jun
2008-Dec
2009-Jun
2009-Dec
2010-Jun
2010-Dec

Into The Shadows

Liquidity Risk, not Credit

Subprime couldn't have been contained because it wasn't ever about subprime, nor mortgages and housing.

The issue was, and remains, 'dollar.'

BASIC INTERBANK FUNCTION - *Basel 'Conjuring'*

FIGURE 1-4

Where we left off from EDU Pt1

BANK A

Assets		Liabilities	
Reserves	10	Deposits	100
Loans	50	Unrealized Loss CDS	0
Due from Bank B	80	Due to Bank C	40
Securities	10	Capital	10
Unrealized Gain CDS	2		

14x1

Off Balance Sheet

Gross Notional CDS	80

BANK B

Assets			Liabilities	
Reserves	-80	10	Deposits	100
Loans		90	Due to Bank A	80
Securities	+80	10	Capital	10

Leverage 18x1

Bucket	Add'l Face Amt.	Risk Weight	RWA
AA MBS	80	x 20%	16

BANK C

Assets		Liabilities	
Reserves	10	Deposits in ¥	39
Due from Bank A	40	Unreal... Loss $wap	1
		Capital	10

BANK D

Assets		Liabilities	
Reserves	5	Due to Bank E	5
Unreal... Gain Swaps	1	Capital	1

Off Balance Sheet

Gross Notional $wap	40

BASIC INTERBANK FUNCTION - *Going in Reverse*
FIGURE 2-1

BANK A

Assets		Liabilities	
Reserves	10	Deposits	100
Loans	50	Unrealized Loss CDS	0
Due from Bank B	80	Due to Bank C	40
Securities	10	Capital	10
Unrealized Gain CDS	2		

Off Balance Sheet

Gross Notional CDS	80

BANK B

Assets		Liabilities	
Reserves	10	Deposits	100
Loans	10	Due to Bank A	80
Securities	170	Capital	10

Leverage 18x1

Bucket	Add'l Face Amt.	Risk Weight	RWA
AA MBS	80	x 20%	16

BANK C

Assets		Liabilities	
Reserves	10	Deposits in ¥	39
Due from Bank A	40	Unreal... Loss $wap	1
		Capital	10

BANK D

Assets		Liabilities	
Reserves	5	Due to Bank E	5
Unreal... Gain Swaps	1	Capital	1

Off Balance Sheet

Gross Notional $wap	40

BASIC INTERBANK FUNCTION - *Going in Reverse*
FIGURE 2-1a

BANK B				
Assets		Liabilities		
Reserves	10	Deposits		100
Loans	10	Due to Bank A		80
Securities	170	Capital	Leverage 18x1	10

BASIC INTERBANK FUNCTION - *Going in Reverse*
FIGURE 2-2

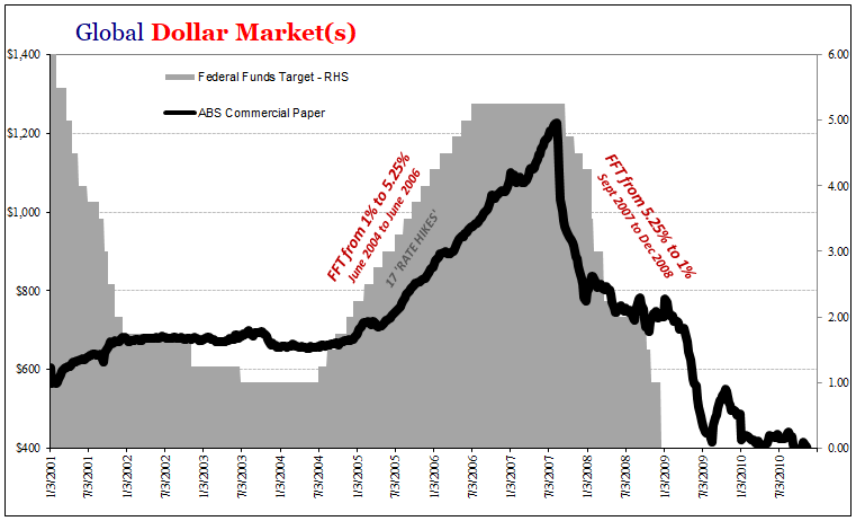
BANK B				
Assets		**Liabilities**		
Reserves	10	Deposits	100	
Loans	10	Due to Bank A	80	→ 40 *O/N MBS Repo*
				20 *ABS CP*
Securities	170	Capital	10	20 *Unsecured Interbank*

Leverage **18x1**

BASIC INTERBANK FUNCTION - *Going in Reverse*
FIGURE 2-3

BANK B				
Assets		**Liabilities**		
Reserves	10	Deposits	100	
Loans	10	Due to Bank A	80	→ Aug 9, 2007: 50 *O/N MBS Repo*; 0 ~~*ABS CP*~~
Securities	170	Capital	10	30 *Unsecured Interbank*

Leverage 18x1



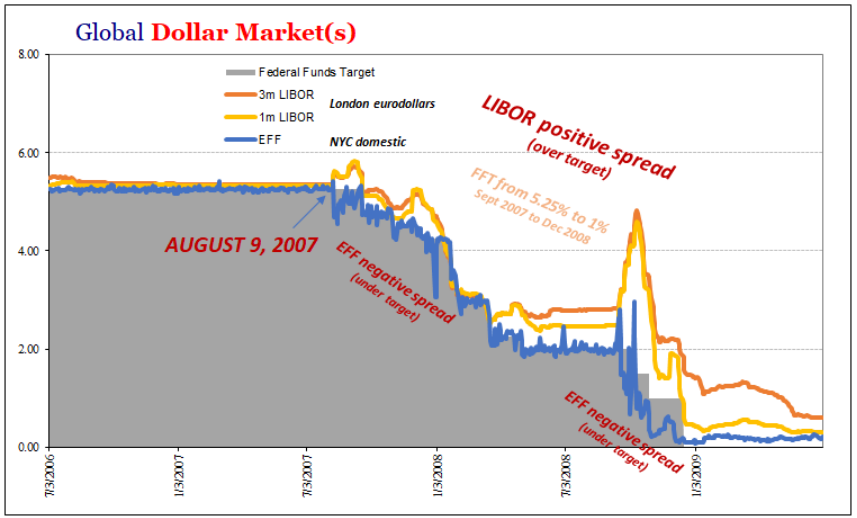
BASIC INTERBANK FUNCTION - *Going in Reverse*
FIGURE 2-4

BANK B			
Assets		**Liabilities**	
Reserves	10	Deposits	100
Loans	10	Due to Bank A	80
Securities	170	Capital	10

Leverage 18x1

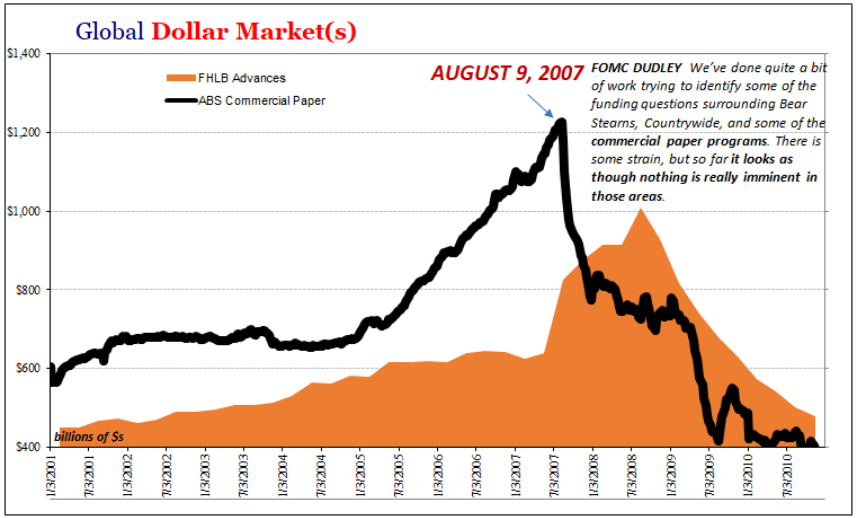
Later 2007

→ 50 *O/N MBS Repo*
0 ~~*ABS CP*~~
0 ~~*Unsecured Interbank*~~
30 *FHLB Advances*



BASIC INTERBANK FUNCTION - *Going in Reverse*
FIGURE 2-4

BANK B				
Assets		**Liabilities**		
Reserves	10	Deposits	100	
Loans	10	Due to Bank A	80	→ Later 2007: 50 *O/N MBS Repo*; 0 ~~*ABS CP*~~; 0 ~~*Unsecured Interbank*~~; 30 *FHLB Advances*
Securities	170	Capital	10	Leverage 18x1



BASIC INTERBANK FUNCTION - *Going in Reverse*
FIGURE 2-5

BANK B				
Assets		Liabilities		
Reserves	10	Deposits	100	
Loans	10	Due to Bank A	80	
Securities	170	Capital		10

Leverage 18x1

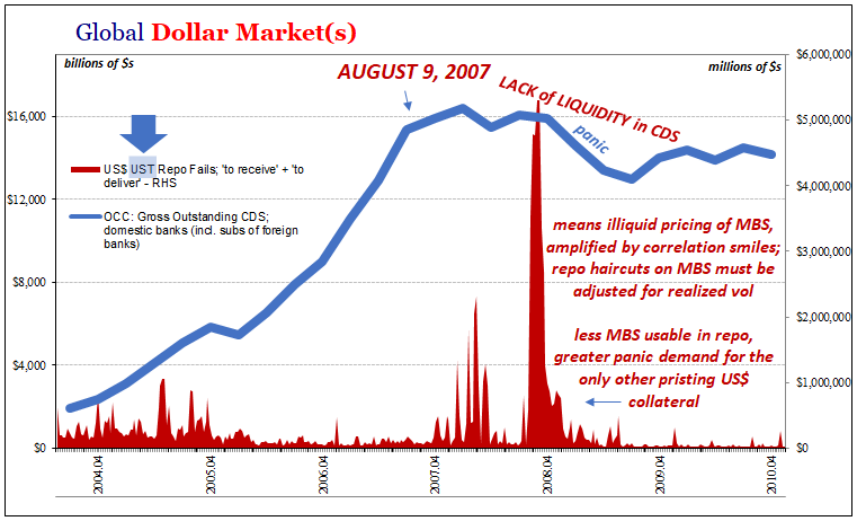
???? Early 2008

0 ~~O/N MBS Repo~~

0 ~~ABS CP~~

0 ~~Unsecured Interbank~~

30 *FHLB Advances*



BASIC INTERBANK FUNCTION - *Going in Reverse*
FIGURE 2-6

BANK B				
Assets		Liabilities		
Reserves	10	Deposits	100	
Loans	10	Due to Bank A	80	
Securities	170	Capital	10	

Leverage 18x1

????

Early 2008

0 ~~*O/N MBS Repo*~~
0 ~~*ABS CP*~~
0 ~~*Unsecured Interbank*~~
30 *FHLB Advances*

Official Response

Reduce FFT from 5.25% to 1% (eventually)
TAF funding auctions (limited alotments)
US$ swaps w/for. central banks (limited alotments)

BASIC INTERBANK FUNCTION - *Going in Reverse*
FIGURE 2-7

BANK B				
Assets		Liabilities		
Reserves	10	Deposits	100	
Loans	10	Due to Bank A	80	
Securities	170	Capital	10	Leverage 18x1

????

Early 2008

0 ~~*O/N MBS Repo*~~
0 ~~*ABS CP*~~
0 ~~*Unsecured Interbank*~~
30 *FHLB Advances*

Official Response ~ May 2008

Reduce FFT from 5.25% to 1% (eventually)
expanded TAF funding auctions (limited alotments)
expanded US$ swaps w/for. central banks (limited alotments)
TSLF expanded collateral eligibility (primary dealers)

BASIC INTERBANK FUNCTION - *Going in Reverse*
FIGURE 3-1

BANK B			
Assets		**Liabilities**	
Reserves	10	Deposits	100
Loans	10	Due to Bank A	80
Securities	170	Capital	10

Leverage 18x1

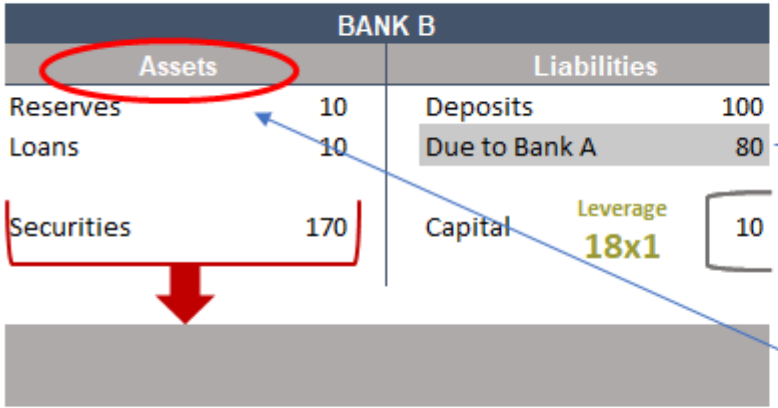
????

Early 2008

0 ~~*O/N MBS Repo*~~
0 ~~*ABS CP*~~
0 ~~*Unsecured Interbank*~~
30 *FHLB Advances*

The monetary focus on the ***liability side*** is understandable but completely misses the larger issue of balance sheet capacity.

BASIC INTERBANK FUNCTION - *Going in Reverse*
FIGURE 3-1



????

Early 2008

0 ~~*O/N MBS Repo*~~

0 ~~*ABS CP*~~

0 ~~*Unsecured Interbank*~~

30 *FHLB Advances*

The monetary focus on the ***liability side*** is understandable but completely misses the larger issue of balance sheet capacity.

How a bank, or 'bank', constructs, manages, and ultimately maintains its ***asset side*** is just as crucial in terms of the modern eurodollar system. These deeper shadows feature the massive use of derivatives, monetarily as ***dark leverage***.

BASIC INTERBANK FUNCTION - *Going in Reverse*
FIGURE 3-1

BANK B

Assets		Liabilities	
Reserves	10	Deposits	100
Loans	10	Due to Bank A	80
Securities	170	Capital	10

Leverage 18x1

????

Early 2008

- 0 ~~*O/N MBS Repo*~~
- 0 ~~*ABS CP*~~
- 0 ~~*Unsecured Interbank*~~
- 30 *FHLB Advances*

Bucket	Add'l Face Amt.	Risk Weight	RWA
AA MBS	80	x 20%	16

→ 8.62% Tier 1 Capital Ratio

BASIC INTERBANK FUNCTION - *Going in Reverse*
FIGURE 3-2

BANK B

Assets		Liabilities		
Reserves	10	Deposits	100	???? Early 2008
Loans	10	Due to Bank A	80	→ 0 ~~*O/N MBS Repo*~~
				0 ~~*ABS CP*~~
Securities	170	Capital (Leverage 18x1)	10	0 ~~*Unsecured Interbank*~~
				30 *FHLB Advances*

Bucket		Add'l Face Amt.	Risk Weight	RWA	
AA MBS	CDS problems	80	~~x 20%~~	~~16~~	→ ~~8.62%~~
			x 50%	40	7.14% Tier 1 Capital Ratio

BASIC INTERBANK FUNCTION - *Going in Reverse*
FIGURE 3-3

BANK B

Assets		Liabilities		
Reserves	10	Deposits	100	
Loans	10	Due to Bank A	80	→
Securities	170	Capital	10	

Leverage 18x1

????

Early 2008

- 0 ~~*O/N MBS Repo*~~
- 0 ~~*ABS CP*~~
- 0 ~~*Unsecured Interbank*~~
- 30 *FHLB Advances*

Bucket	Add'l Face Amt.		Risk Weight	RWA	
AA MBS	CDS problems	80	~~x 20%~~	~~16~~	→ ~~8.62%~~
			~~x 50%~~	~~40~~	~~7.14%~~
			x 100%	80	5.56% Tier 1 Capital Ratio

BASIC INTERBANK FUNCTION - *Going in Reverse*
FIGURE 3-4

BANK B

Assets		Liabilities		
Reserves	10	Deposits	100	
Loans	10	Due to Bank A	80	→ 0 ~~O/N MBS Repo~~
				0 ~~ABS CP~~
Securities	170	Capital	10	0 ~~Unsecured Interbank~~
				30 *FHLB Advances*

Leverage 18x1

???? Early 2008

Bucket	Add'l Face Amt.		Risk Weight	RWA	
AA MBS	CDS problems	80	~~x 20%~~	~~16~~	→ ~~8.62%~~
			~~x 50%~~	~~40~~	~~7.14%~~
			x 100%	80	5.56% Tier 1 Capital Ratio

OTTI
Other-than-temporary impairment

"8. An investor shall not combine separate contracts (a debt security and a guarantee or other credit enhancement) for purposes of determining whether a debt security is impaired or can contractually be prepaid or otherwise settled in such a way that the investor would not recover substantially all of its cost.

FASB Staff Position; No. FAS 115-1 and FAS 124-1

BASIC INTERBANK FUNCTION - *Going in Reverse*
FIGURE 3-5

BANK B

Assets		Liabilities		
Reserves	10	Deposits	100	
Loans	10	Due to Bank A	80	???? → Early 2008: 0 ~~O/N MBS Repo~~; 0 ~~ABS CP~~; 0 ~~Unsecured Interbank~~; 30 *FHLB Advances*
Securities	170	Capital	10	Leverage 18x1

Bucket		Add'l Face Amt.	Risk Weight	RWA	
AA MBS	CDS problems	80	~~x 20%~~	~~16~~	~~8.62%~~
			~~x 50%~~	~~40~~	~~7.14%~~
			x 100%	80	5.56% Tier 1 Capital Ratio

OTTI

Other-than-temporary impairment

STEP 1

Determine whether the investment is impaired.

"An investment is impaired if the fair value of the investment is less than its cost"

STEP 2

Evaluate whether an impairment is OTTI

"However, an investor shall recognize an impairment loss when the impairment is deemed other than temporary even if a decision to sell has not been made."

STEP 3

If impairment is OTTI, recognize loss equal to the difference between cost and fair value.

BASIC INTERBANK FUNCTION - *Going in Reverse*
FIGURE 3-6

BANK B			
Assets		**Liabilities**	
Reserves	10	Deposits	100
Loans	10	Due to Bank A	80
Securities	170	Capital	10

Leverage 18x1

CDS problems

OTTI

Other-than-temporary impairment

(a)Includes other-than-temporary impairment charges of $6.8 billion and $417 million for the three-month periods ended June 30, 2008 and 2007, respectively, and $12.4 billion and $884 million for the six-month periods ended June 30, 2008 and 2007, respectively. Also includes gains (losses) from hedging activities that did not qualify for hedge accounting treatment under FAS 133, including the related foreign exchange gains and losses. For the three-month periods ended June 30, 2008 and 2007, the effect was $272 million and $(430) million, respectively. For the six-month periods ended June 30, 2008 and 2007, the effect was $(476) million and $(882) million, respectively. These amounts result primarily from interest rate and foreign currency derivatives that are effective economic hedges of investments and borrowings.
(b)Includes other-than-temporary impairment charges of $5.2 billion and $324 million for the three-month periods ended June 30, 2008 and 2007, respectively, and $9.6 billion and $716 million for the six-month periods ended June 30, 2008 and 2007, respectively.

AIG 10-Q for 2nd Quarter 2008

Total Revenue (6mos thru end of Q2):
$34.0 bln 2008 vs. $61.8 bln 2007

Financial Services Segment (6mos thru end of Q2):
($10.2) bln 2008 vs. $4.3 bln 2007

BASIC INTERBANK FUNCTION - *Going in Reverse*
FIGURE 3-6

BANK B			
Assets		**Liabilities**	
Reserves	10	Deposits	100
Loans	10	Due to Bank A	80
Securities	170	Capital	10

Leverage 18x1

CDS problems

OTTI

Other-than-temporary impairment

2008 YTD vs. 2007 YTD

Revenues, net of interest expense, were negative in *S&B* due to substantial write-downs and losses related to the fixed income and credit markets. Included in this decrease are $9.7 billion of write-downs on subprime-related direct exposure, $4.8 billion of downward credit market value adjustments related to exposure to monoline insurers, $4.3 billion of write-downs (net of underwriting fees) on funded and unfunded highly leveraged finance commitments, $2.5 billion of write-downs on Alt-A mortgage securities, net of hedges, $2.2 billion of write-downs of SIV assets, $1.6 billion of write-downs on commercial real estate positions and $1.4 billion of write-downs on auction rate securities inventory due to failed auctions, predominately in the first quarter of 2008, and deterioration in the credit markets. *Transaction Services* revenues grew 30% driven by new business wins and implementations, growth in customer liability balances and the impact of acquisitions.

Citigroup 10-Q for 3rd Quarter 2008

BASIC INTERBANK FUNCTION - *Going in Reverse*
FIGURE 3-6

BANK B			
Assets		**Liabilities**	
Reserves	10	Deposits	100
Loans	10	Due to Bank A	80
Securities	170	Capital	10

Leverage 18x1

CDS problems

OTTI
Other-than-temporary impairment

2008 YTD vs. 2007 YTD

Revenues, net of interest expense, were negative in *S&B* due to substantial write-downs and losses related to the fixed income and credit markets. Included in this decrease are $9.7 billion of write-downs on subprime-related direct exposure, $4.8 billion of downward credit market value adjustments related to exposure to monoline insurers, $4.3 billion of write-downs (net of underwriting fees) on funded and unfunded highly leveraged finance commitments, $2.5 billion of write-downs on Alt-A mortgage securities, net of hedges, $2.2 billion of write-downs of SIV assets, $1.6 billion of write-downs on commercial real estate positions and $1.4 billion of write-downs on auction rate securities inventory due to failed auctions, predominately in the first quarter of 2008, and deterioration in the credit markets. *Transaction Services* revenues grew 30% driven by new business wins and implementations, growth in customer liability balances and the impact of acquisitions.

Citigroup 10-Q for 3rd Quarter 2008

Net interest revenues (9mos thru end of Q3): $40.4 bln 2008 vs. $33.1 bln 2007

the effect of lower monetary policy rates (FFT) as conventional stimulus

BASIC INTERBANK FUNCTION - *Going in Reverse*

FIGURE 3-6

BANK B			
Assets		**Liabilities**	
Reserves	10	Deposits	100
Loans	10	Due to Bank A	80
Securities	170	Capital	10

Leverage 18x1

CDS problems

OTTI

Other-than-temporary impairment

2008 YTD vs. 2007 YTD

Revenues, net of interest expense, were negative in *S&B* due to substantial write-downs and losses related to the fixed income and credit markets. Included in this decrease are $9.7 billion of write-downs on subprime-related direct exposure, $4.8 billion of downward credit market value adjustments related to exposure to monoline insurers, $4.3 billion of write-downs (net of underwriting fees) on funded and unfunded highly leveraged finance commitments, $2.5 billion of write-downs on Alt-A mortgage securities, net of hedges, $2.2 billion of write-downs of SIV assets, $1.6 billion of write-downs on commercial real estate positions and $1.4 billion of write-downs on auction rate securities inventory due to failed auctions, predominately in the first quarter of 2008, and deterioration in the credit markets. *Transaction Services* revenues grew 30% driven by new business wins and implementations, growth in customer liability balances and the impact of acquisitions.

Citigroup 10-Q for 3rd Quarter 2008

Net interest revenues (9mos thru end of Q3):
$40.4 bln 2008 vs. $33.1 bln 2007

Non-interest revenues (9mos thru end of Q3):
$6.8 bln 2008 vs. $38.9 bln 2007

the effect of that 'stimulus' being completely overwhelmed by the ***shadows***

BASIC INTERBANK FUNCTION - *Going in Reverse*

FIGURE 3-7

BANK B					
Assets		Liabilities			
Reserves	10	Deposits	100		
Loans	10	Due to Bank A	80		
Securities	170	Capital		Leverage 18x1	10

CDS problems → IRS problems

OTTI

Other-than-temporary impairment


THE TI

Lehman collapse sends shockwave round world

hares and oil prices plunge, thousands lose jobs

LCH.Clearnet Unwinds Lehman Brothers Interest Rate Swap Default

LCH.Clearnet and OTCDerivnet have wound down Lehman Brothers $9 trillion of OTC interest rate swap positions.

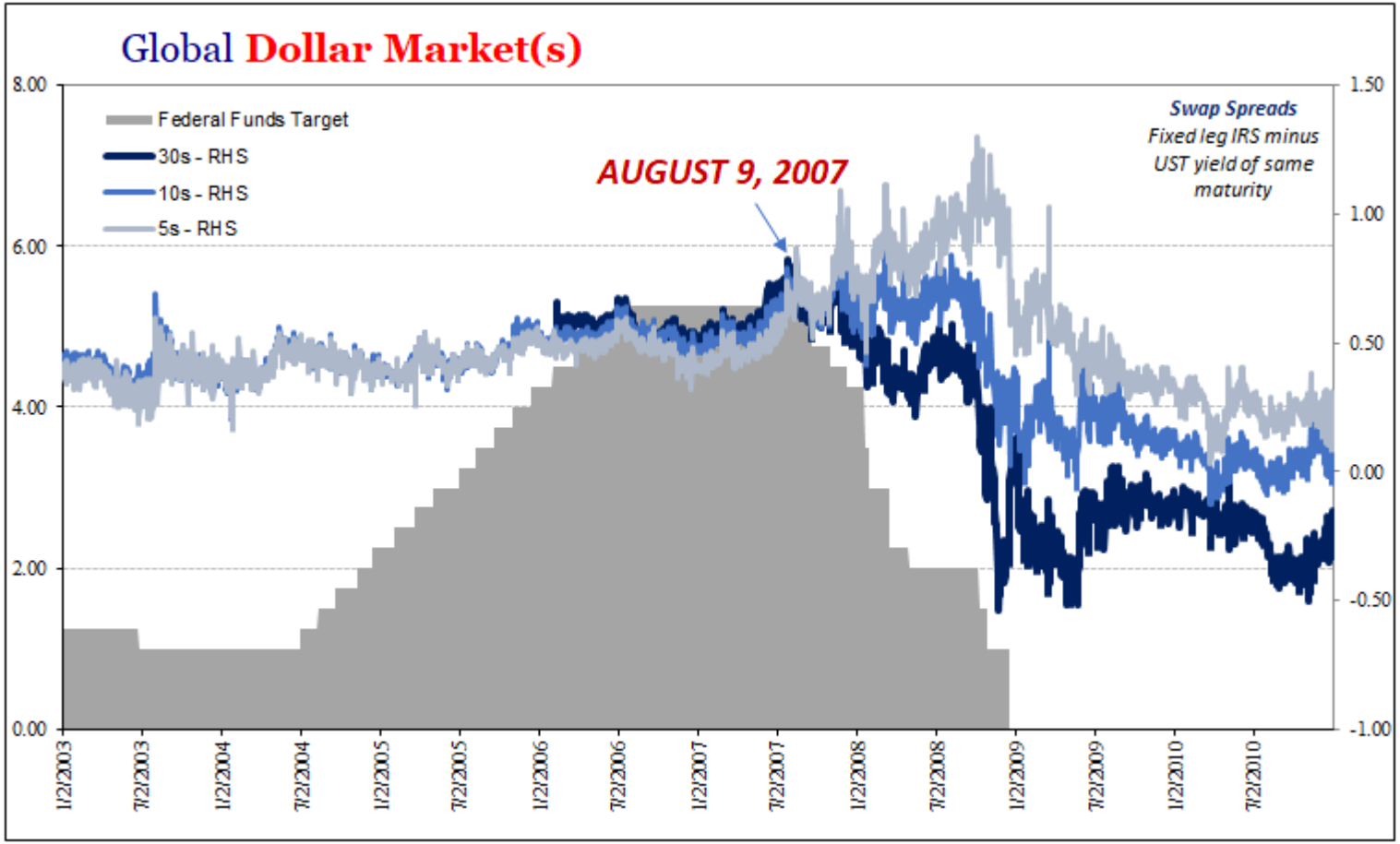
The central counterparty and interest rate derivatives forum had to deal with 66,390 trades across five major currencies.

The companies announced that the management of the default involved:

At default (Monday, 15 September 2008) the default management group (member firms form part of this group on a rotating basis) seconded preassigned and experienced traders to work alongside LCH.Clearnets risk management team to apply hedges and neutralise the macro level market risk on the defaulter portfolio. All participants adhered to strict confidentiality rules throughout the process.

The risk positions were reviewed daily and further hedges were executed in response to changing market conditions.

From Wednesday, 24 September to Friday, 3 October, the competitive auctions of the five hedge currency portfolios were successfully completed.


Global Dollar Market(s)
Federal Funds Target
30s - RHS
10s - RHS
5s - RHS
AUGUST 9, 2007
Swap Spreads
Fixed leg IRS minus
UST yield of same
maturity
8.00
6.00
4.00
2.00
0.00
1.50
1.00
0.50
0.00
-0.50
-1.00
1/2/2003
7/2/2003
1/2/2004
7/2/2004
1/2/2005
7/2/2005
1/2/2006
7/2/2006
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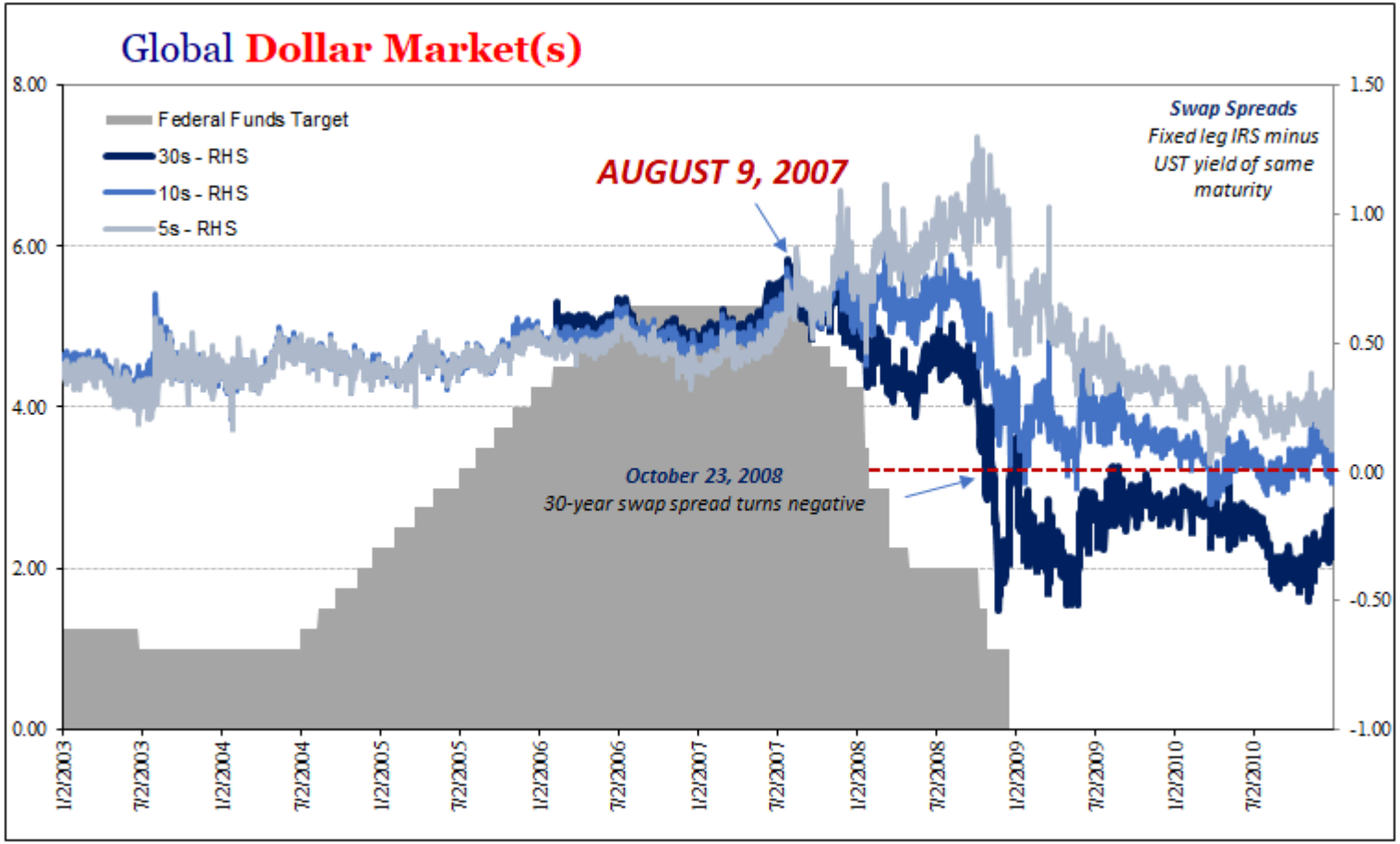
7/2/2010


Global Dollar Market(s)
Federal Funds Target
30s - RHS
10s - RHS
5s - RHS
AUGUST 9, 2007
Swap Spreads
Fixed leg IRS minus
UST yield of same
maturity
October 23, 2008
30-year swap spread turns negative
8.00
6.00
4.00
2.00
0.00
1.50
1.00
0.50
0.00
-0.50
-1.00
1/2/2003
7/2/2003
1/2/2004
7/2/2004
1/2/2005
7/2/2005
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1/2/2007
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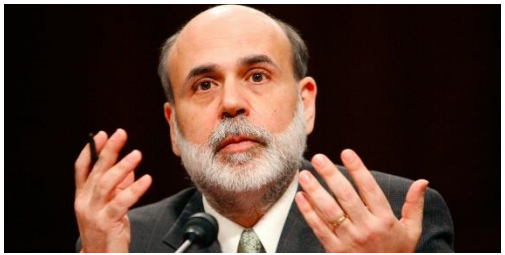
7/2/2010

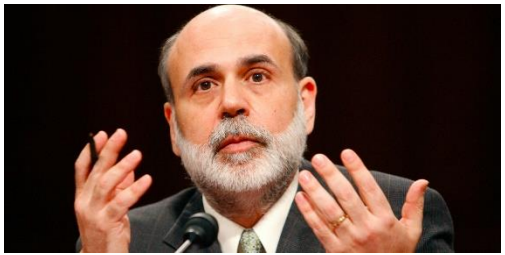
Into The Shadows



"October 23, 2008, was an unusual day in credit markets even within a vast sea of unusual days. Credit and "exotics" desks at banks were left scrambling to figure out how it was possible that the 30-year swap rate could trade less than the 30-year treasury. It was thought one of those immutable laws of finance that no such might occur, to the point there were stories (apocryphal or not, the tale is about the scale of disbelief) that some trading machines were never programmed to accept a negative swap spread input. The surface tension about such things was decoded under the typical generalities that stand for analysis; if the 30-year swap spread was negative that might suggest the "market" thinking about a bankrupt US government.

Jeff Snider, The 'Dollar' Is Dying in 2015 No Matter What the Fed Does
September 4, 2015

Into The Shadows



> A negative swap spread…assaults conventional financial sense. To most, a negative spread is ***nonsense*** and leads to so much consternation about how to interpret the situation when it has arisen…While on the surface it would suggest that the "market" in swap derivatives is pricing more risk of UST's than swap counterparties, the only real inference about such compression ***is the nonsense itself***. In other words, the nonsense nature of negative swap spreads is precisely the point – for them to be negative in the first place, let alone highly so (like the 30s again), is a pretty unambiguous signal of malfunction if not full distress. ***It is only great imbalance that can change the information content of a market price into meaninglessness***; therefore we can interpret that case as some great reduction in balance sheet capacity since it is dealer capacity that determines the nature of the spreads.

Alhambra Research
Direct Links
October 20, 2015

BASIC INTERBANK FUNCTION - *Going in Reverse*
FIGURE 4-1

BANK A

Assets		Liabilities	
Reserves	10	Deposits	100
Loans	50	Unrealized Loss CDS	0
Due from Bank B	80	Due to Bank C	40
Securities	10	Capital	10
Unrealized Gain CDS	2		

Off Balance Sheet

Gross Notional CDS	80

BANK B

Assets		Liabilities	
Reserves	10	Deposits	100
Loans	10	Due to Bank A	80
Securities	170	Capital	10

Leverage 18x1

Bucket	Add'l Face Amt.	Risk Weight	RWA
AA MBS	80	x 20%	16

BANK C

Assets		Liabilities	
Reserves	10	Deposits in ¥	39
Due from Bank A	40	Unreal... Loss $wap	1
		Capital	10

BANK D

Assets		Liabilities	
Reserves	5	Due to Bank E	5
Unreal... Gain Swaps	1	Capital	1

Off Balance Sheet

Gross Notional $wap	40

BASIC INTERBANK FUNCTION - *Going in Reverse*
FIGURE 4-1

BANK A

Assets		Liabilities	
Reserves	10	Deposits	100
Loans	50	Unrealized Loss CDS	0
Due from Bank B	80	Due to Bank C	40
Securities	10	Capital	10
Unrealized Gain CDS	2		

Off Balance Sheet

Gross Notional CDS	80

BANK B

Assets		Liabilities	
Reserves	10	Deposits	100
Loans	10	Due to Bank A	80
pick up in vol			
Securities	170	Capital	10

Leverage 18x1

Bucket	Add'l Face Amt.	Risk Weight	RWA
AA MBS	80	x 20%	16

BANK C

Assets		Liabilities	
Reserves	10	Deposits in ¥	39
Due from Bank A	40	Unreal... Loss $wap	1
		Capital	10

BANK D

Assets		Liabilities	
Reserves	5	Due to Bank E	5
Unreal... Gain Swaps	1	Capital	1

Off Balance Sheet

Gross Notional $wap	40

BASIC INTERBANK FUNCTION - *Going in Reverse*
FIGURE 4-2

BANK A

Assets		Liabilities	
Reserves	10	Deposits	100
Loans	50	Unrealized Loss CDS	0
Due from Bank B	80	Due to Bank C	40
Securities	10	Capital	10
Unrealized Gain CDS	2		

Off Balance Sheet

Gross Notional CDS	80

BANK B

Assets		Liabilities	
Reserves	10	Deposits	100
Loans	10	Due to Bank A	80
pick up in vol			
Securities	170	Capital	10

Leverage 18x1

Bucket	Add'l Face Amt.	Risk Weight	RWA
AA MBS	80	x 20%	16

BANK C

Assets		Liabilities	
Reserves	10	Deposits in ¥	39
Due from Bank A	40	Unreal... Loss $wap	1
		Capital	10

BANK D

Assets		Liabilities	
Reserves	5	Due to Bank E	5
Unreal... Gain Swaps	1	Capital	1

Off Balance Sheet

Gross Notional $wap	40

BASIC INTERBANK FUNCTION - *Going in Reverse*
FIGURE 4-3

BANK A

Assets		Liabilities	
Reserves	10	Deposits	100
Loans	50	Unrealized Loss CDS	0
Due from Bank B	80	Due to Bank C	40
Securities	10	Capital	10
Unrealized Gain CDS	2		

Off Balance Sheet

Gross Notional CDS	80

BANK B

Assets		Liabilities	
Reserves	10	Deposits	100
Loans	10	Due to Bank A	80
pick up in vol			
Securities	170	Capital	10

Leverage 18x1

Bucket	Add'l Face Amt.	Risk Weight	RWA
AA MBS	80	x 20%	16

BANK C

Assets		Liabilities	
Reserves	10	Deposits in ¥	39
Due from Bank A	40	Unreal... Loss $wap	1
		Capital	10

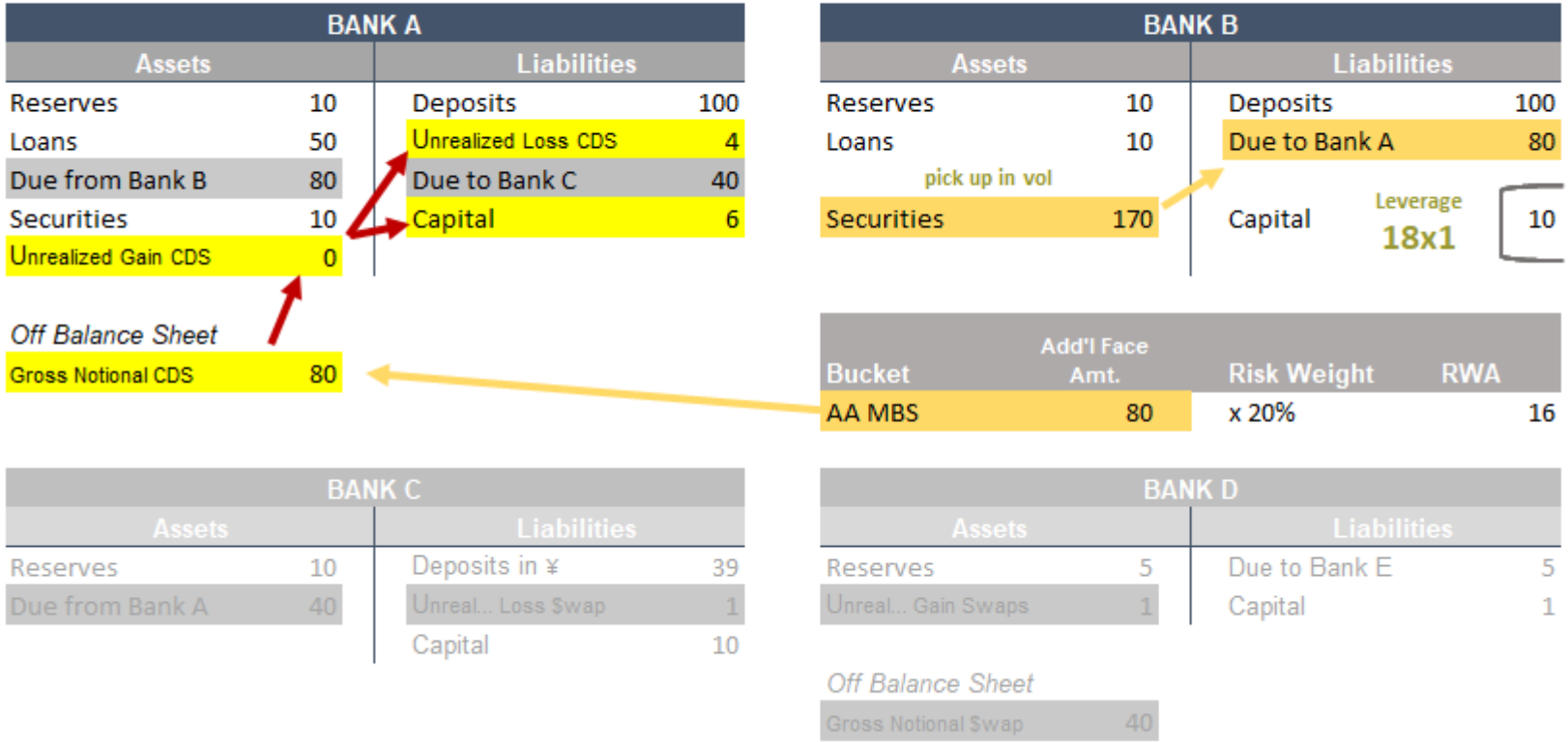
BANK D

Assets		Liabilities	
Reserves	5	Due to Bank E	5
Unreal... Gain Swaps	1	Capital	1

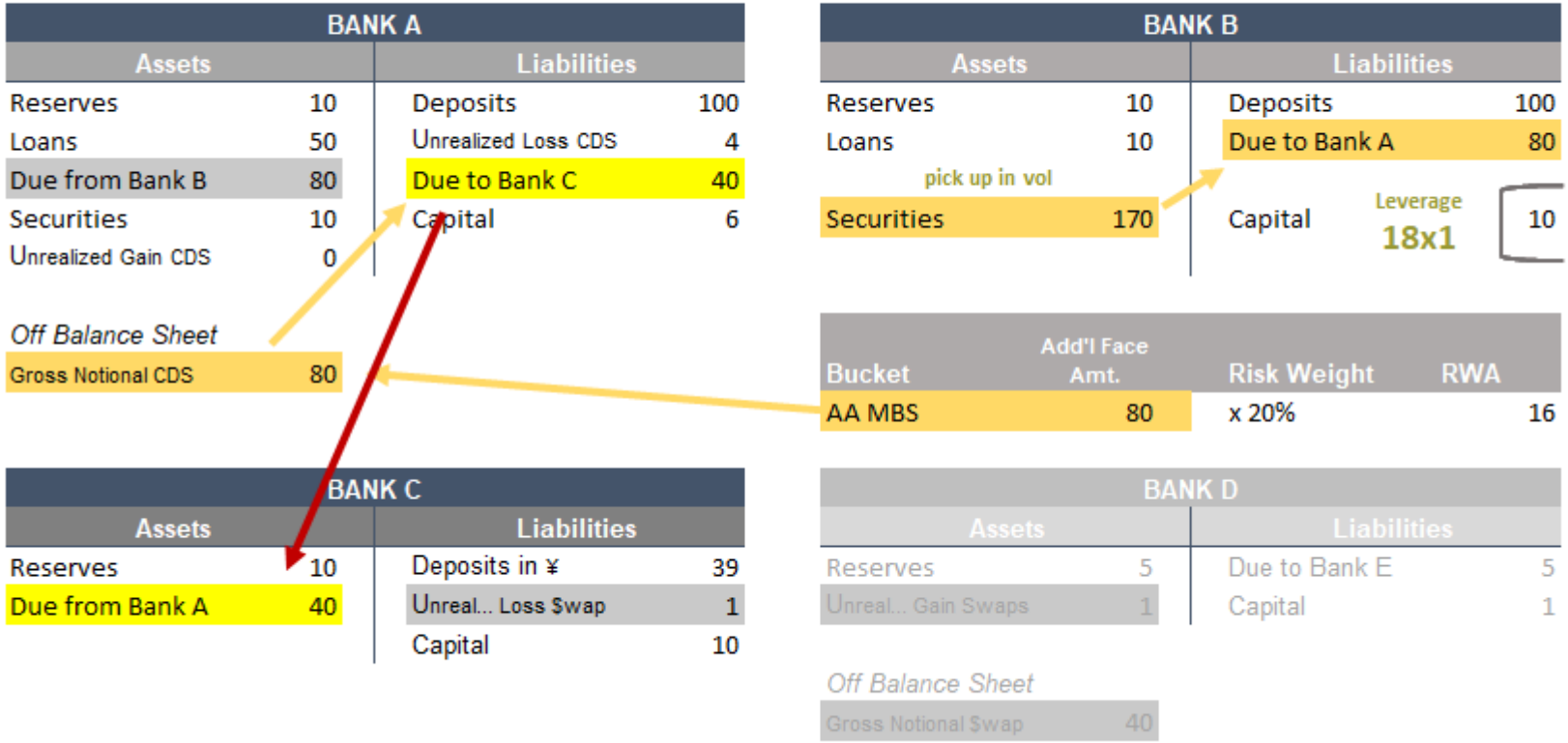
Off Balance Sheet

Gross Notional $wap	40

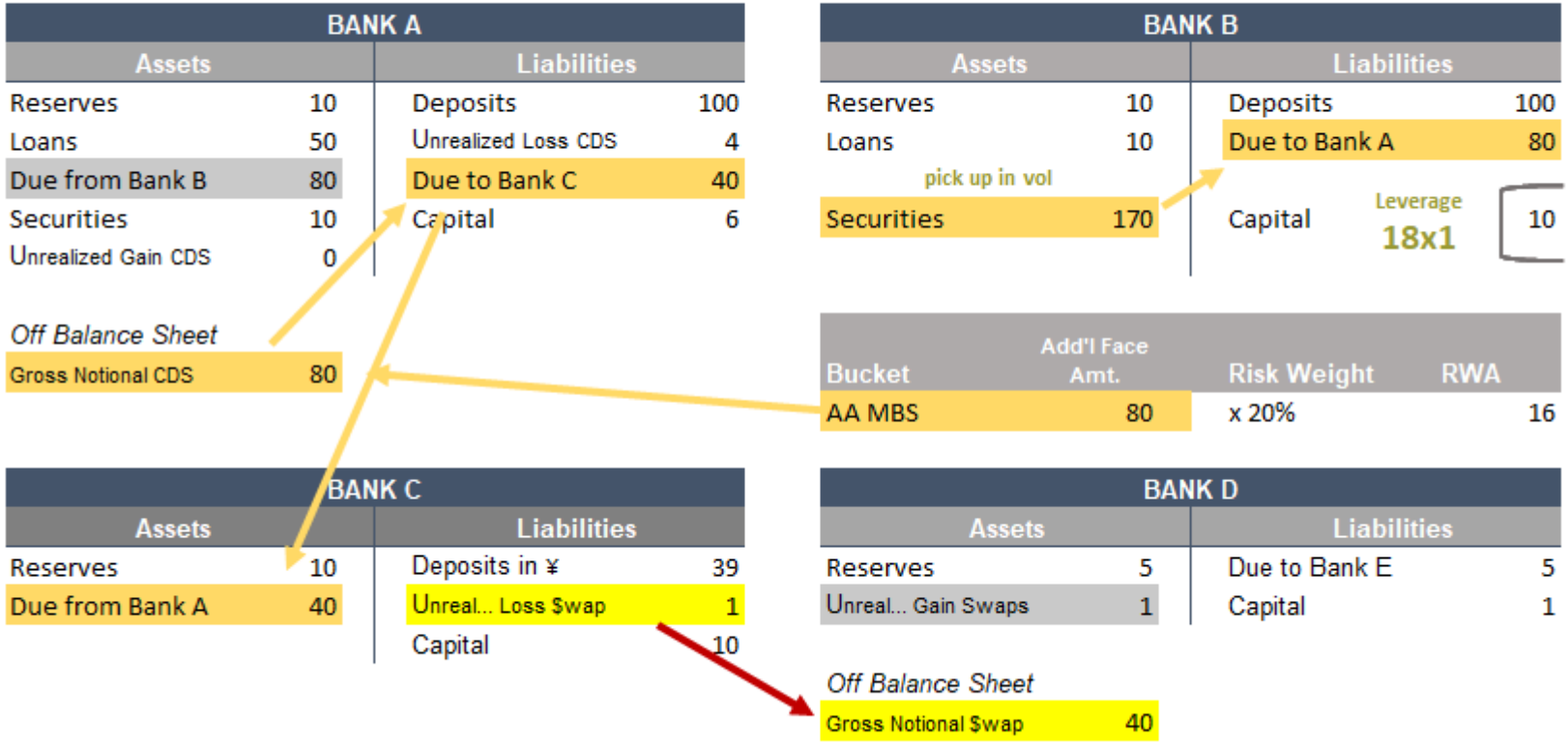
BASIC INTERBANK FUNCTION - *Going in Reverse*
FIGURE 4-4



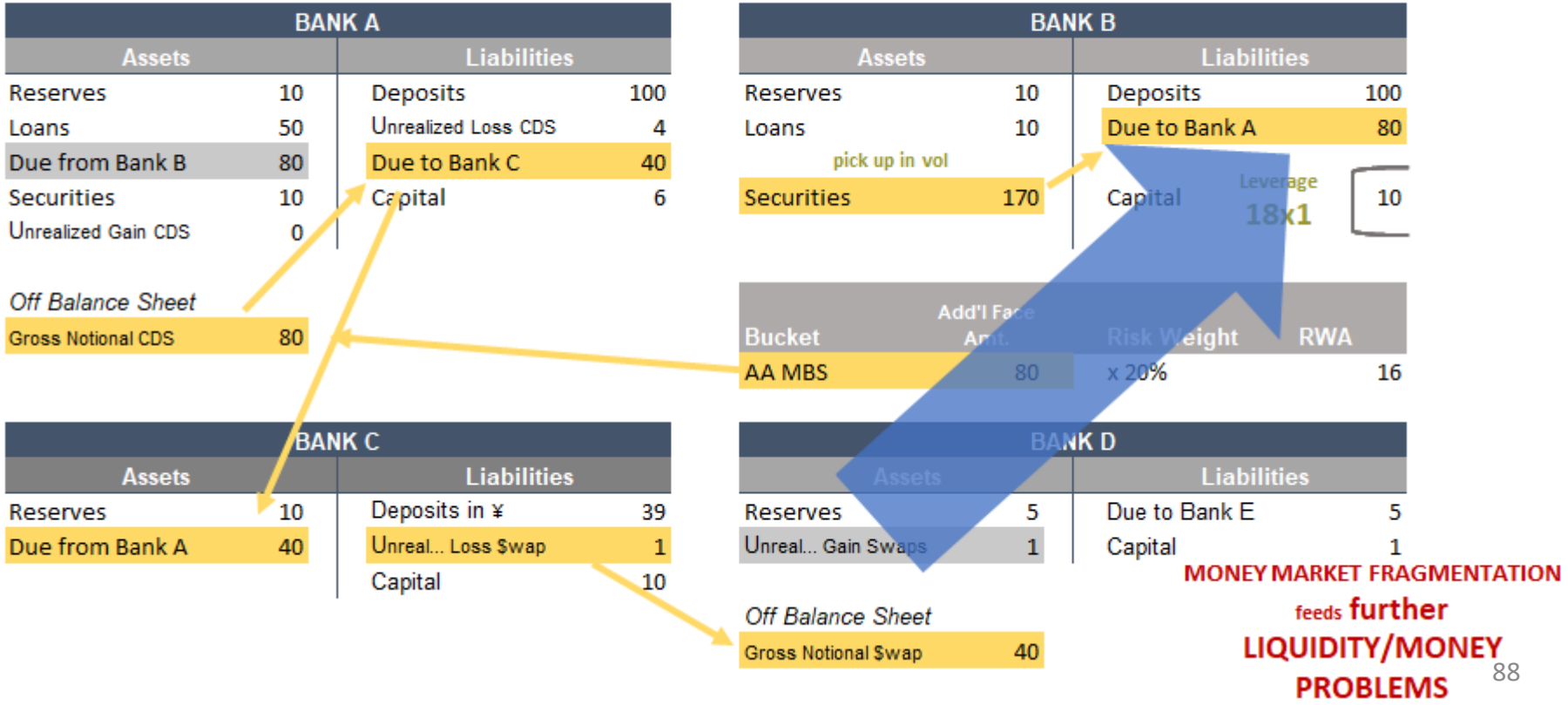
BASIC INTERBANK FUNCTION - *Going in Reverse*
FIGURE 4-5



BASIC INTERBANK FUNCTION - *Going in Reverse*
FIGURE 4-6

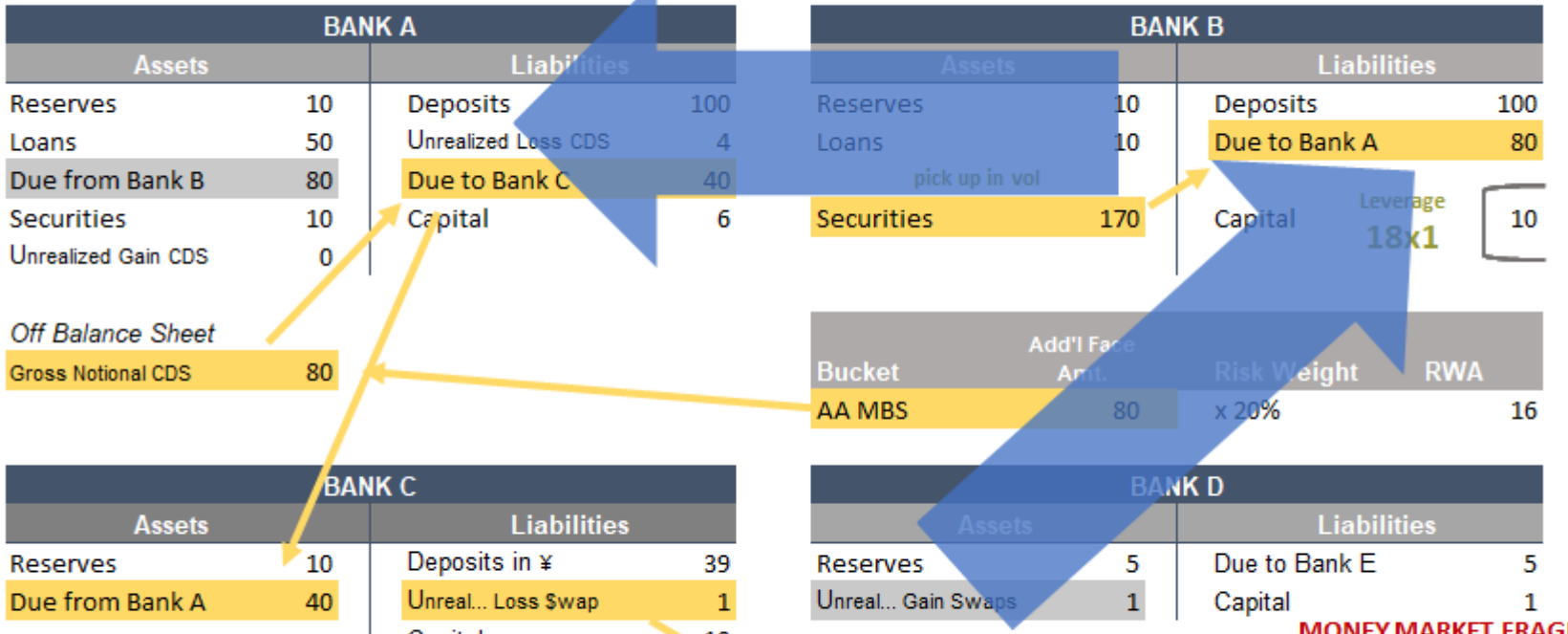


BASIC INTERBANK FUNCTION - *Going in Reverse*
FIGURE 4-7



BASIC INTERBANK FUNCTION - *Going in Reverse*
FIGURE 4-8

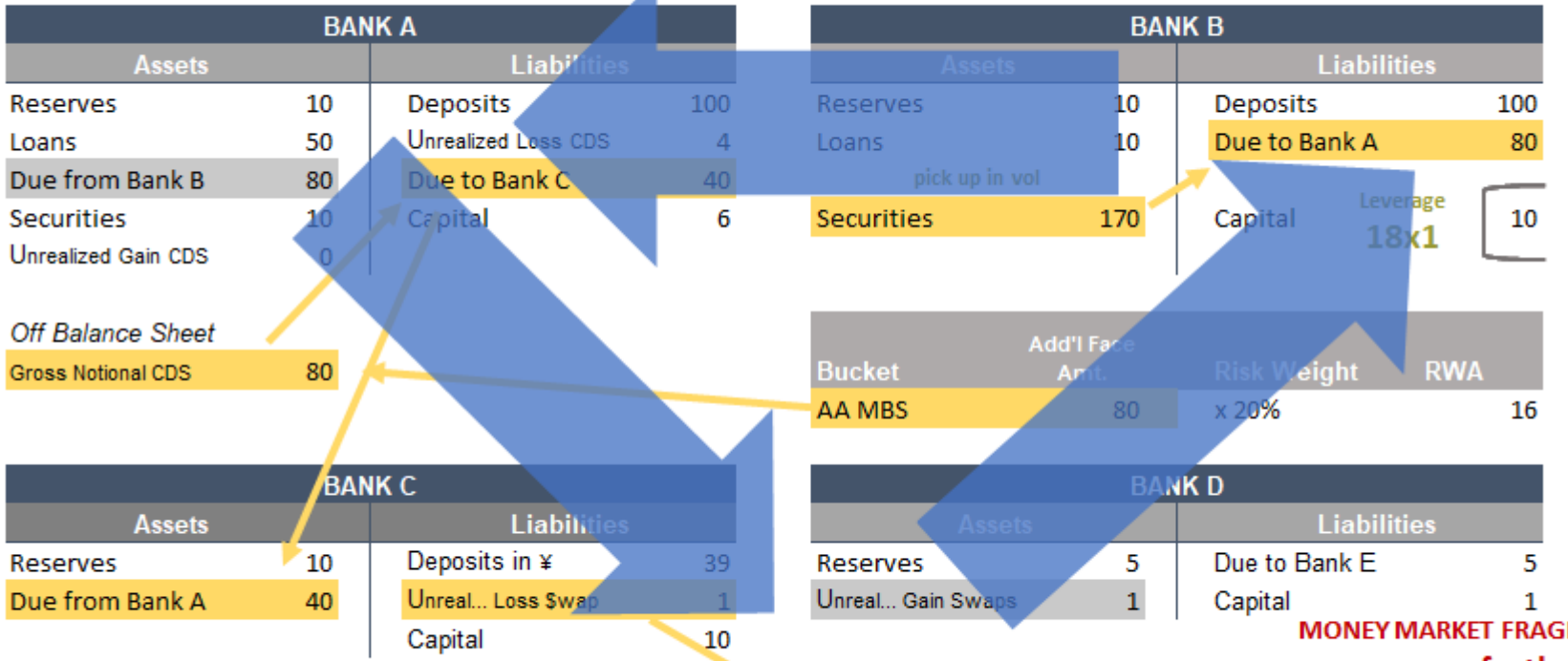
LIQUIDITY PROBLEMS feed further BALANCE SHEET CAPACITY REDUCTION



MONEY MARKET FRAGMENTATION feeds further LIQUIDITY/MONEY PROBLEMS

BASIC INTERBANK FUNCTION - *Going in Reverse*
FIGURE 4-9

LIQUIDITY PROBLEMS feed further BALANCE SHEET CAPACITY REDUCTION



BALANCE SHEET CAPACITY REDUCTIONS lead to more FRAGMENTATION

MONEY MARKET FRAGMENTATION feeds further LIQUIDITY/MONEY PROBLEMS

BASIC INTERBANK FUNCTION - *Going in Reverse*
FIGURE 4-9

LIQUIDITY PROBLEMS
feed further BALANCE SHEET
CAPACITY REDUCTION

BANK A

Assets		Liabilities	
Reserves	10	Deposits	100
Loans	5	Unrealized Loss CDS	4
Due from Bank B	85	Due to Bank C	80
Securities	10	Capital	6
Unrealized Gain CDS	0		
Off Balance Sheet			
Gross Notional CDS	80		

BANK B

Assets		Liabilities	
Reserves	10	Deposits	100
Loans	10	Due to Bank A	80
Securities	170	Capital	10
		Leverage	18x1
Off Balance Sheet			
Bucket		Risk Weighting RWA	
AA MBS	80	x 20%	16

BANK C

Assets		Liabilities	
Reserves	10	Deposits in ¥	39
Due from Bank A	40	Unreal... Loss $wap	1
		Capital	10

BANK D

Assets		Liabilities	
Reserves	5	Due to Bank E	5
Unreal... Gain Swaps	1	Capital	1
Off Balance Sheet			
Gross Notional $wap	40		

PRO-CYCLICAL, POSITIVE MONETARY FEEDBACK LOOP

MONEY MARKET FRAGMENTATION
feeds **further**
LIQUIDITY/MONEY
PROBLEMS

BASIC INTERBANK FUNCTION - *Going in Reverse*
FIGURE 4-9

LIQUIDITY PROBLEMS
feed further BALANCE SHEET
CAPACITY REDUCTION

IT WAS JUST LIKE A BANK RUN, NOT HOARDING PHYSICAL MONEY BUT BALANCE SHEET CAPACITY

BANK A

Reserves	10
Loans	50
Due from Bank B	80
Securities	0
Unrealized Gain CDS	0

Deposits	100
Unrealized Loss CDS	4
Due to Bank C	40
Capital	6

Off Balance Sheet

Gross Notional CDS	80

BANK B

Reserves	10
Loans	10
pick up in vol	
Securities	12

Deposits	100
Due to Bank A	80
Capital	10

Add'l Factor	Risk Weight	RWA
A MBS 80	x 20%	16

BANK C

Reserves	10
Due from Bank A	40

Deposits	50
Unreal... Loss $wap	1
Capital	10

BANK D

Reserves	50
Unreal... Gain Swaps	1

Due to Bank E	65
Capital	1

Off Balance Sheet

Gross Notional $wap	40

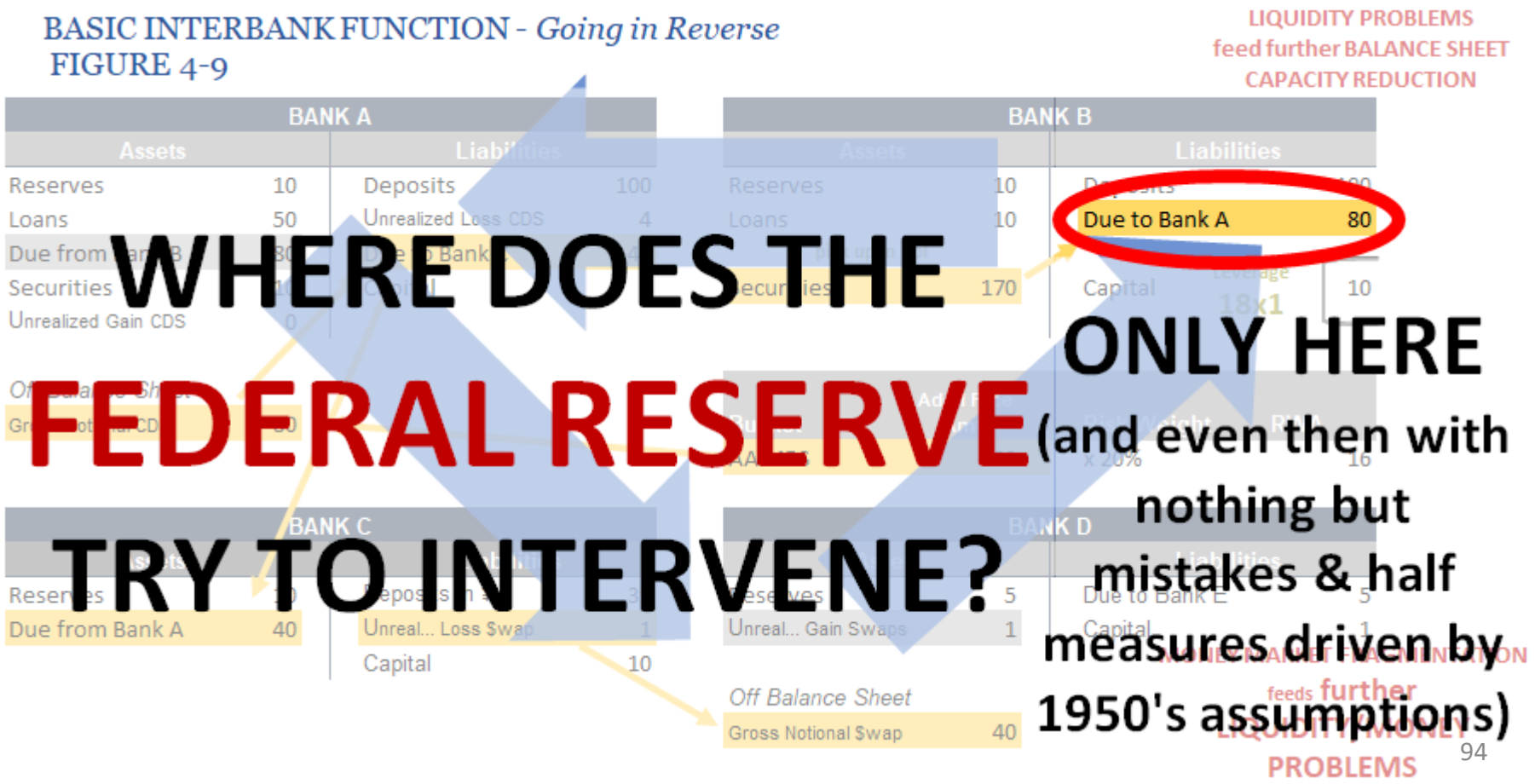
MONEY MARKET FRAGMENTATION
feeds further
LIQUIDITY/MONEY
PROBLEMS

BASIC INTERBANK FUNCTION - *Going in Reverse*
FIGURE 4-9

LIQUIDITY PROBLEMS
feed further BALANCE SHEET
CAPACITY REDUCTION

WHERE DOES THE FEDERAL RESERVE TRY TO INTERVENE?

MONEY MARKET FRAGMENTATION
feeds further
LIQUIDITY/MONEY
PROBLEMS



WHERE DOES THE FEDERAL RESERVE TRY TO INTERVENE?

ONLY HERE

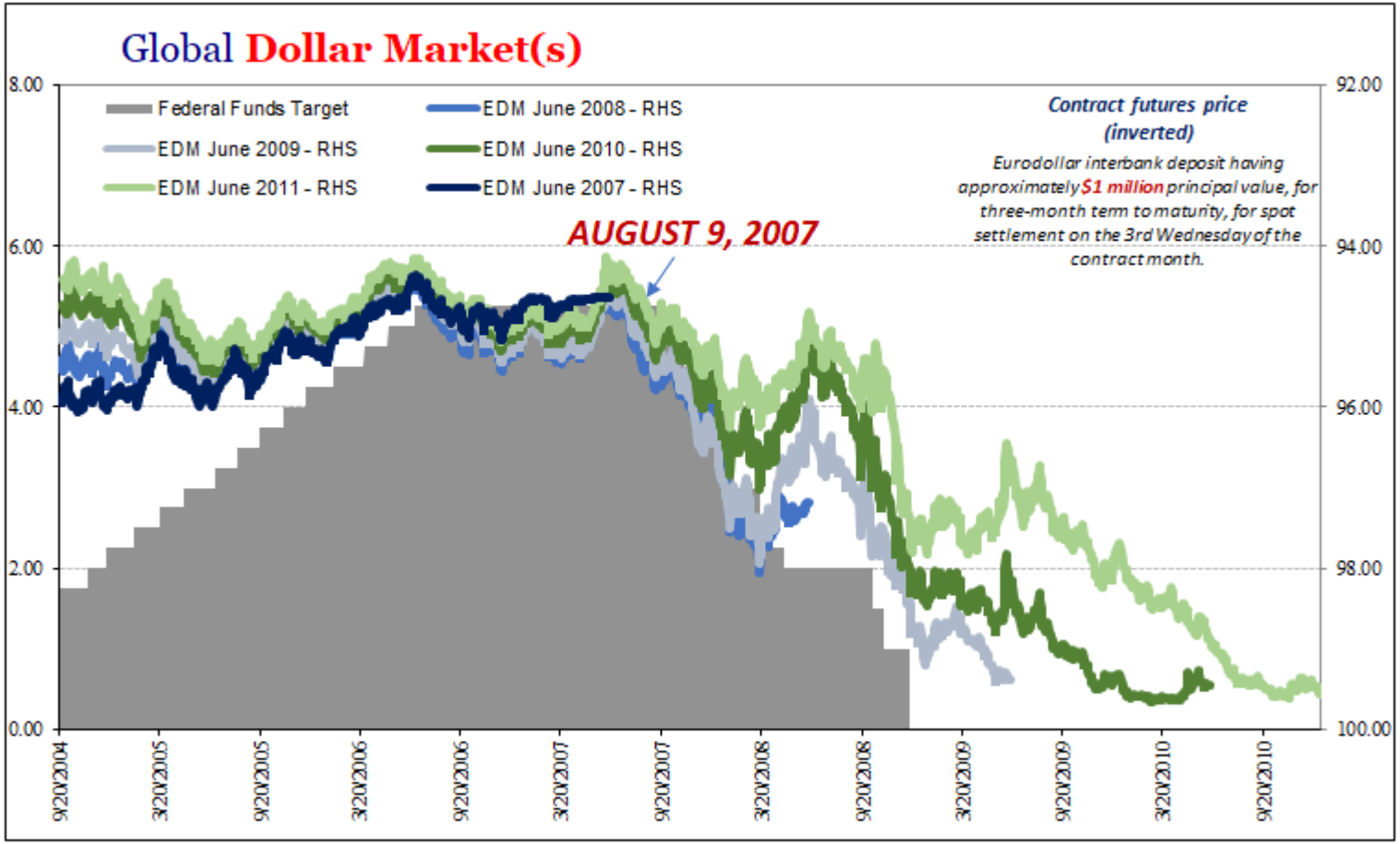
(and even then with nothing but mistakes & half measures driven by 1950's assumptions)

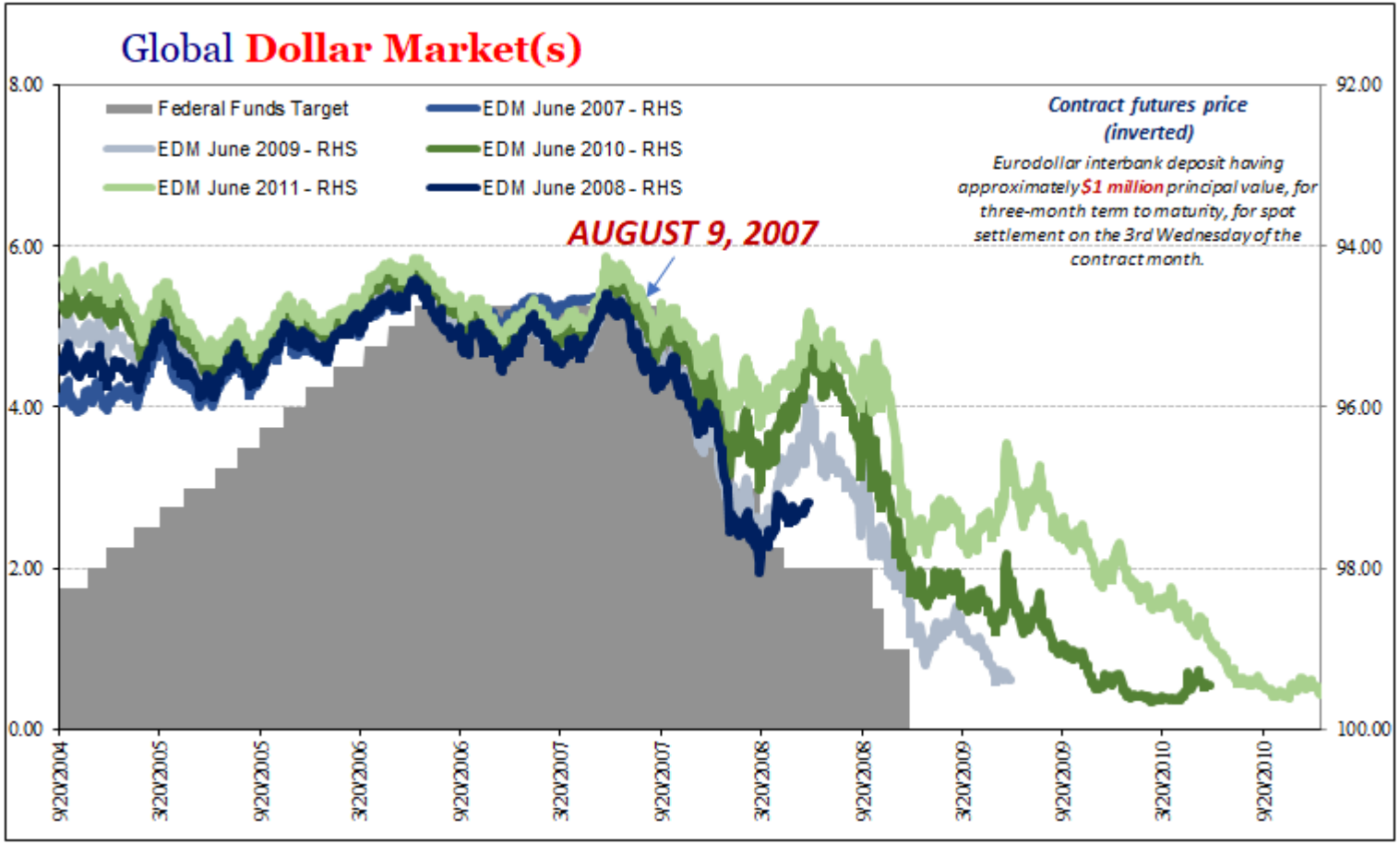
Into The Shadows

Liquidity Risk, not Credit

Markets continuously pointed to money, including reactions to central bank efforts.

The issue was, and remains, ‘dollar.’


Global Dollar Market(s)
Federal Funds Target
EDM June 2008 - RHS
EDM June 2009 - RHS
EDM June 2010 - RHS
EDM June 2011 - RHS
EDM June 2007 - RHS
Contract futures price (inverted)
Eurodollar interbank deposit having approximately $1 million principal value, for three-month term to maturity, for spot settlement on the 3rd Wednesday of the contract month.
AUGUST 9, 2007
8.00
6.00
4.00
2.00
0.00
92.00
94.00
96.00
98.00
100.00
9/20/2004
3/20/2005
9/20/2005
3/20/2006
9/20/2006
3/20/2007
9/20/2007
3/20/2008
9/20/2008
3/20/2009
9/20/2009
3/20/2010
9/20/2010


Global Dollar Market(s)
Federal Funds Target
EDM June 2007 - RHS
EDM June 2009 - RHS
EDM June 2010 - RHS
EDM June 2011 - RHS
EDM June 2008 - RHS
Contract futures price (inverted)
Eurodollar interbank deposit having approximately $1 million principal value, for three-month term to maturity, for spot settlement on the 3rd Wednesday of the contract month.
AUGUST 9, 2007
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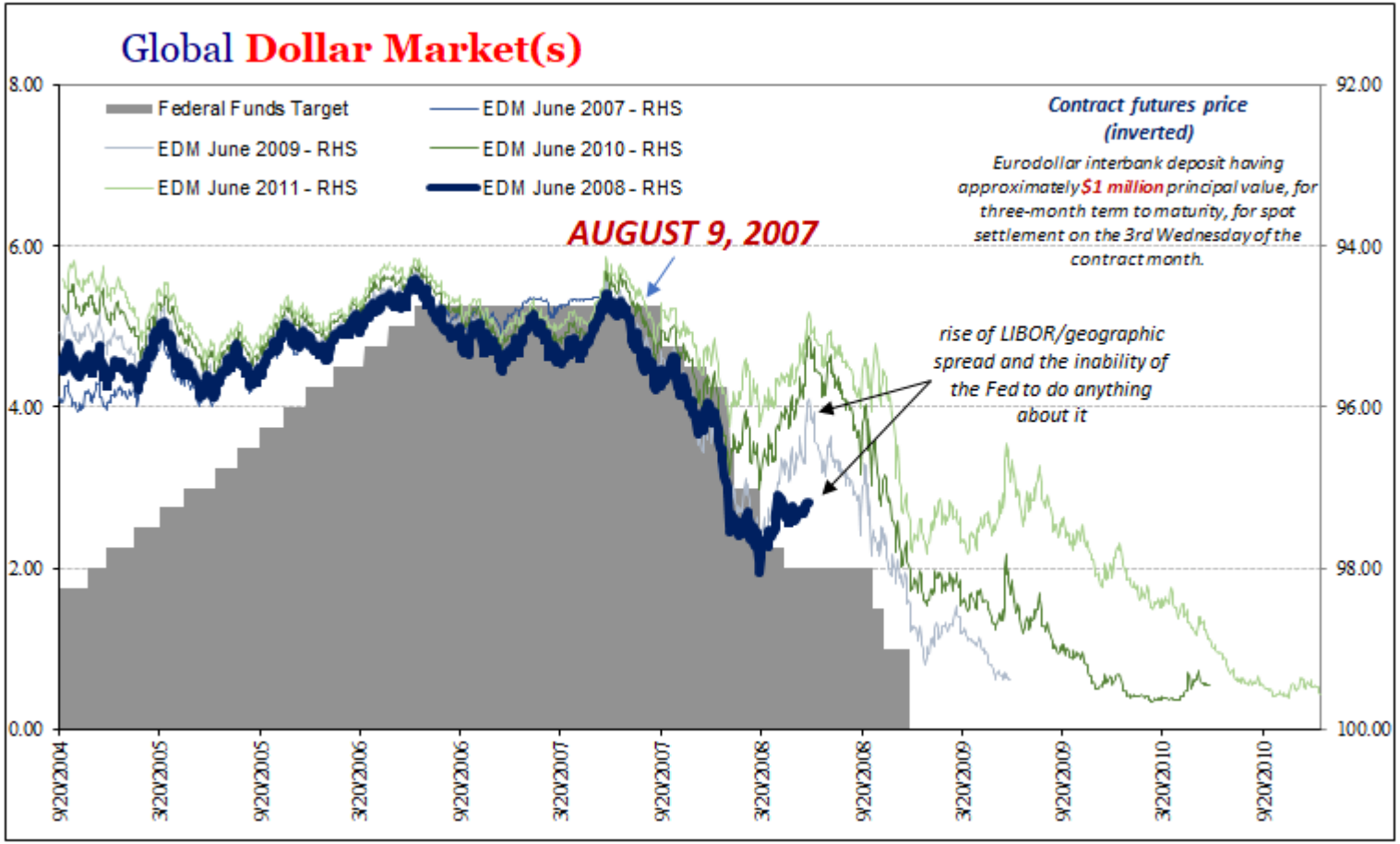
6.00
4.00
2.00
0.00
92.00
94.00
96.00
98.00
100.00
9/20/2004
3/20/2005
9/20/2005
3/20/2006
9/20/2006
3/20/2007
9/20/2007
3/20/2008
9/20/2008
3/20/2009
9/20/2009
3/20/2010
9/20/2010


Global Dollar Market(s)
Federal Funds Target
EDM June 2007 - RHS
EDM June 2009 - RHS
EDM June 2010 - RHS
EDM June 2011 - RHS
EDM June 2008 - RHS
Contract futures price (inverted)
Eurodollar interbank deposit having approximately $1 million principal value, for three-month term to maturity, for spot settlement on the 3rd Wednesday of the contract month.
AUGUST 9, 2007
rise of LIBOR/geographic spread and the inability of the Fed to do anything about it
8.00
6.00
4.00
2.00
0.00
92.00
94.00
96.00
98.00
100.00
9/20/2004
3/20/2005
9/20/2005
3/20/2006
9/20/2006
3/20/2007
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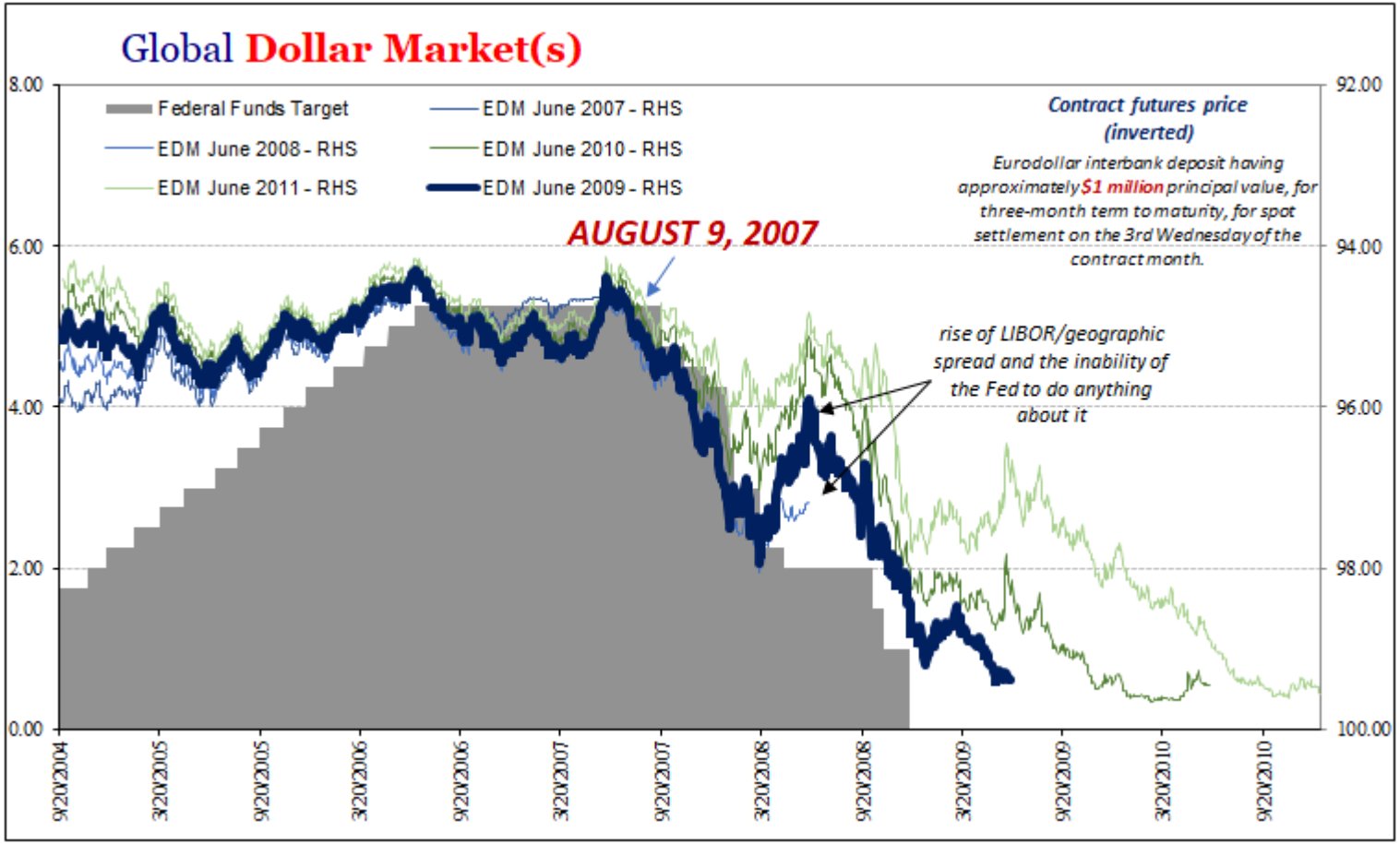
9/20/2009
3/20/2010
9/20/2010


Global Dollar Market(s)
Federal Funds Target
EDM June 2007 - RHS
EDM June 2008 - RHS
EDM June 2010 - RHS
EDM June 2011 - RHS
EDM June 2009 - RHS
Contract futures price (inverted)
Eurodollar interbank deposit having approximately $1 million principal value, for three-month term to maturity, for spot settlement on the 3rd Wednesday of the contract month.
AUGUST 9, 2007
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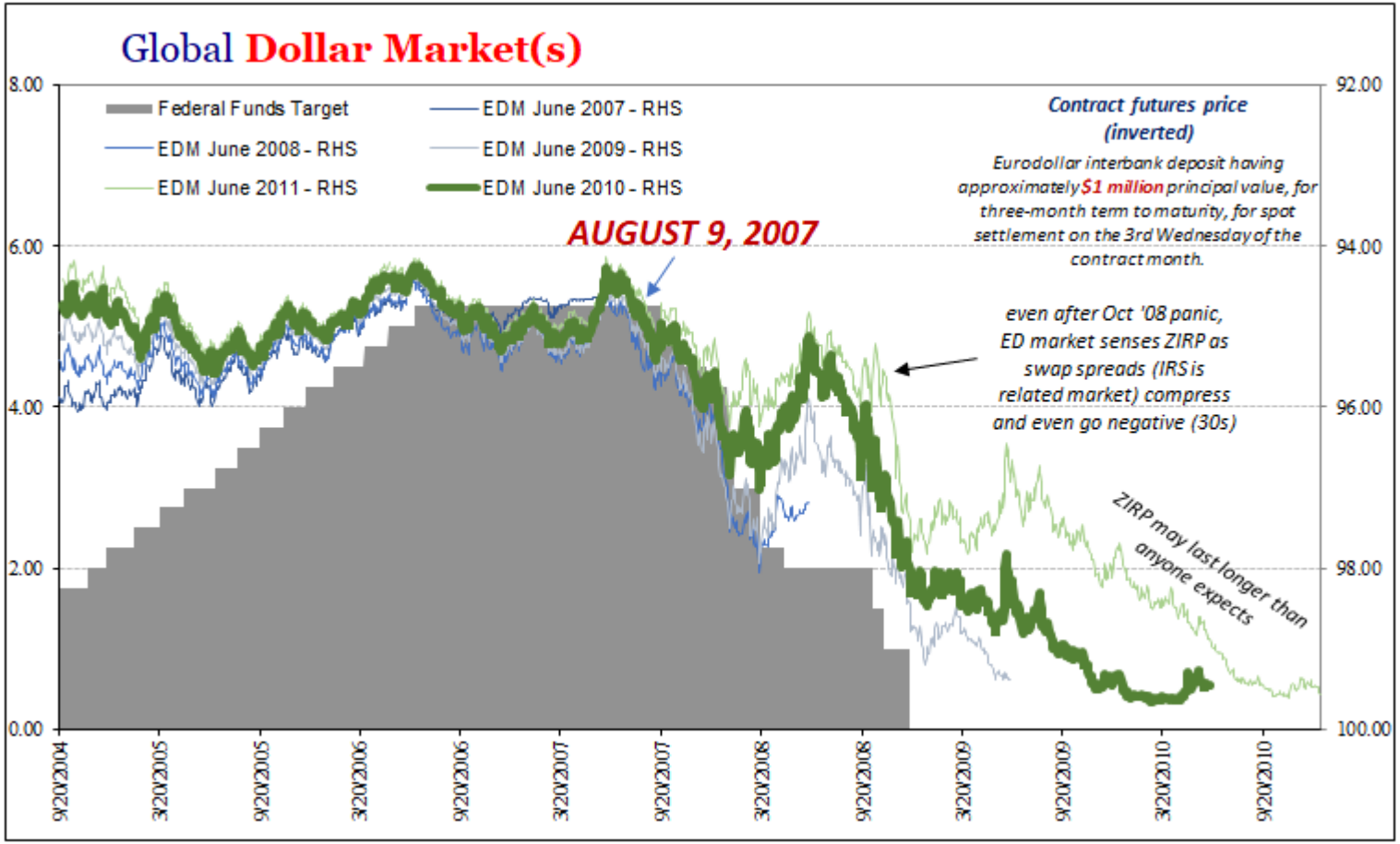
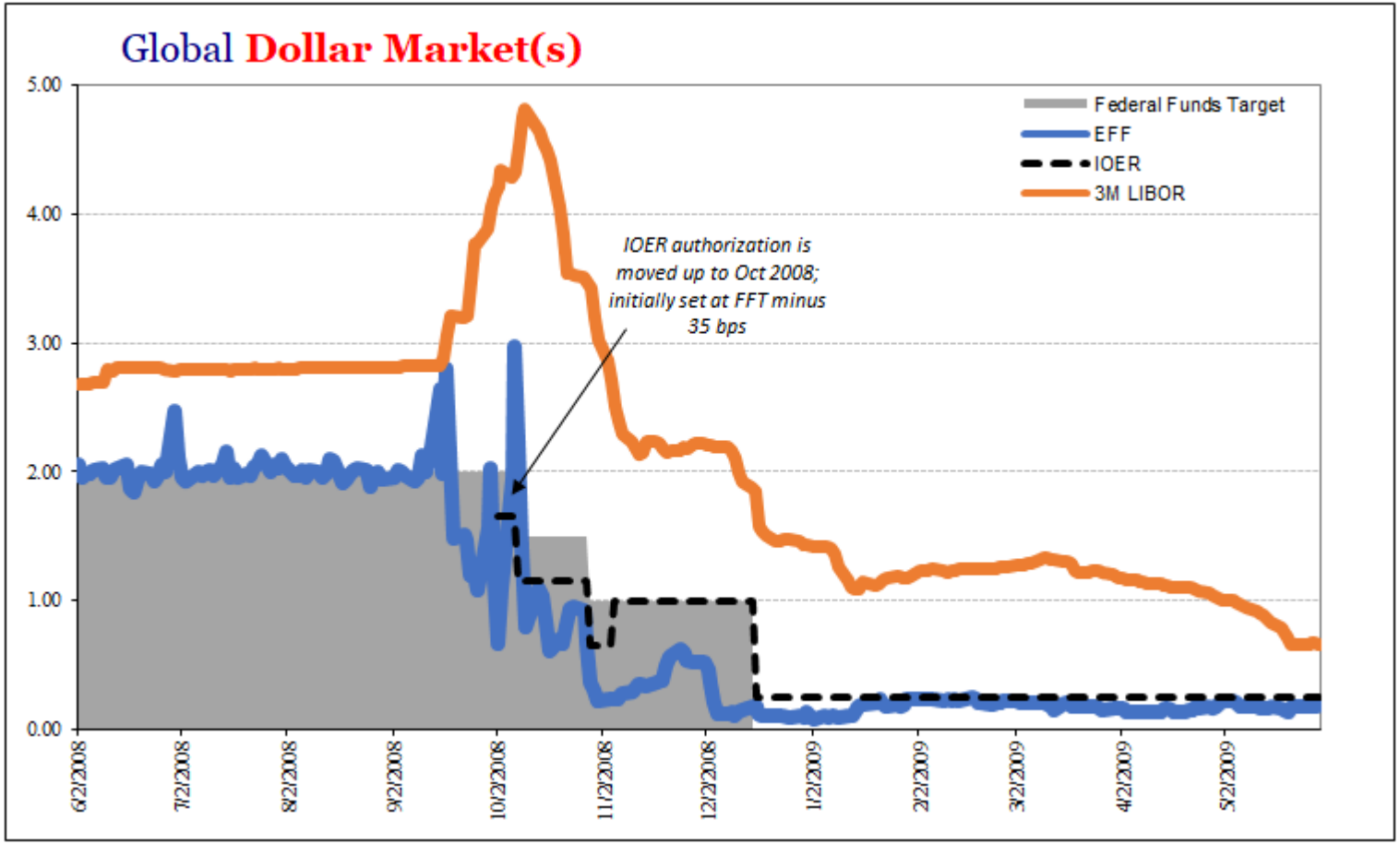
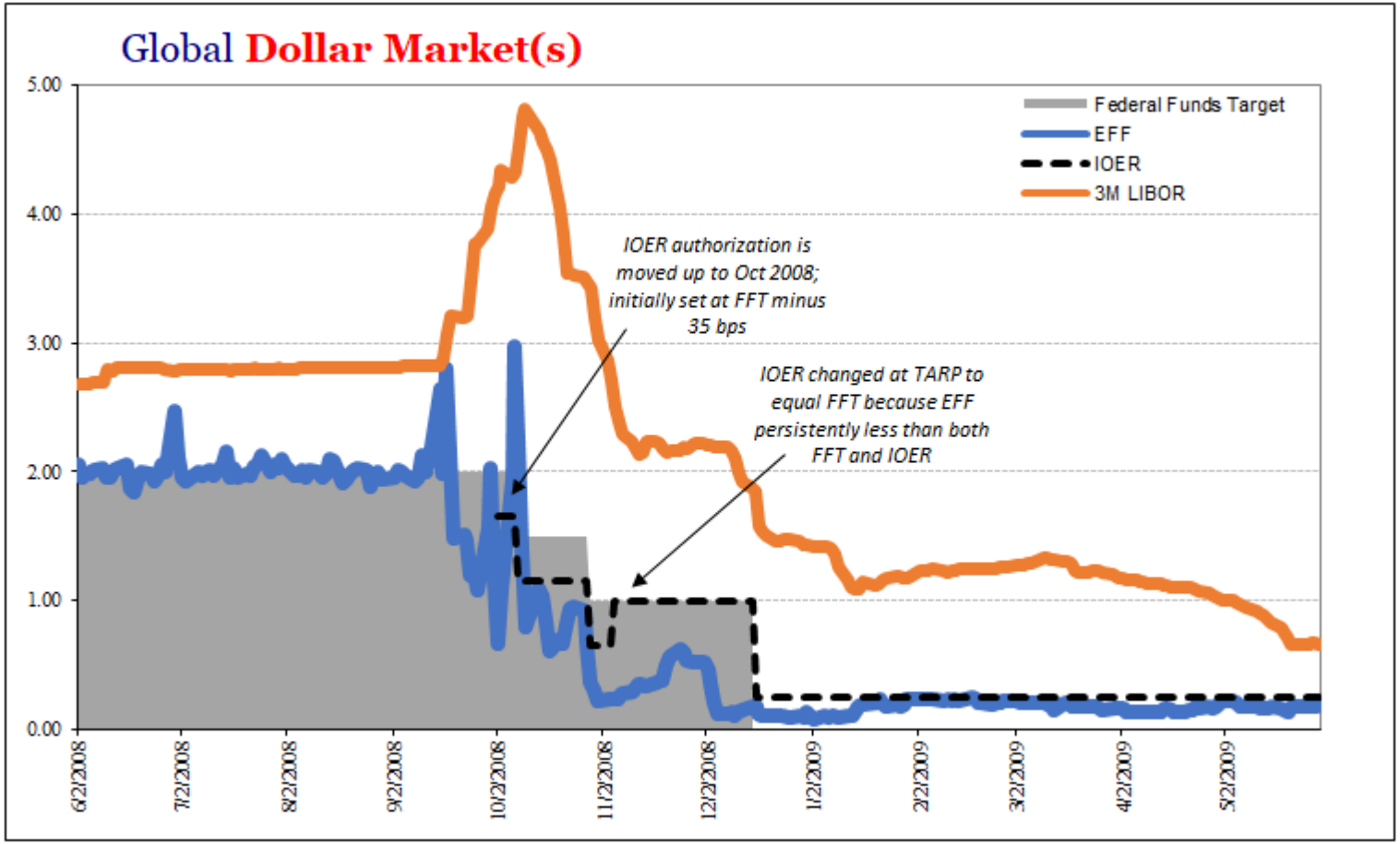
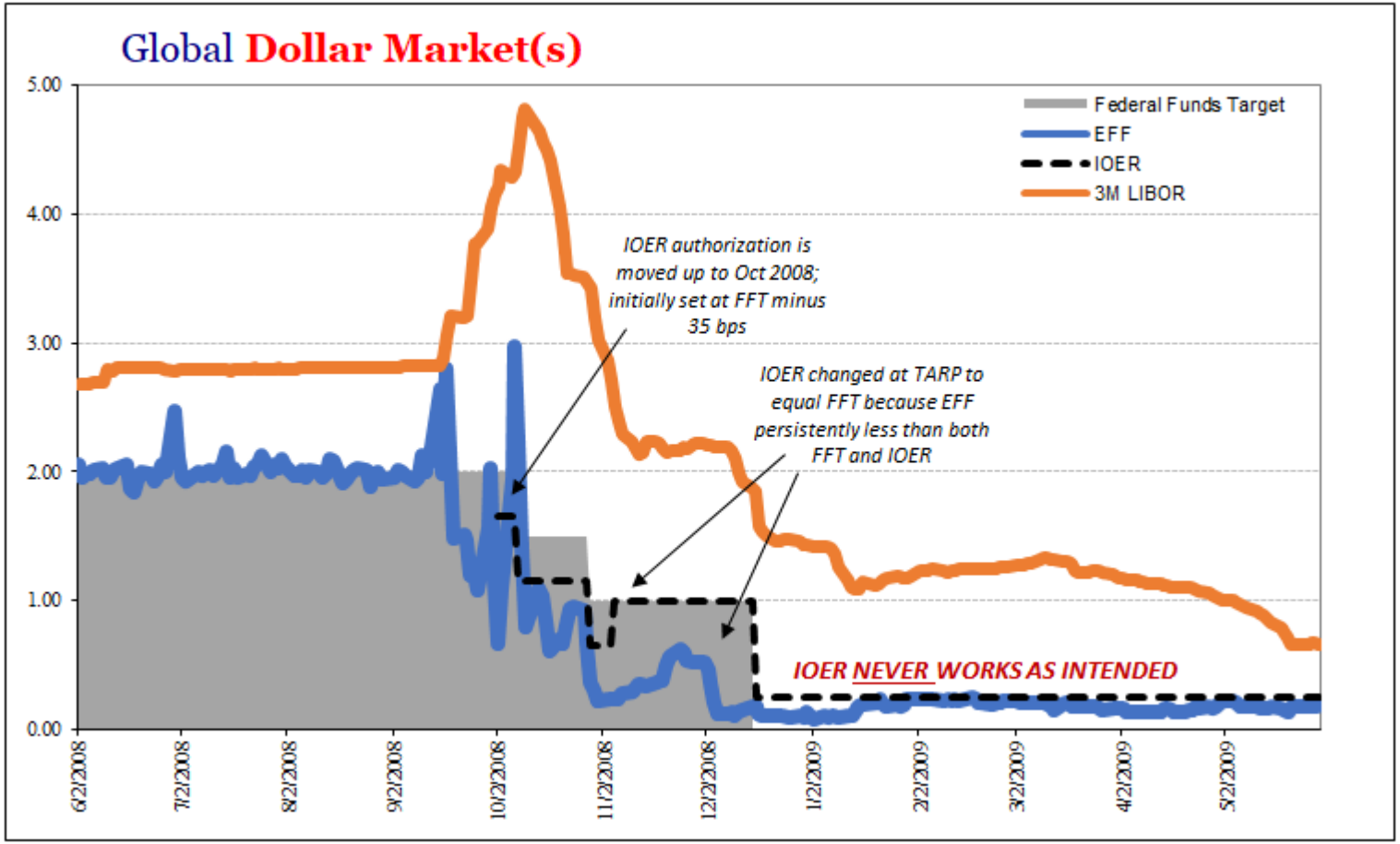
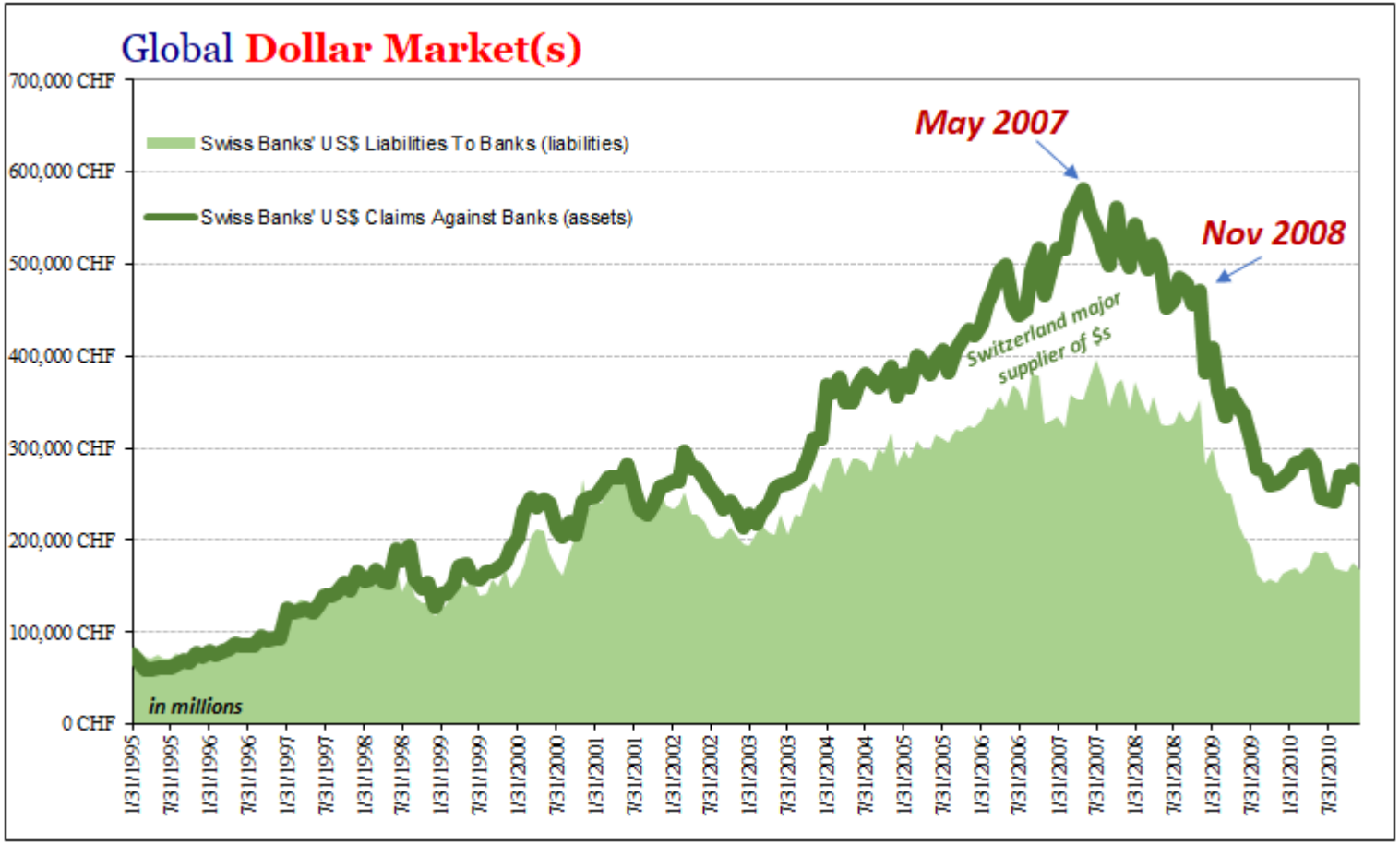
8.00
6.00
4.00
2.00
0.00
92.00
94.00
96.00
98.00
100.00
9/20/2004
3/20/2005
9/20/2005
3/20/2006
9/20/2006
3/20/2007
9/20/2007
3/20/2008
9/20/2008
3/20/2009
9/20/2009
3/20/2010
9/20/2010


Global Dollar Market(s)
Federal Funds Target
EDM June 2007 - RHS
EDM June 2008 - RHS
EDM June 2009 - RHS
EDM June 2011 - RHS
EDM June 2010 - RHS
Contract futures price (inverted)
Eurodollar interbank deposit having approximately $1 million principal value, for three-month term to maturity, for spot settlement on the 3rd Wednesday of the contract month.
AUGUST 9, 2007
even after Oct '08 panic, ED market senses ZIRP as swap spreads (IRS is related market) compress and even go negative (30s)
ZIRP may last longer than anyone expects
8.00
6.00
4.00
2.00
0.00
92.00
94.00
96.00
98.00
100.00
9/20/2004
3/20/2005
9/20/2005
3/20/2006
9/20/2006
3/20/2007
9/20/2007
3/20/2008
9/20/2008
3/20/2009
9/20/2009
3/20/2010
9/20/2010


Global Dollar Market(s)
Federal Funds Target
EFF
IOER
3M LIBOR
IOER authorization is moved up to Oct 2008; initially set at FFT minus 35 bps
5.00
4.00
3.00
2.00
1.00
0.00
6/2/2008
7/2/2008
8/2/2008
9/2/2008
10/2/2008
11/2/2008
12/2/2008
1/2/2009
2/2/2009
3/2/2009
4/2/2009
5/2/2009


Global Dollar Market(s)
Federal Funds Target
EFF
IOER
3M LIBOR
IOER authorization is moved up to Oct 2008; initially set at FFT minus 35 bps
IOER changed at TARP to equal FFT because EFF persistently less than both FFT and IOER
5.00
4.00
3.00
2.00
1.00
0.00
6/2/2008
7/2/2008
8/2/2008
9/2/2008
10/2/2008
11/2/2008
12/2/2008
1/2/2009
2/2/2009
3/2/2009
4/2/2009
5/2/2009


Global Dollar Market(s)
Federal Funds Target
EFF
IOER
3M LIBOR
IOER authorization is moved up to Oct 2008; initially set at FFT minus 35 bps
IOER changed at TARP to equal FFT because EFF persistently less than both FFT and IOER
IOER NEVER WORKS AS INTENDED
5.00
4.00
3.00
2.00
1.00
0.00
6/2/2008
7/2/2008
8/2/2008
9/2/2008
10/2/2008
11/2/2008
12/2/2008
1/2/2009
2/2/2009
3/2/2009
4/2/2009
5/2/2009


Global Dollar Market(s)
700,000 CHF
600,000 CHF
500,000 CHF
400,000 CHF
300,000 CHF
200,000 CHF
100,000 CHF
0 CHF
Swiss Banks' US$ Liabilities To Banks (liabilities)
Swiss Banks' US$ Claims Against Banks (assets)
May 2007
Nov 2008
Switzerland major supplier of $s
in millions
1/31/1995
7/31/1995
1/31/1996
7/31/1996
1/31/1997
7/31/1997
1/31/1998
7/31/1998
1/31/1999
7/31/1999
1/31/2000
7/31/2000
1/31/2001
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1/31/2002
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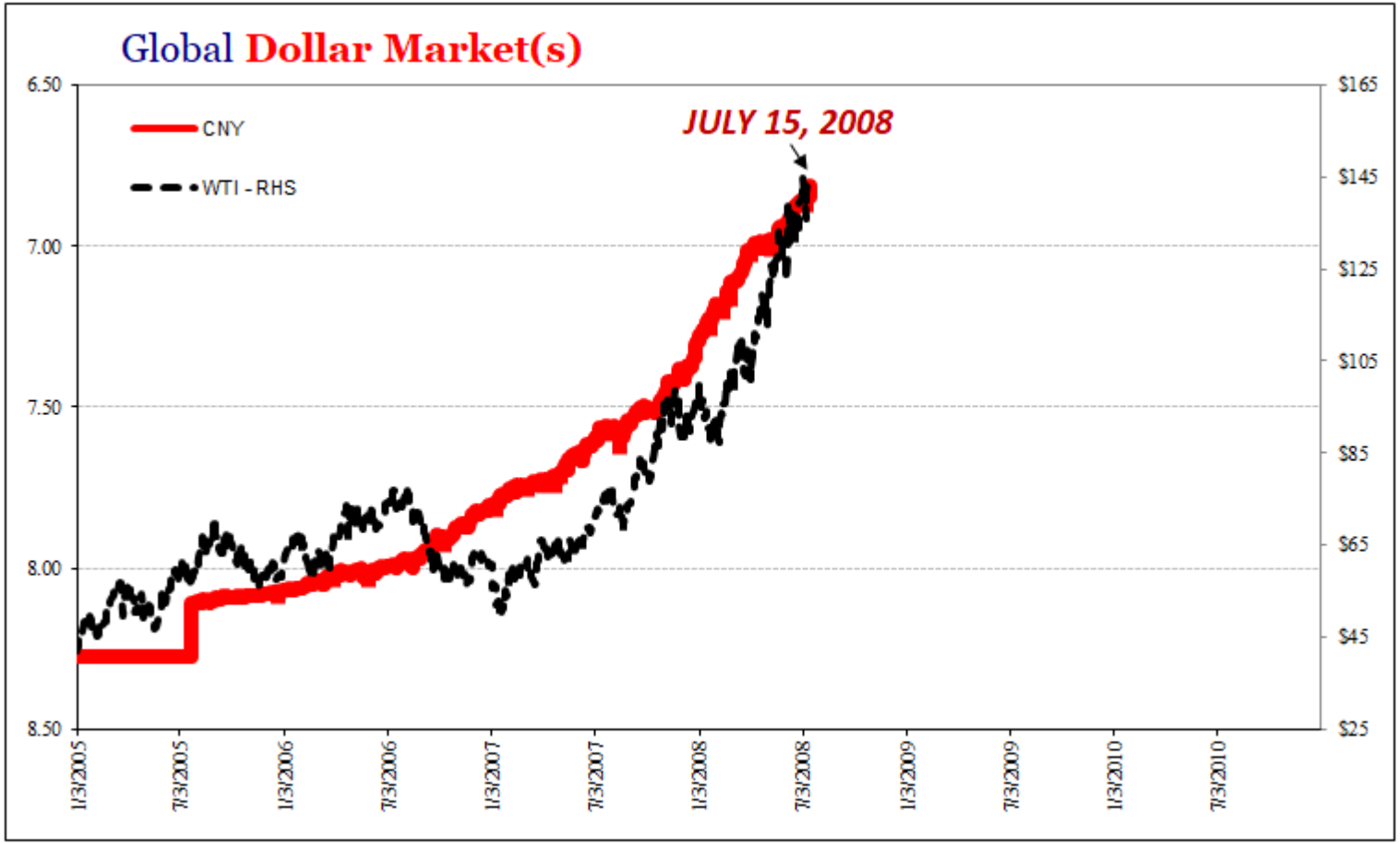
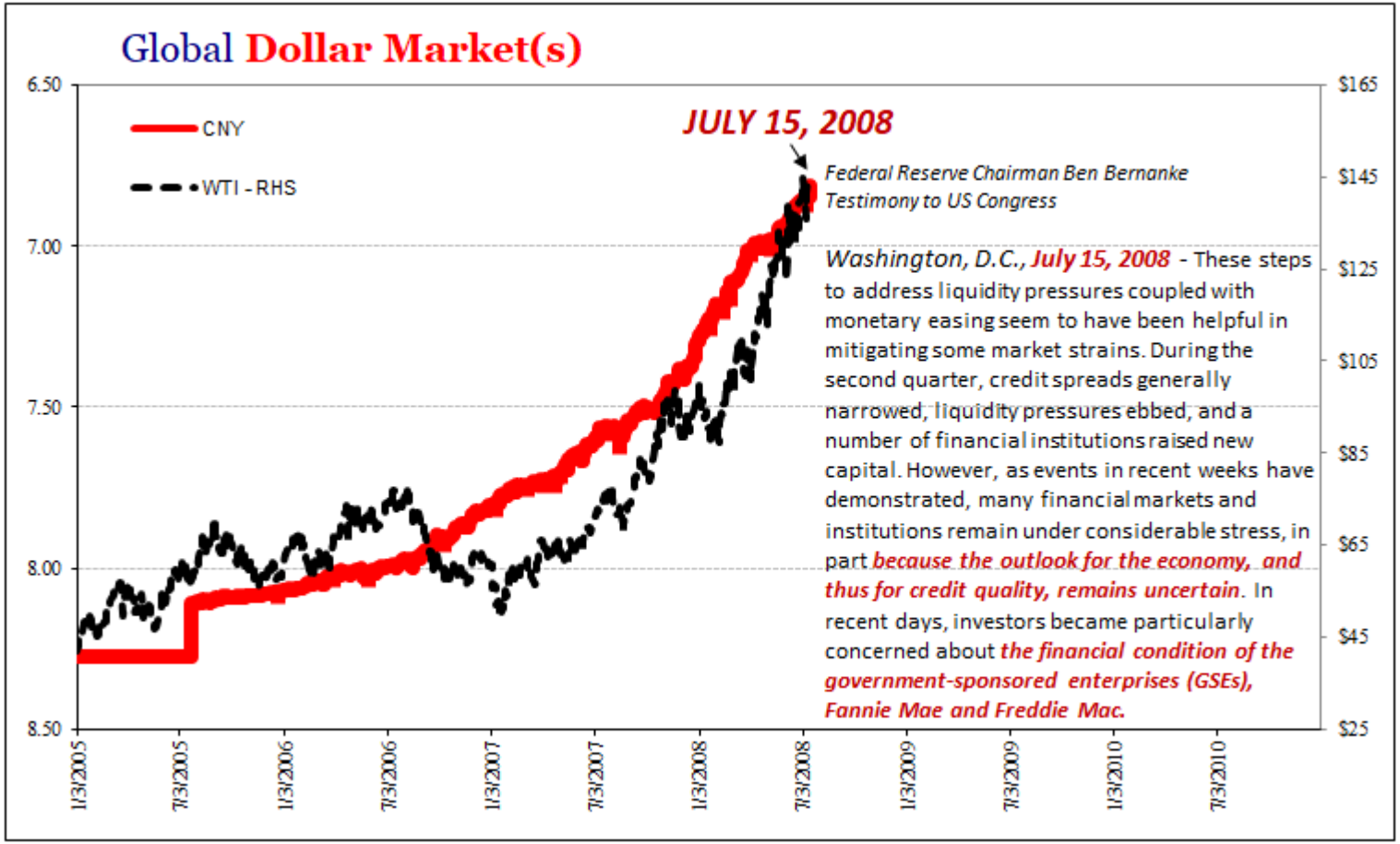
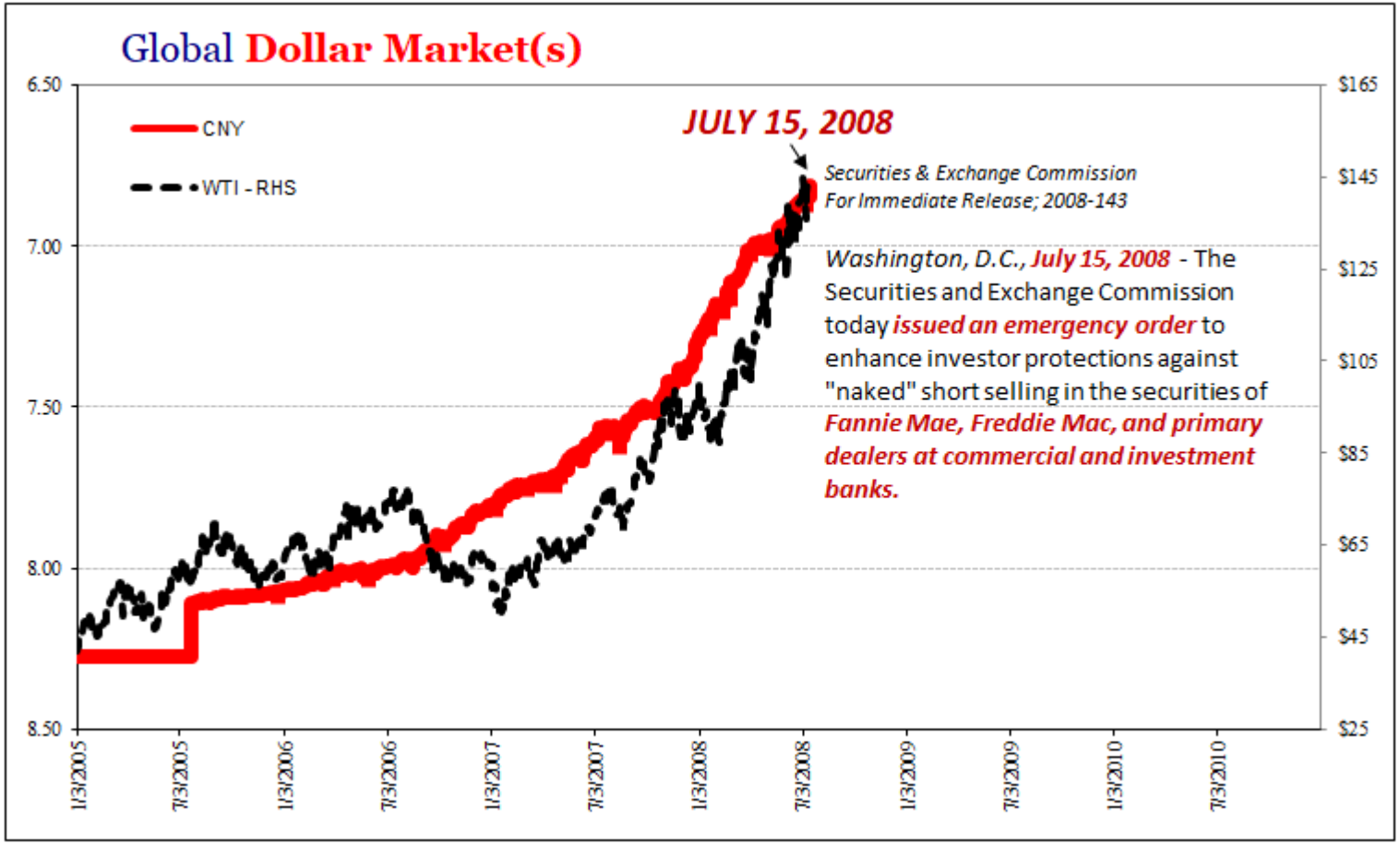
1/31/2010
7/31/2010


Global Dollar Market(s)
JULY 15, 2008
CNY
WTI - RHS
6.50
7.00
7.50
8.00
8.50
$165
$145
$125
$105
$85
$65
$45
$25
1/3/2005
7/3/2005
1/3/2006
7/3/2006
1/3/2007
7/3/2007
1/3/2008
7/3/2008
1/3/2009
7/3/2009
1/3/2010
7/3/2010


Global Dollar Market(s)
CNY
WTI - RHS
JULY 15, 2008
Federal Reserve Chairman Ben Bernanke
Testimony to US Congress
Washington, D.C., July 15, 2008 - These steps to address liquidity pressures coupled with monetary easing seem to have been helpful in mitigating some market strains. During the second quarter, credit spreads generally narrowed, liquidity pressures ebbed, and a number of financial institutions raised new capital. However, as events in recent weeks have demonstrated, many financial markets and institutions remain under considerable stress, in part because the outlook for the economy, and thus for credit quality, remains uncertain. In recent days, investors became particularly concerned about the financial condition of the government-sponsored enterprises (GSEs), Fannie Mae and Freddie Mac.
6.50
7.00
7.50
8.00
8.50
$165
$145
$125
$105
$85
$65
$45
$25
1/3/2005
7/3/2005
1/3/2006
7/3/2006
1/3/2007
7/3/2007
1/3/2008
7/3/2008
1/3/2009
7/3/2009
1/3/2010
7/3/2010


Global Dollar Market(s)
CNY
WTI - RHS
JULY 15, 2008
Securities & Exchange Commission
For Immediate Release; 2008-143
Washington, D.C., July 15, 2008 - The Securities and Exchange Commission today issued an emergency order to enhance investor protections against "naked" short selling in the securities of Fannie Mae, Freddie Mac, and primary dealers at commercial and investment banks.
6.50
7.00
7.50
8.00
8.50
$165
$145
$125
$105
$85
$65
$45
$25
1/3/2005
7/3/2005
1/3/2006
7/3/2006
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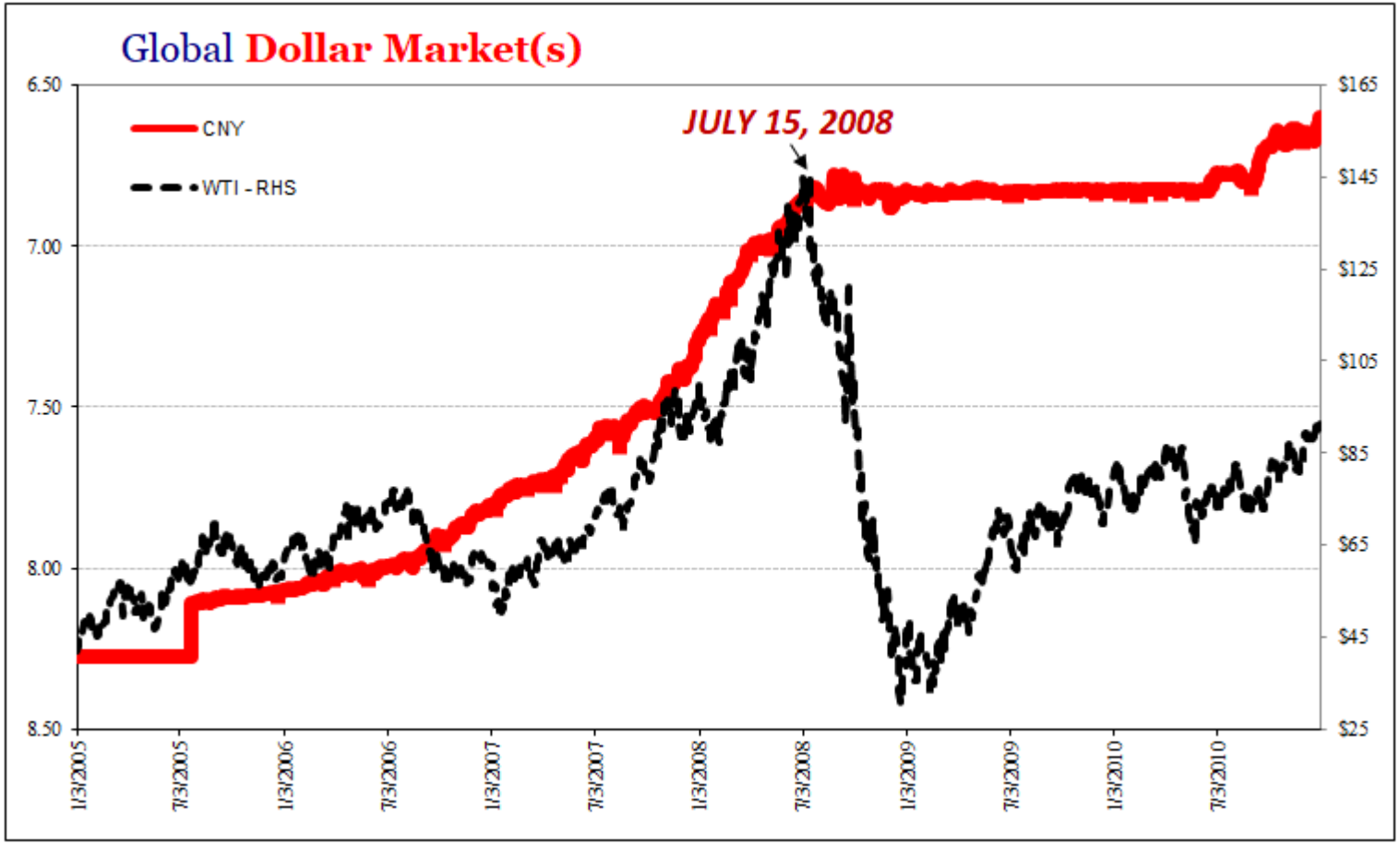
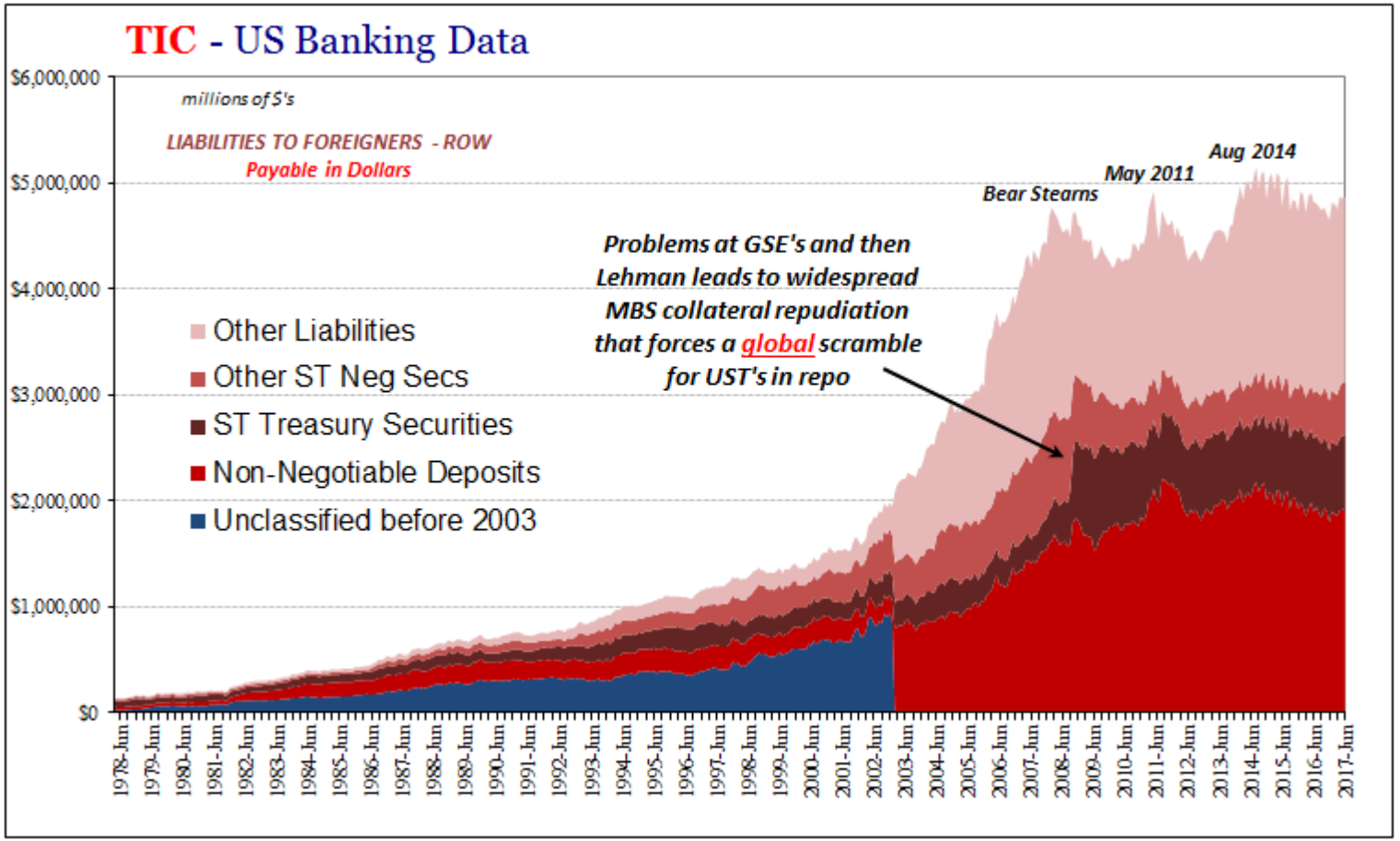
7/3/2009
1/3/2010
7/3/2010


Global Dollar Market(s)
CNY
WTI - RHS
JULY 15, 2008
6.50
7.00
7.50
8.00
8.50
$165
$145
$125
$105
$85
$65
$45
$25
1/3/2005
7/3/2005
1/3/2006
7/3/2006
1/3/2007
7/3/2007
1/3/2008
7/3/2008
1/3/2009
7/3/2009
1/3/2010
7/3/2010


TIC - US Banking Data
millions of $'s
LIABILITIES TO FOREIGNERS - ROW
Payable in Dollars
Aug 2014
May 2011
Bear Stearns
Problems at GSE's and then Lehman leads to widespread MBS collateral repudiation that forces a global scramble for UST's in repo
Other Liabilities
Other ST Neg Secs
ST Treasury Securities
Non-Negotiable Deposits
Unclassified before 2003
$6,000,000
$5,000,000
$4,000,000
$3,000,000
$2,000,000
$1,000,000
$0
1978-Jun
1979-Jun
1980-Jun
1981-Jun
1982-Jun
1983-Jun
1984-Jun
1985-Jun
1986-Jun
1987-Jun
1988-Jun
1989-Jun
1990-Jun
1991-Jun
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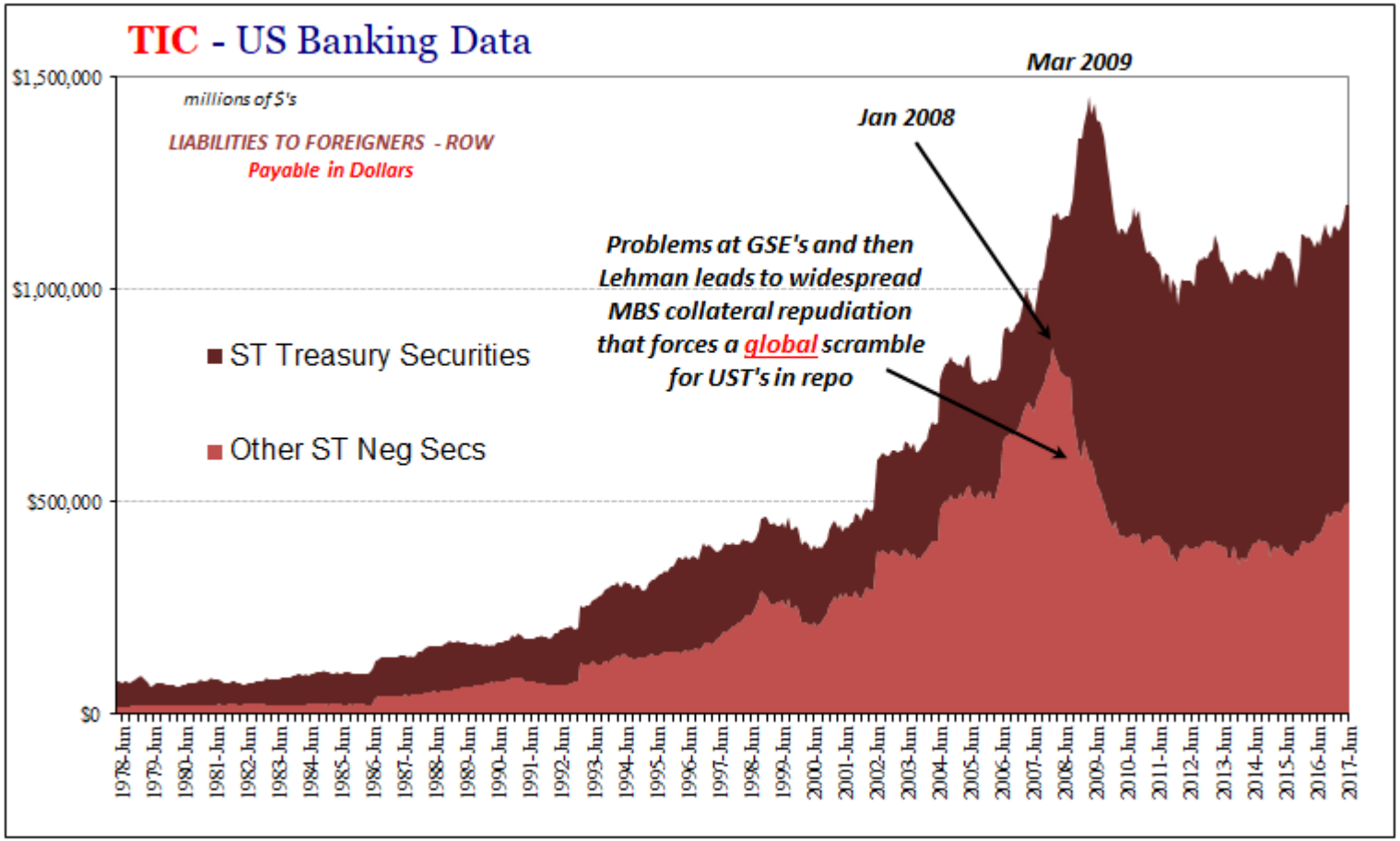
2013-Jun
2014-Jun
2015-Jun
2016-Jun
2017-Jun


TIC - US Banking Data
millions of $'s
LIABILITIES TO FOREIGNERS - ROW
Payable in Dollars
Mar 2009
Jan 2008
Problems at GSE's and then Lehman leads to widespread MBS collateral repudiation that forces a global scramble for UST's in repo
ST Treasury Securities
Other ST Neg Secs
$1,500,000
$1,000,000
$500,000
$0
1978-Jun
1979-Jun
1980-Jun
1981-Jun
1982-Jun
1983-Jun
1984-Jun
1985-Jun
1986-Jun
1987-Jun
1988-Jun
1989-Jun
1990-Jun
1991-Jun
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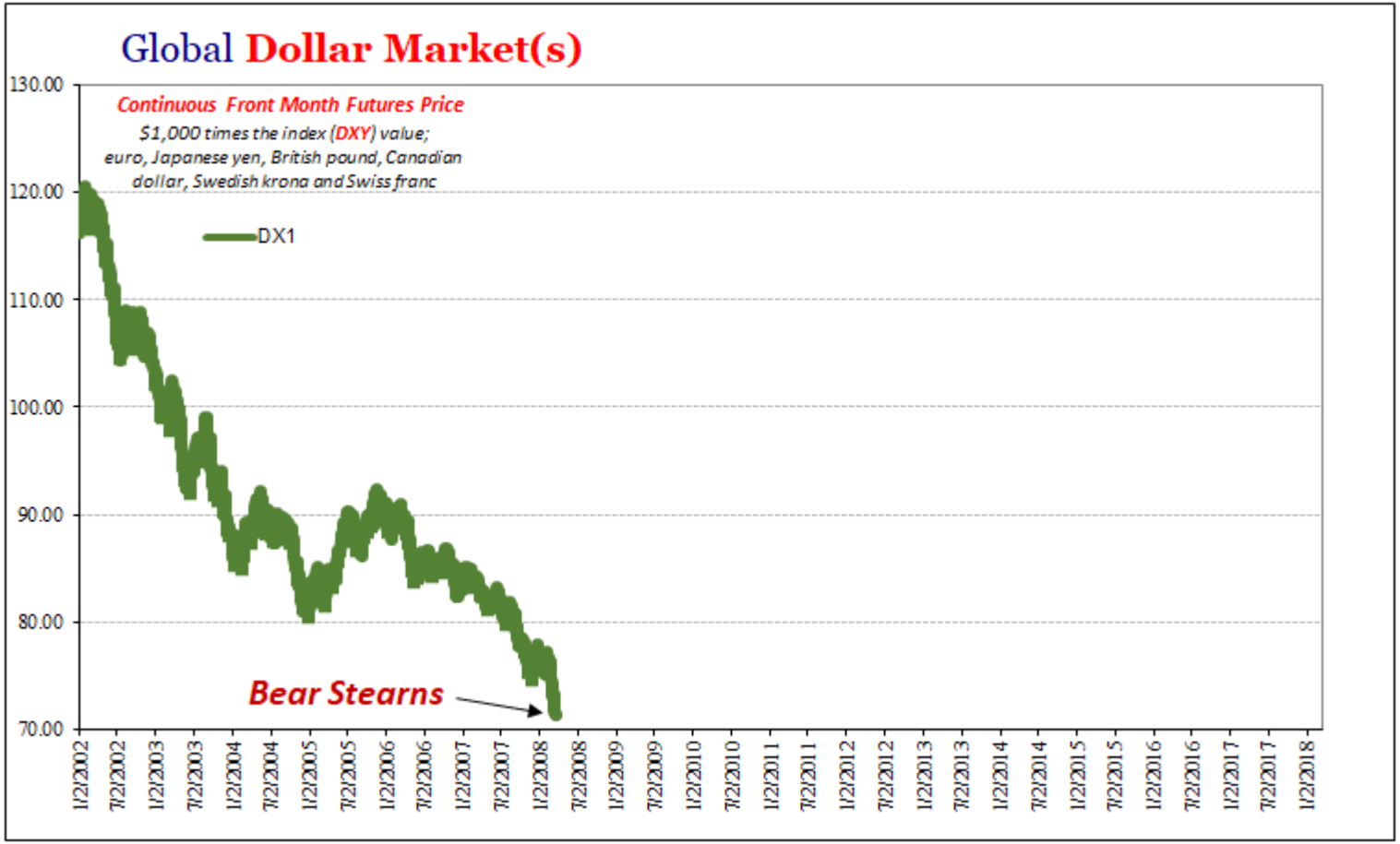
2011-Jun
2012-Jun
2013-Jun
2014-Jun
2015-Jun
2016-Jun
2017-Jun


Global Dollar Market(s)
Continuous Front Month Futures Price
$1,000 times the index (DXY) value;
euro, Japanese yen, British pound, Canadian dollar, Swedish krona and Swiss franc
DX1
Bear Stearns
130.00
120.00
110.00
100.00
90.00
80.00
70.00
1/2/2002
7/2/2002
1/2/2003
7/2/2003
1/2/2004
7/2/2004
1/2/2005
7/2/2005
1/2/2006
7/2/2006
1/2/2007
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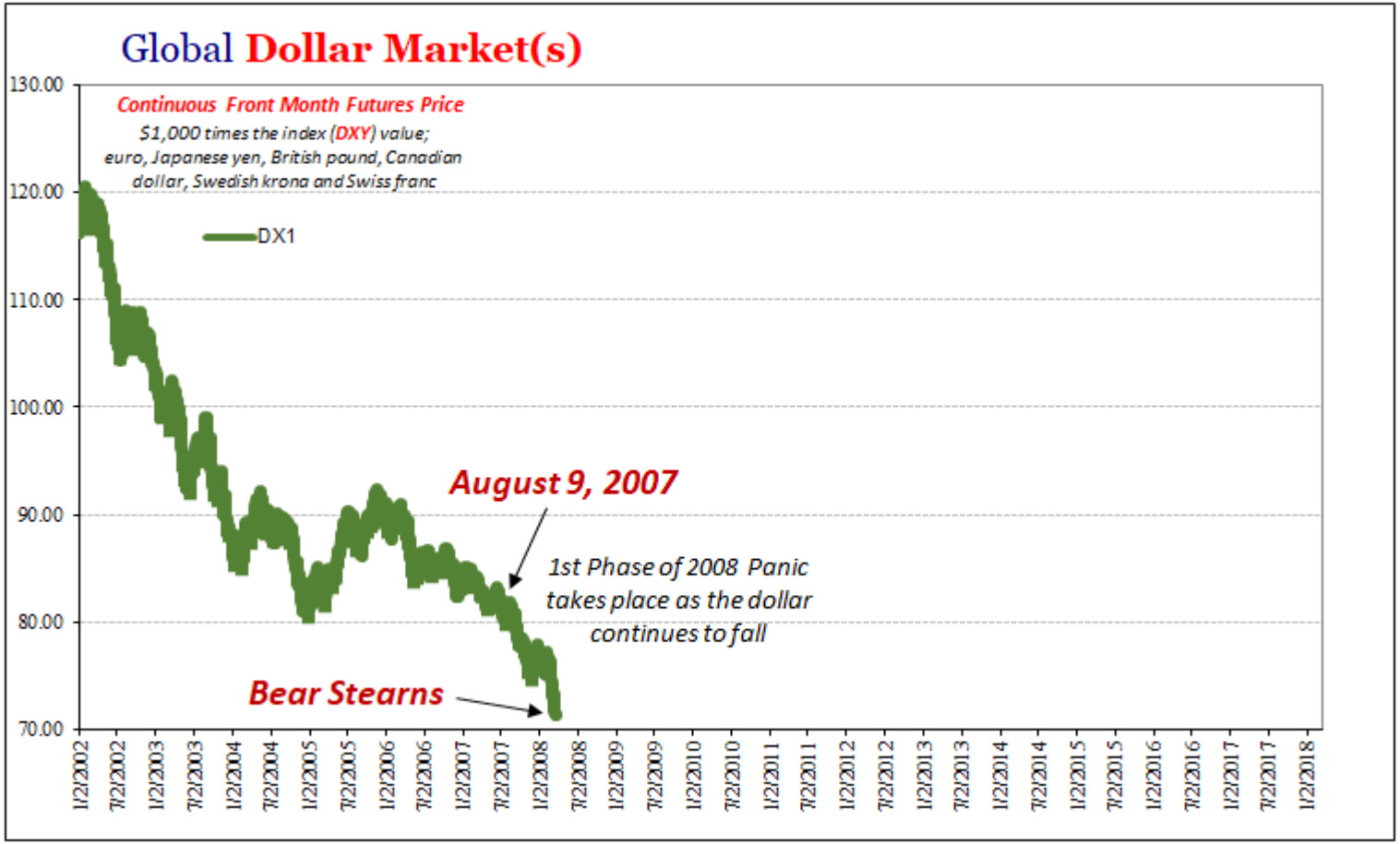
7/2/2017
1/2/2018


Global Dollar Market(s)
Continuous Front Month Futures Price
$1,000 times the index (DXY) value;
euro, Japanese yen, British pound, Canadian dollar, Swedish krona and Swiss franc
DX1
130.00
120.00
110.00
100.00
90.00
80.00
70.00
August 9, 2007
1st Phase of 2008 Panic takes place as the dollar continues to fall
Bear Stearns
1/2/2002
7/2/2002
1/2/2003
7/2/2003
1/2/2004
7/2/2004
1/2/2005
7/2/2005
1/2/2006
7/2/2006
1/2/2007
7/2/2007
1/2/2008
7/2/2008
1/2/2009
7/2/2009
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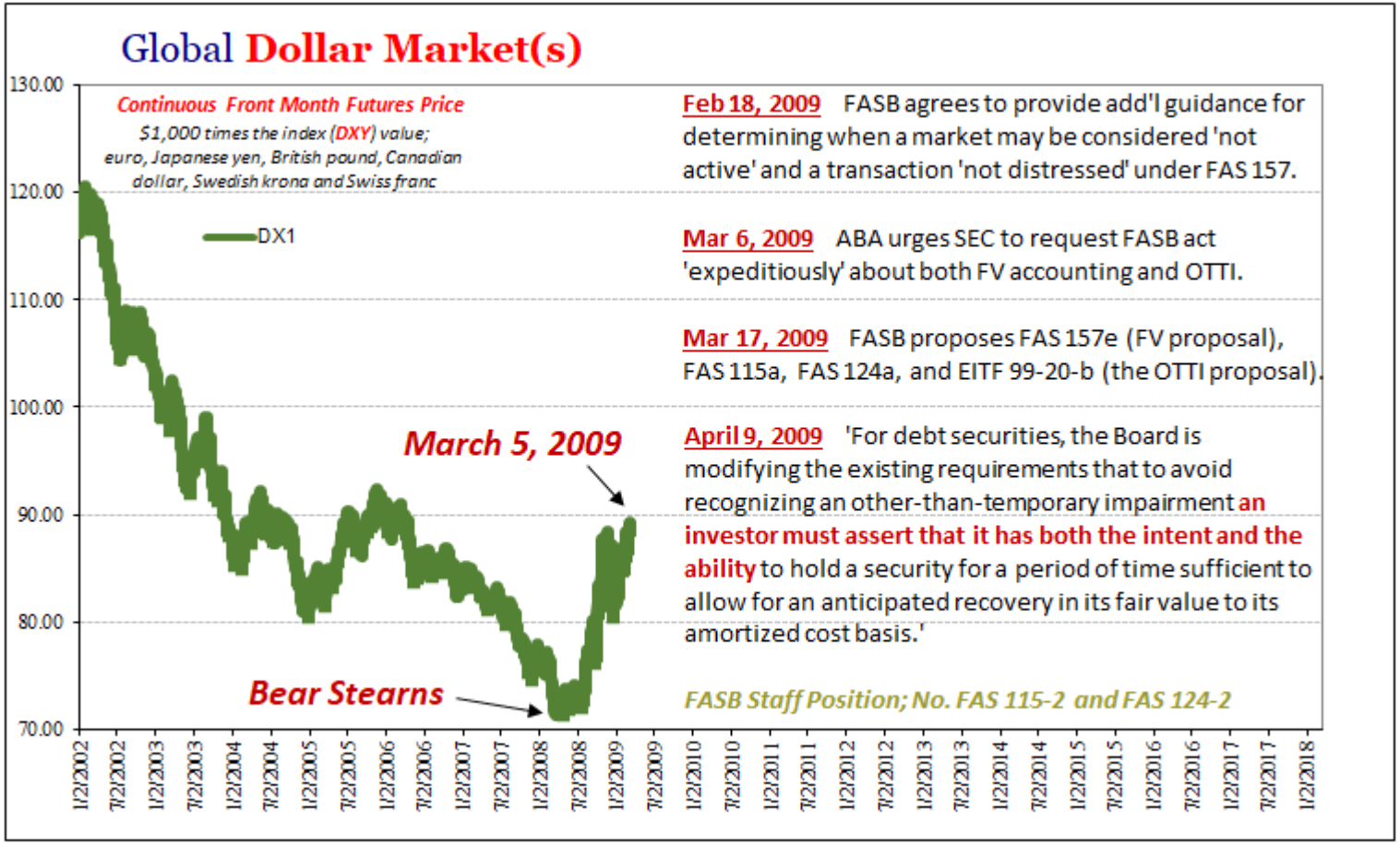
7/2/2011
1/2/2012
7/2/2012
1/2/2013
7/2/2013
1/2/2014
7/2/2014
1/2/2015
7/2/2015
1/2/2016
7/2/2016
1/2/2017
7/2/2017
1/2/2018


Global Dollar Market(s)
Continuous Front Month Futures Price
$1,000 times the index (DXY) value;
euro, Japanese yen, British pound, Canadian dollar, Swedish krona and Swiss franc
DX1
March 5, 2009
Bear Stearns
130.00
120.00
110.00
100.00
90.00
80.00
70.00
1/2/2002
7/2/2002
1/2/2003
7/2/2003
1/2/2004
7/2/2004
1/2/2005
7/2/2005
1/2/2006
7/2/2006
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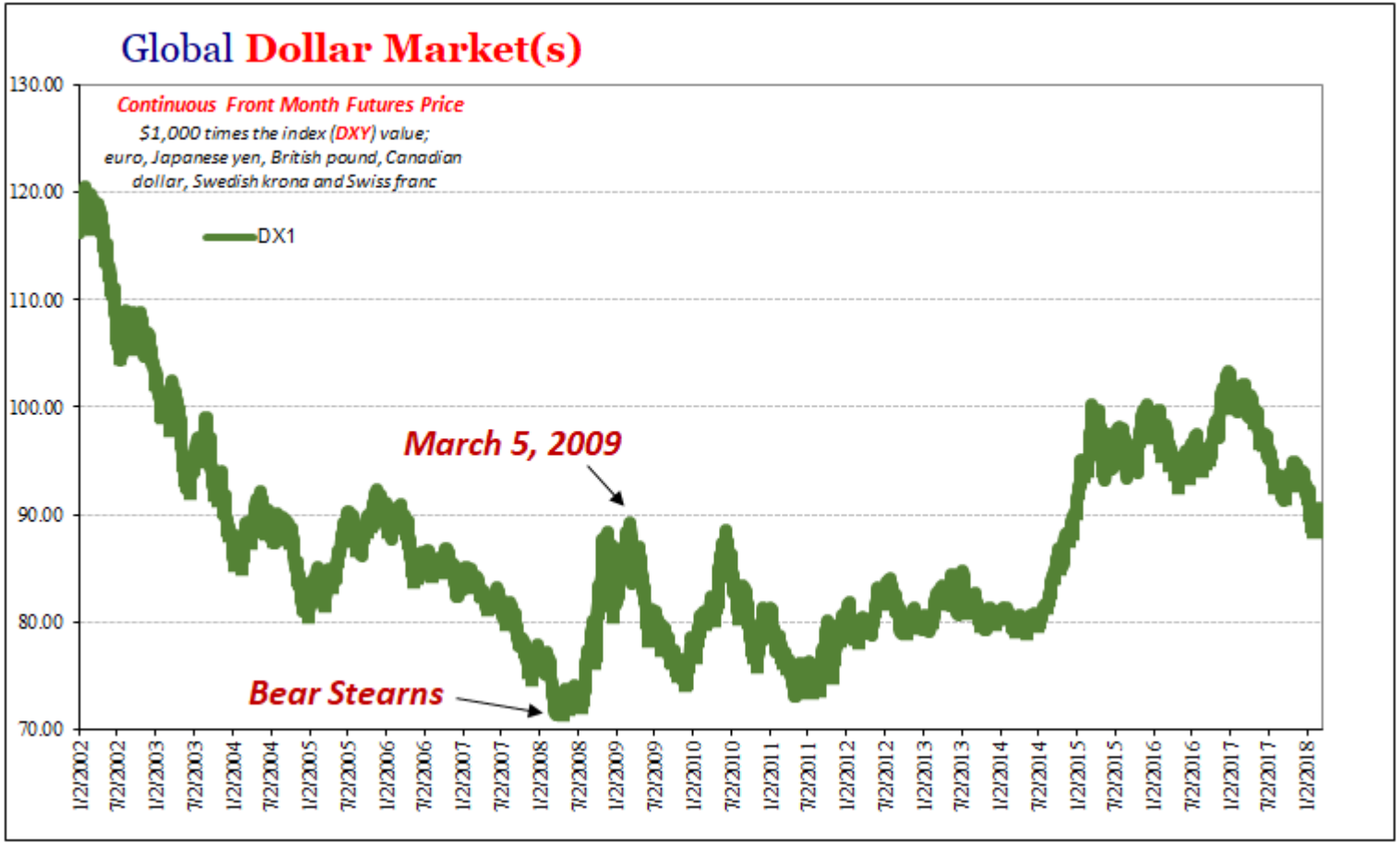
1/2/2014
7/2/2014
1/2/2015
7/2/2015
1/2/2016
7/2/2016
1/2/2017
7/2/2017
1/2/2018
Feb 18, 2009 FASB agrees to provide add'l guidance for determining when a market may be considered 'not active' and a transaction 'not distressed' under FAS 157.
Mar 6, 2009 ABA urges SEC to request FASB act 'expeditiously' about both FV accounting and OTTI.
Mar 17, 2009 FASB proposes FAS 157e (FV proposal), FAS 115a, FAS 124a, and EITF 99-20-b (the OTTI proposal).
April 9, 2009 'For debt securities, the Board is modifying the existing requirements that to avoid recognizing an other-than-temporary impairment an investor must assert that it has both the intent and the ability to hold a security for a period of time sufficient to allow for an anticipated recovery in its fair value to its amortized cost basis.'
FASB Staff Position; No. FAS 115-2 and FAS 124-2


Global Dollar Market(s)
Continuous Front Month Futures Price
$1,000 times the index (DXY) value;
euro, Japanese yen, British pound, Canadian dollar, Swedish krona and Swiss franc
DX1
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130.00
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1/2/2002
7/2/2002
1/2/2003
7/2/2003
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7/2/2013
1/2/2014
7/2/2014
1/2/2015
7/2/2015
1/2/2016
7/2/2016
1/2/2017
7/2/2017
1/2/2018

Structural Changes to Euro$ System

Liquidity Risk, not Credit

The issue was, and remains, 'dollar.'

1. **Monetary framework previously thought robust with intricate safeguards and redundancies was instead proved pro-cyclical and fragile. Fragmentation destroyed all sense of seamless global interactions.**

Structural Changes to Euro$ System

Liquidity Risk, not Credit

The issue was, and remains, ‘dollar.’

1a. To that end, Federal Reserve proved worthless, clueless, and feckless. It had always been believed going back to the earliest days of the ‘maestro’ that the Fed would stand behind everything (liquidity) if necessary. No one bothered to ponder the question of whether it could.

Structural Changes to Euro$ System

Liquidity Risk, not Credit

The issue was, and remains, ‘dollar.’

1a. Instead, the central bank demonstrated time and again that even if it did possess sufficient fortitude it still couldn’t address all the major structural flaws that had turned decidedly pro-cyclical and self-reinforcing (interbank run).

Structural Changes to Euro$ System

Liquidity Risk, not Credit

The issue was, and remains, 'dollar.'

2. The system's prior apparently seamless monetary operation on a global basis was an illusion created by exponential growth alone rather than solid intrinsic features (such as common sense and logic). Like a spinning top, it was only stable so long as it was moving with great speed.

Structural Changes to Euro$ System

Liquidity Risk, not Credit

2a. The slightest deviation from robust 'rotation' completely re-oriented monetary priorities (asymmetry).

The issue was, and remains, 'dollar.'

Structural Changes to Euro$ System

Liquidity Risk, not Credit

The issue was, and remains, ‘dollar.’

2b. What had been prior to August 2007 treated as overall riskless return (an absurdity in any place, let alone one where exponential growth predominates) suddenly became widely accepted as returnless risk.

Structural Changes to Euro$ System

Liquidity Risk, not Credit

The issue was, and remains, ‘dollar.’

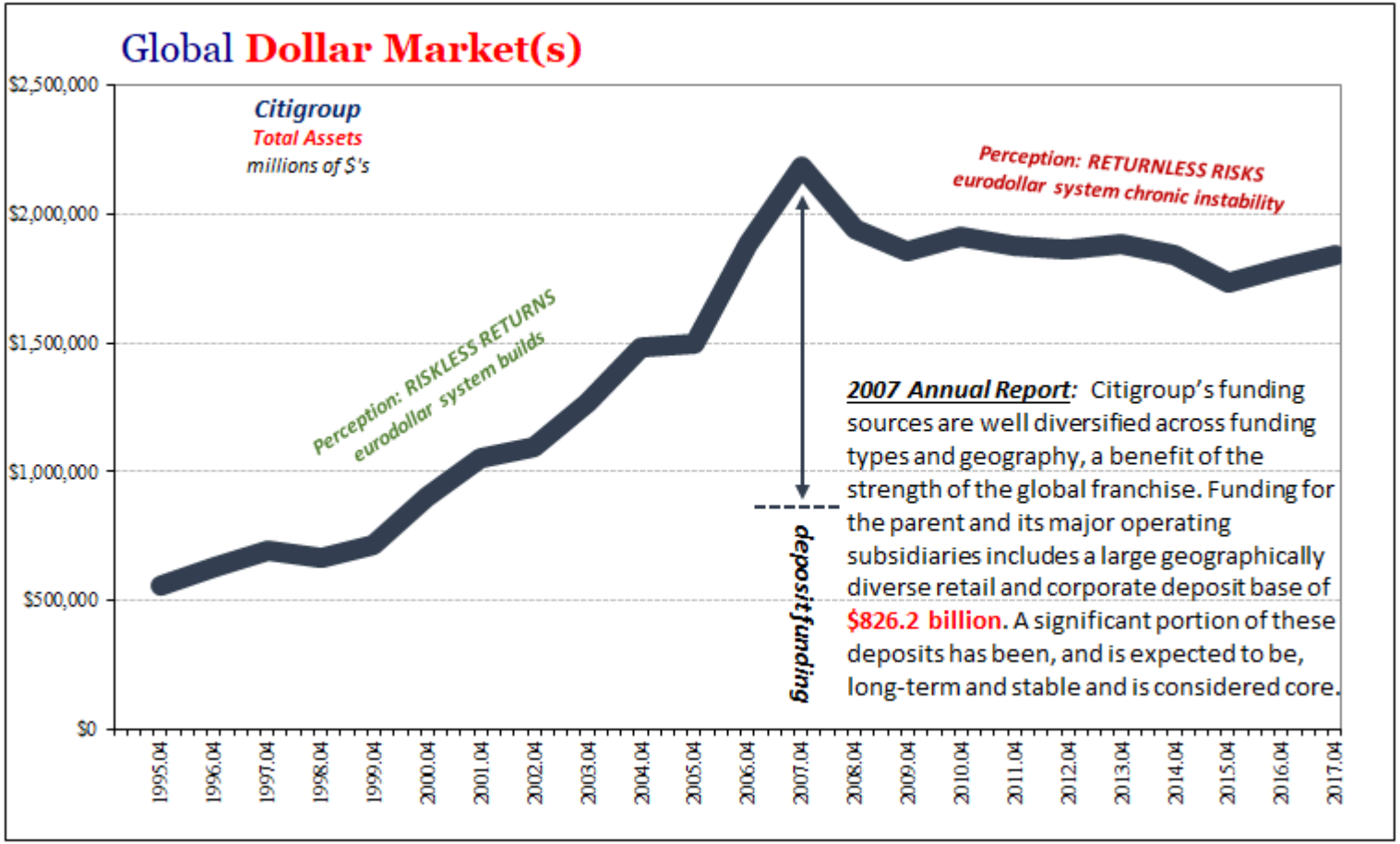
3. The whole thing being turned upside down starting in August 2007, and then with Bear Stearns, banks simply don’t want to do it anymore. And without them (balance sheet capacity) the monetary system can only be a persistent economic drag.

Structural Changes to Euro$ System

Liquidity Risk, not Credit

The issue was, and remains, ‘dollar.’

3. The whole thing being turned upside down starting in August 2007, and then with Bear Stearns, **banks simply don’t want to do it anymore**. And without them (balance sheet capacity) the monetary system can only be a persistent economic drag.


Global Dollar Market(s)
Citigroup
Total Assets
millions of $'s
$2,500,000
$2,000,000
$1,500,000
$1,000,000
$500,000
$0
Perception: RISKLESS RETURNS
eurodollar system builds
Perception: RETURNLESS RISKS
eurodollar system chronic instability
deposit funding
2007 Annual Report: Citigroup's funding sources are well diversified across funding types and geography, a benefit of the strength of the global franchise. Funding for the parent and its major operating subsidiaries includes a large geographically diverse retail and corporate deposit base of $826.2 billion. A significant portion of these deposits has been, and is expected to be, long-term and stable and is considered core.
1995.04
1996.04
1997.04
1998.04
1999.04
2000.04
2001.04
2002.04
2003.04
2004.04
2005.04
2006.04
2007.04
2008.04
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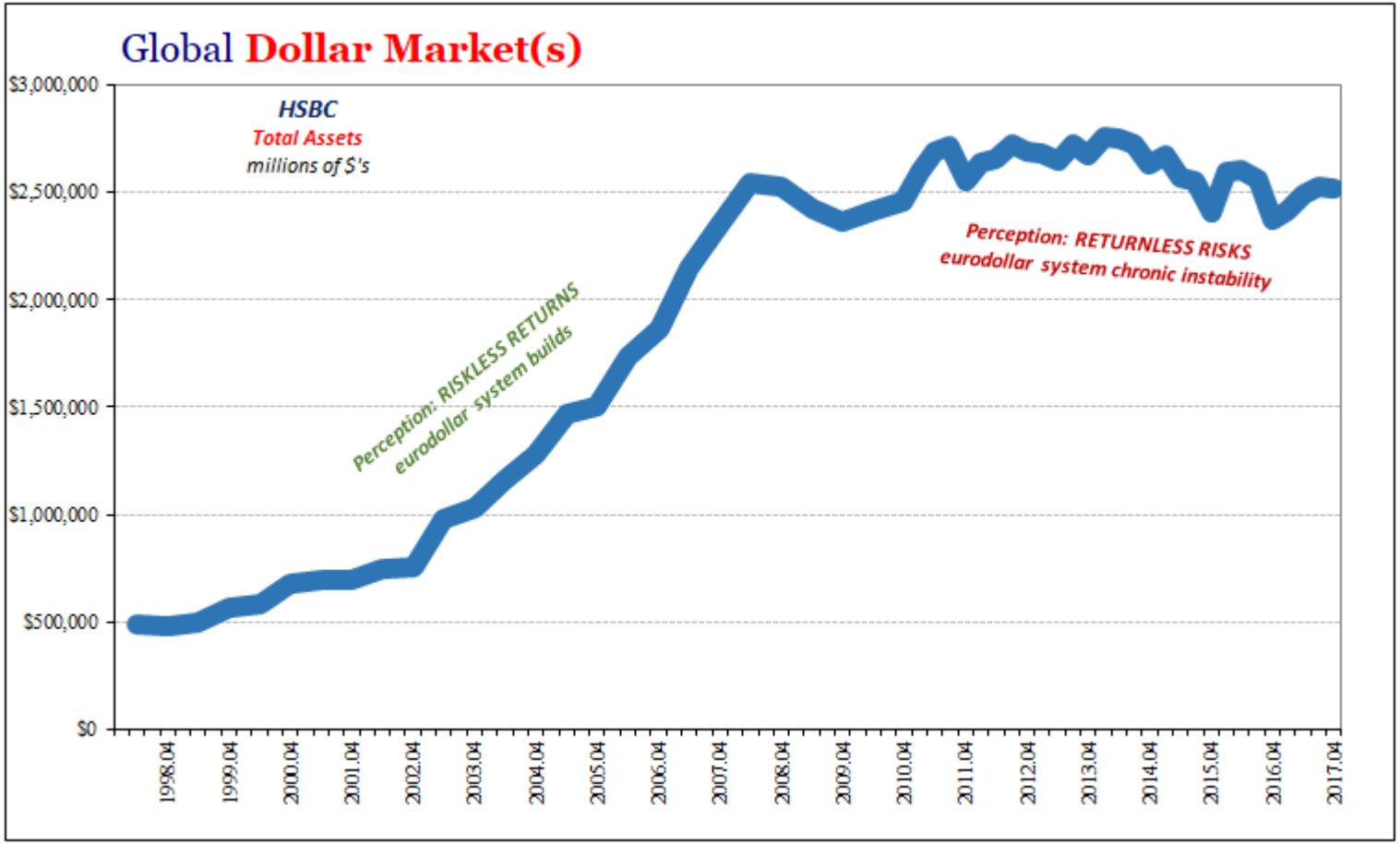
2012.04
2013.04
2014.04
2015.04
2016.04
2017.04


Global Dollar Market(s)
HSBC
Total Assets
millions of $'s
Perception: RISKLESS RETURNS
eurodollar system builds
Perception: RETURNLESS RISKS
eurodollar system chronic instability
$3,000,000
$2,500,000
$2,000,000
$1,500,000
$1,000,000
$500,000
$0
1998.04
1999.04
2000.04
2001.04
2002.04
2003.04
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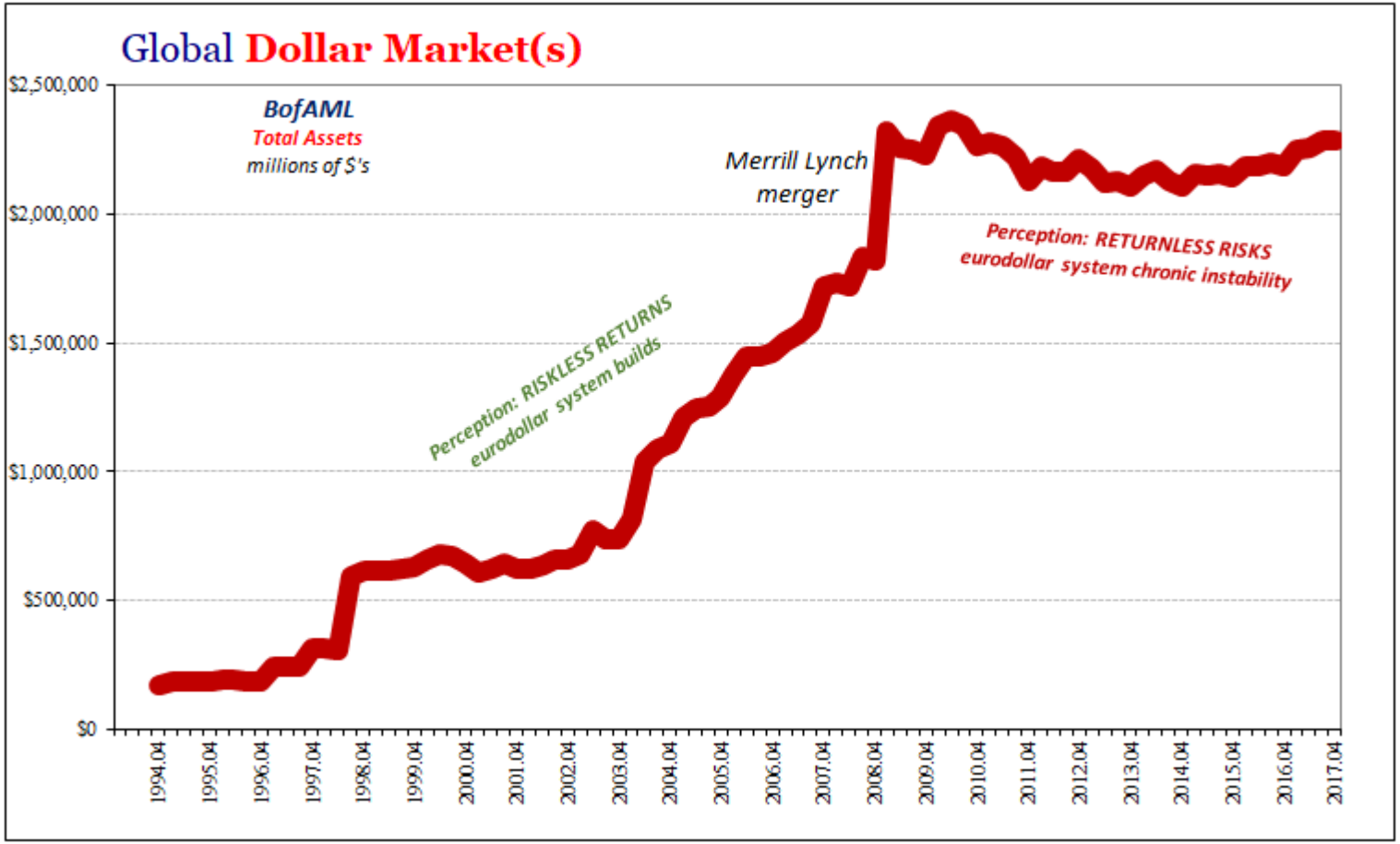
2014.04
2015.04
2016.04
2017.04


Global Dollar Market(s)
BofAML
Total Assets
millions of $'s
Merrill Lynch
merger
Perception: RISKLESS RETURNS
eurodollar system builds
Perception: RETURNLESS RISKS
eurodollar system chronic instability
$2,500,000
$2,000,000
$1,500,000
$1,000,000
$500,000
$0
1994.04
1995.04
1996.04
1997.04
1998.04
1999.04
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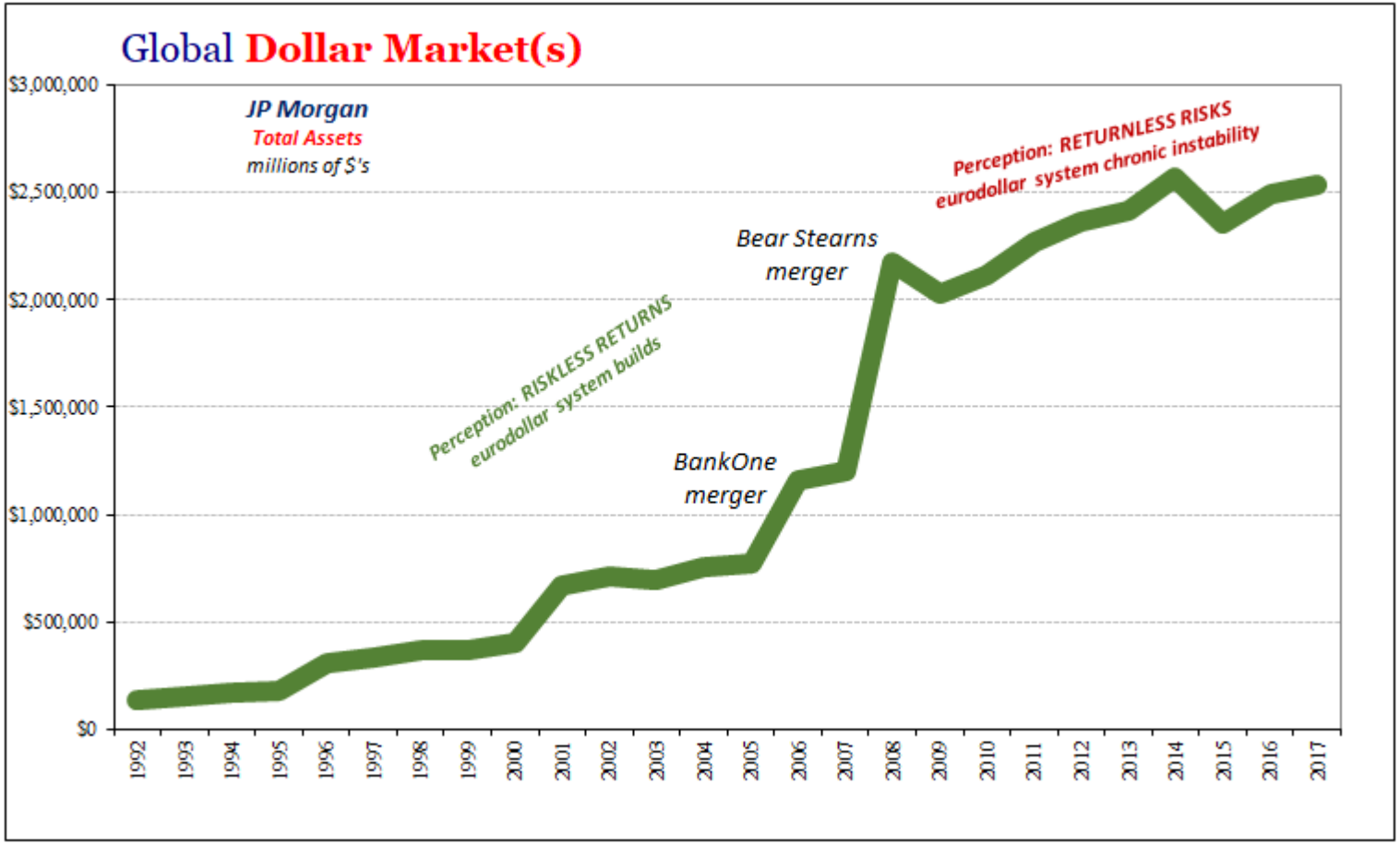
2017.04


Global Dollar Market(s)
JP Morgan
Total Assets
millions of $'s
Perception: RISKLESS RETURNS
eurodollar system builds
BankOne
merger
Bear Stearns
merger
Perception: RETURNLESS RISKS
eurodollar system chronic instability
$3,000,000
$2,500,000
$2,000,000
$1,500,000
$1,000,000
$500,000
$0
1992
1993
1994
1995
1996
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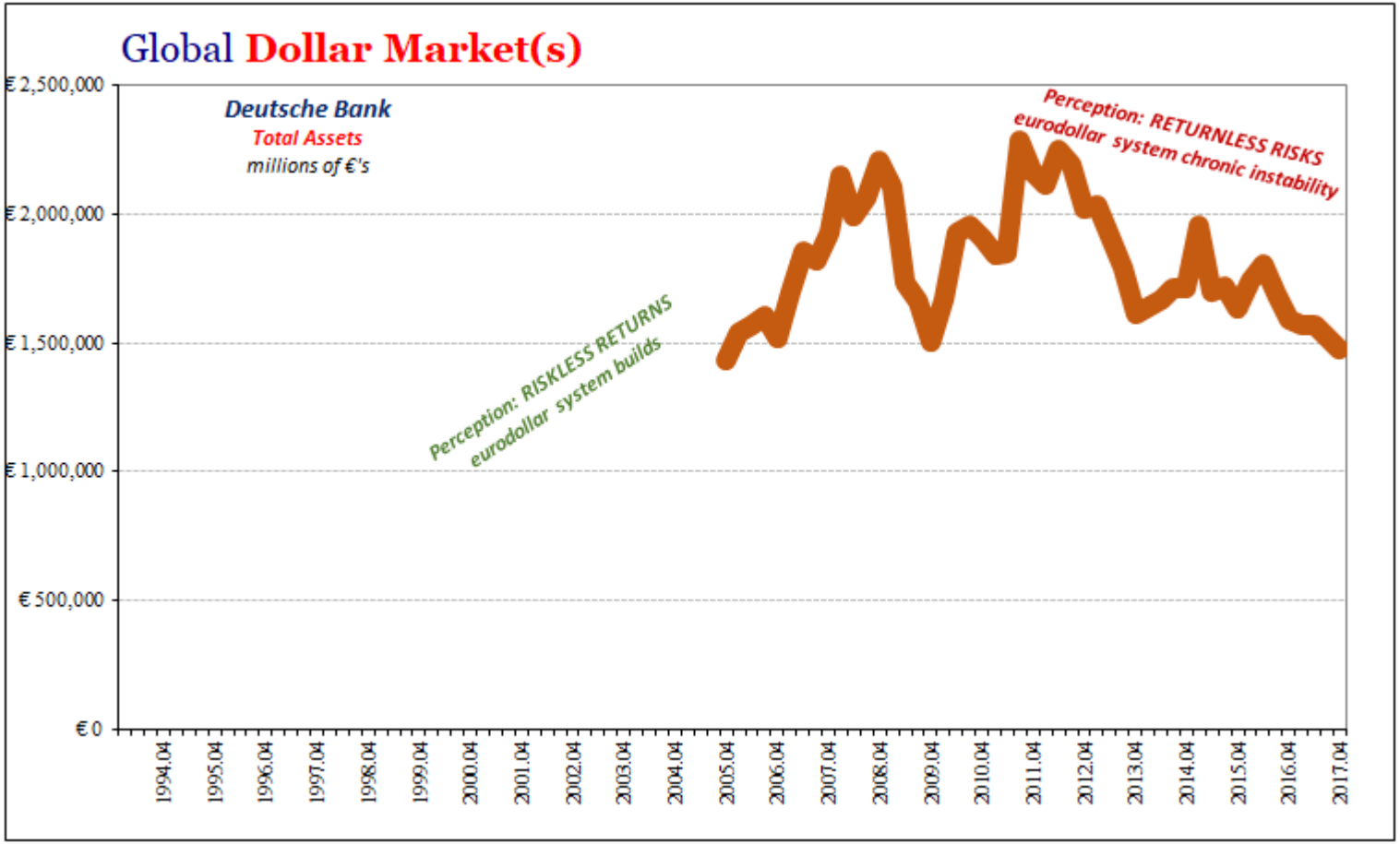
2017


Global Dollar Market(s)
Deutsche Bank
Total Assets
millions of €'s
Perception: RETURNLESS RISKS
eurodollar system chronic instability
Perception: RISKLESS RETURNS
eurodollar system builds
€ 2,500,000
€ 2,000,000
€ 1,500,000
€ 1,000,000
€ 500,000
€ 0
1994.04
1995.04
1996.04
1997.04
1998.04
1999.04
2000.04
2001.04
2002.04
2003.04
2004.04
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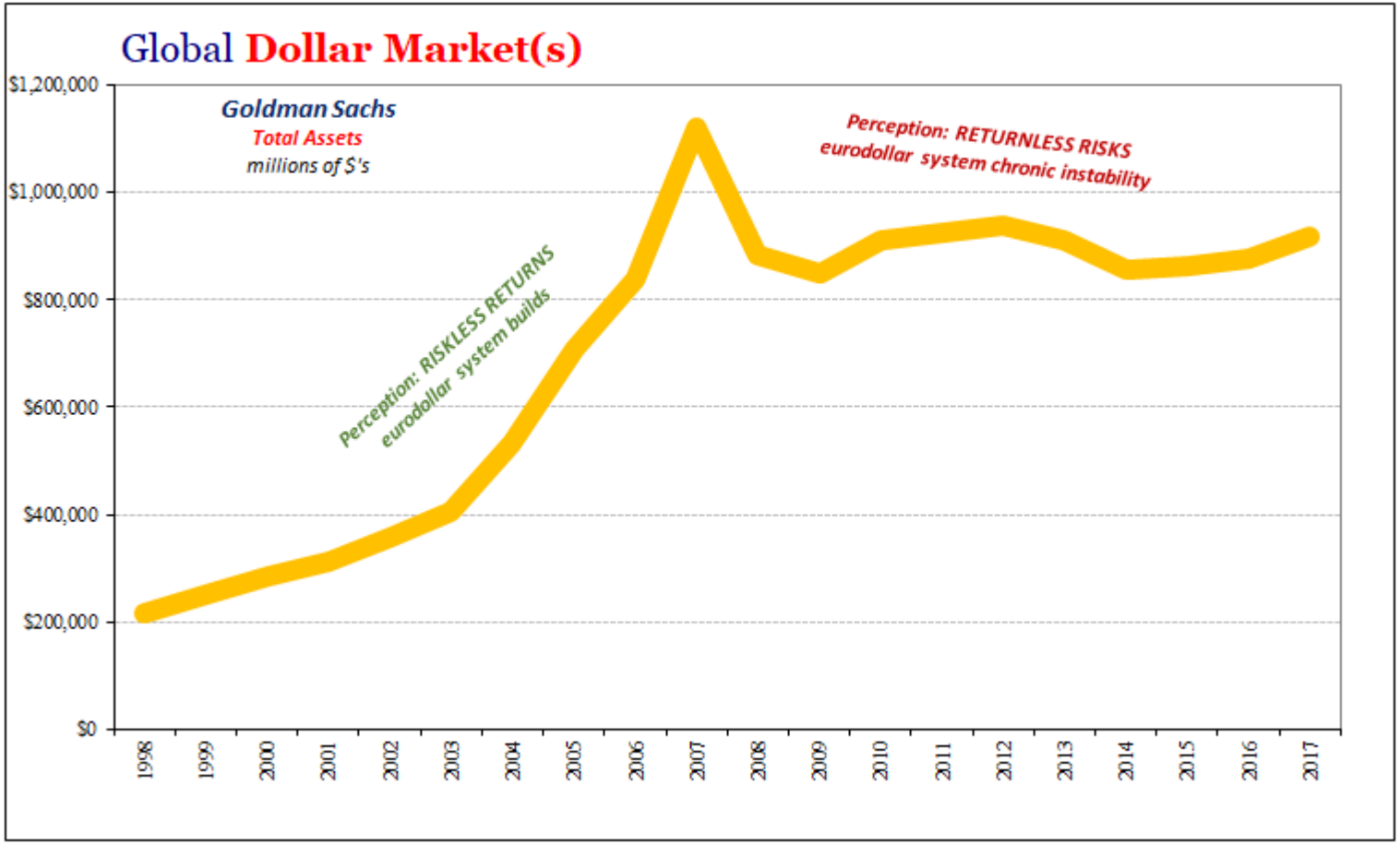
2016.04
2017.04


Global Dollar Market(s)
Goldman Sachs
Total Assets
millions of $'s
Perception: RISKLESS RETURNS
eurodollar system builds
Perception: RETURNLESS RISKS
eurodollar system chronic instability
$1,200,000
$1,000,000
$800,000
$600,000
$400,000
$200,000
$0
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
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2011
2012
2013
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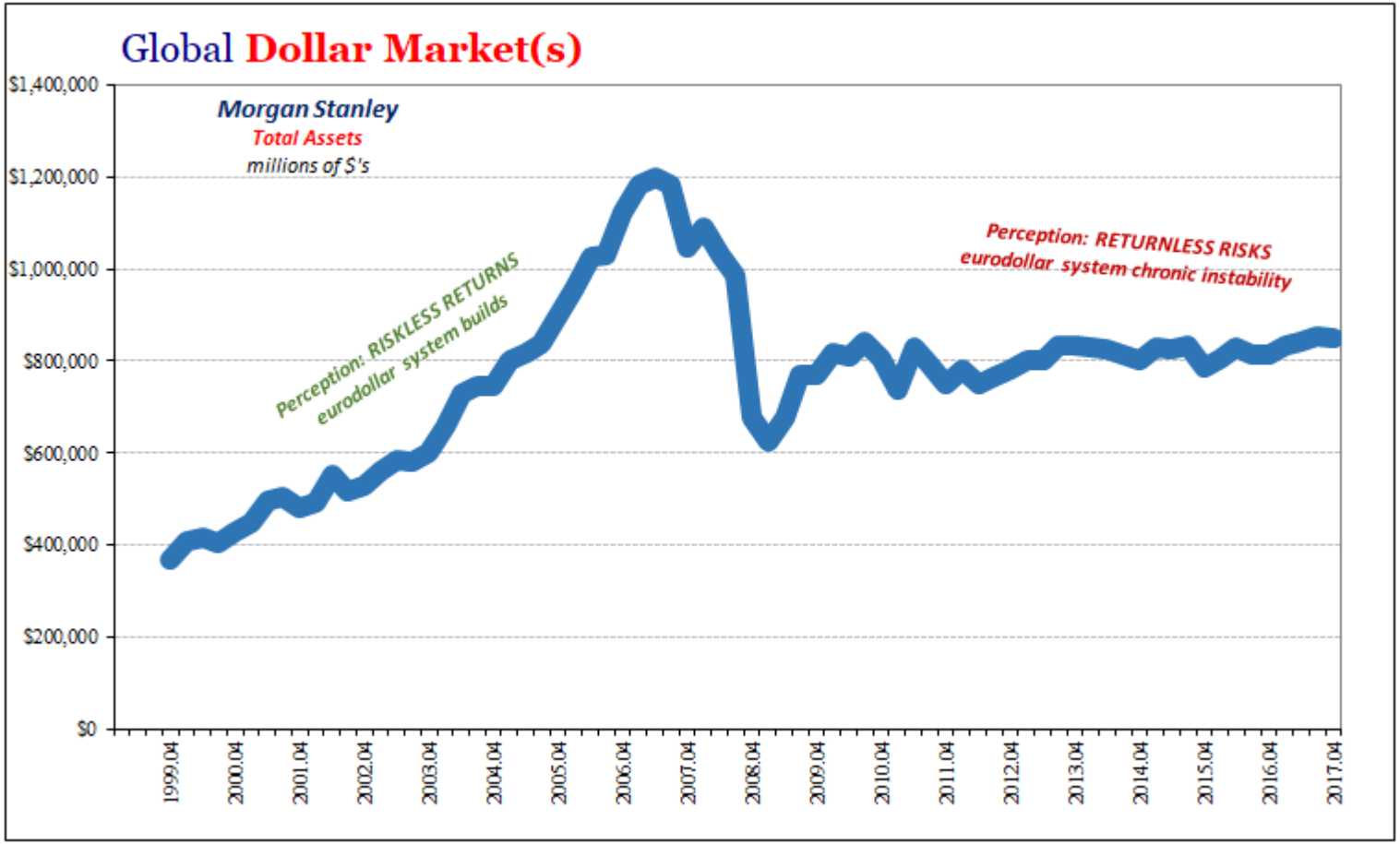
2015
2016
2017


Global Dollar Market(s)
Morgan Stanley
Total Assets
millions of $'s
$1,400,000
$1,200,000
$1,000,000
$800,000
$600,000
$400,000
$200,000
$0
Perception: RISKLESS RETURNS
eurodollar system builds
Perception: RETURNLESS RISKS
eurodollar system chronic instability
1999.04
2000.04
2001.04
2002.04
2003.04
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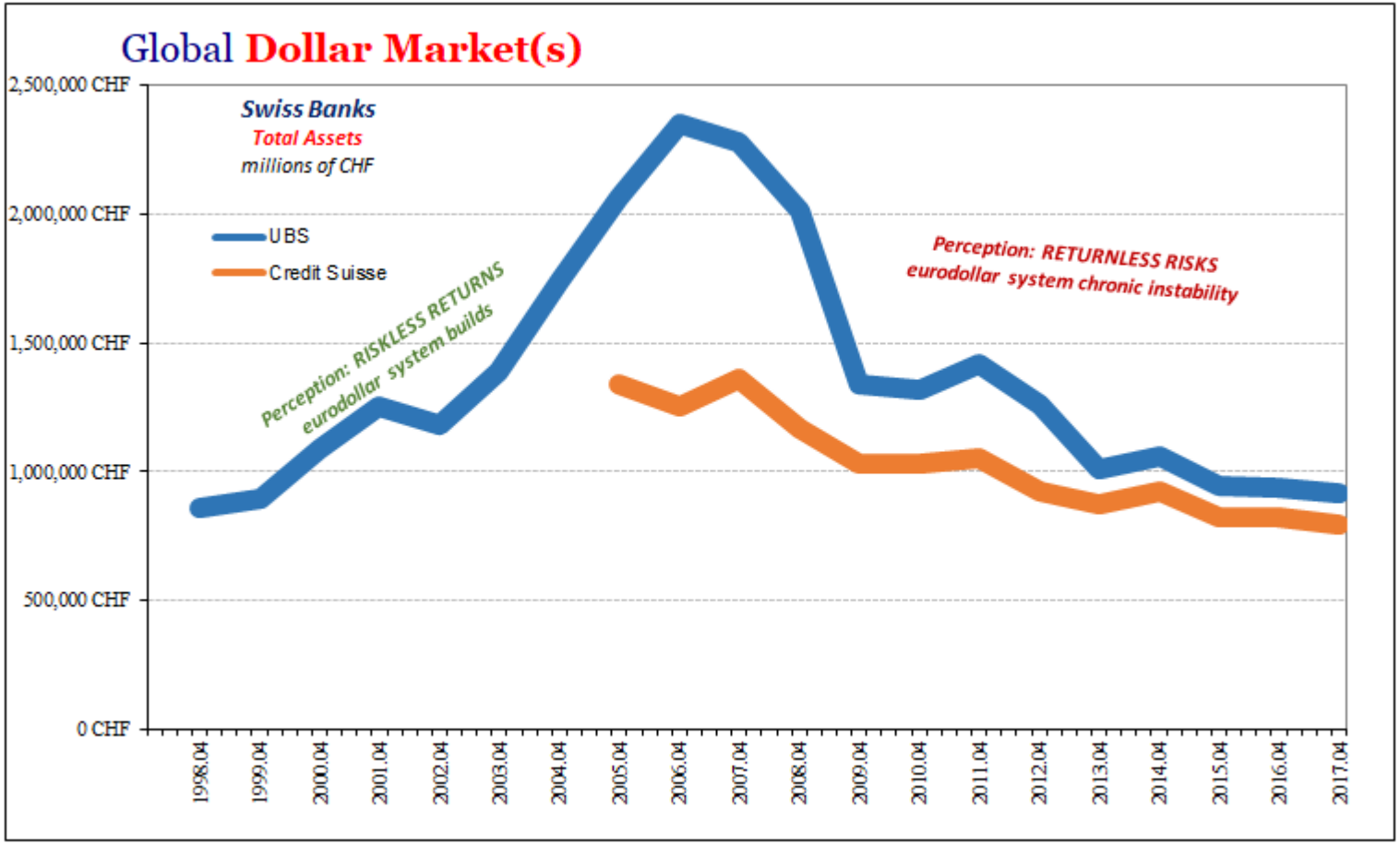
2013.04
2014.04
2015.04
2016.04
2017.04


Global Dollar Market(s)
Swiss Banks
Total Assets
millions of CHF
UBS
Credit Suisse
Perception: RISKLESS RETURNS
eurodollar system builds
Perception: RETURNLESS RISKS
eurodollar system chronic instability
2,500,000 CHF
2,000,000 CHF
1,500,000 CHF
1,000,000 CHF
500,000 CHF
0 CHF
1998.04
1999.04
2000.04
2001.04
2002.04
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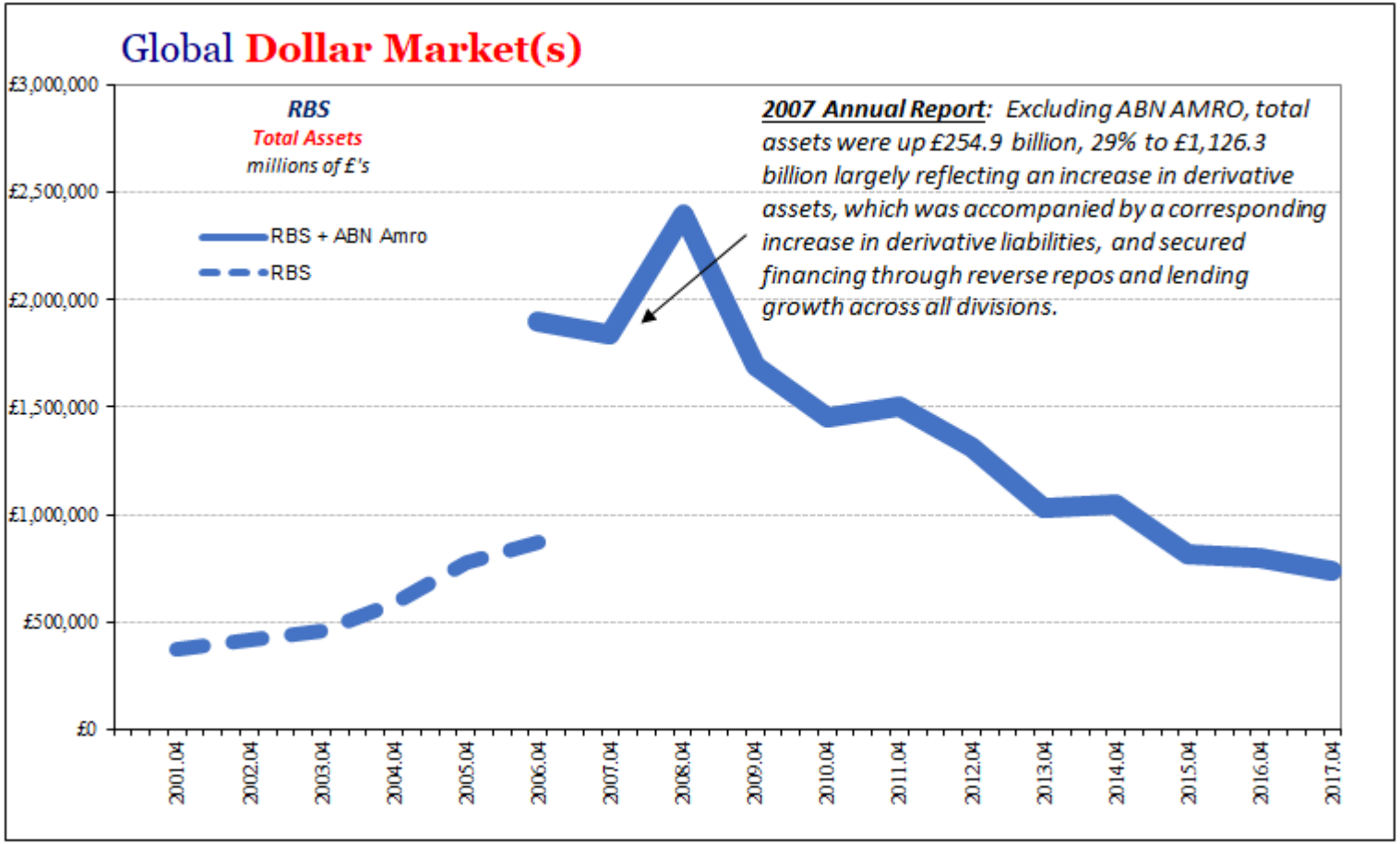
Global Dollar Market(s)
RBS
Total Assets
millions of £'s
RBS + ABN Amro
RBS
2007 Annual Report: Excluding ABN AMRO, total assets were up £254.9 billion, 29% to £1,126.3 billion largely reflecting an increase in derivative assets, which was accompanied by a corresponding increase in derivative liabilities, and secured financing through reverse repos and lending growth across all divisions.
£3,000,000
£2,500,000
£2,000,000
£1,500,000
£1,000,000
£500,000
£0
2001.04
2002.04
2003.04
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2005.04
2006.04
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2008.04
2009.04
2010.04
2011.04
2012.04
2013.04
2014.04
2015.04
2016.04
2017.04

Structural Changes to Euro$ System

Liquidity Risk, not Credit

The issue was, and remains, 'dollar.'

4. In many ways, this is nothing new. We've seen throughout history the same general types of behavior if not expressed quite so exotically and with this level of complexity. Still, a run is a run.

Structural Changes to Euro$ System

Liquidity Risk, not Credit

The issue was, and remains, ‘dollar.’

4a. What is different this time is that the same system has been left in place. The global money regime of the eurodollar remains operationally the global standard, even though banks have spent the last decade retreating from it. It therefore ‘keeps the lights on’ but no more. Sustained economic growth is impossible.

Structural Changes to Euro$ System

Liquidity Risk, not Credit

The issue was, and remains, ‘dollar.’

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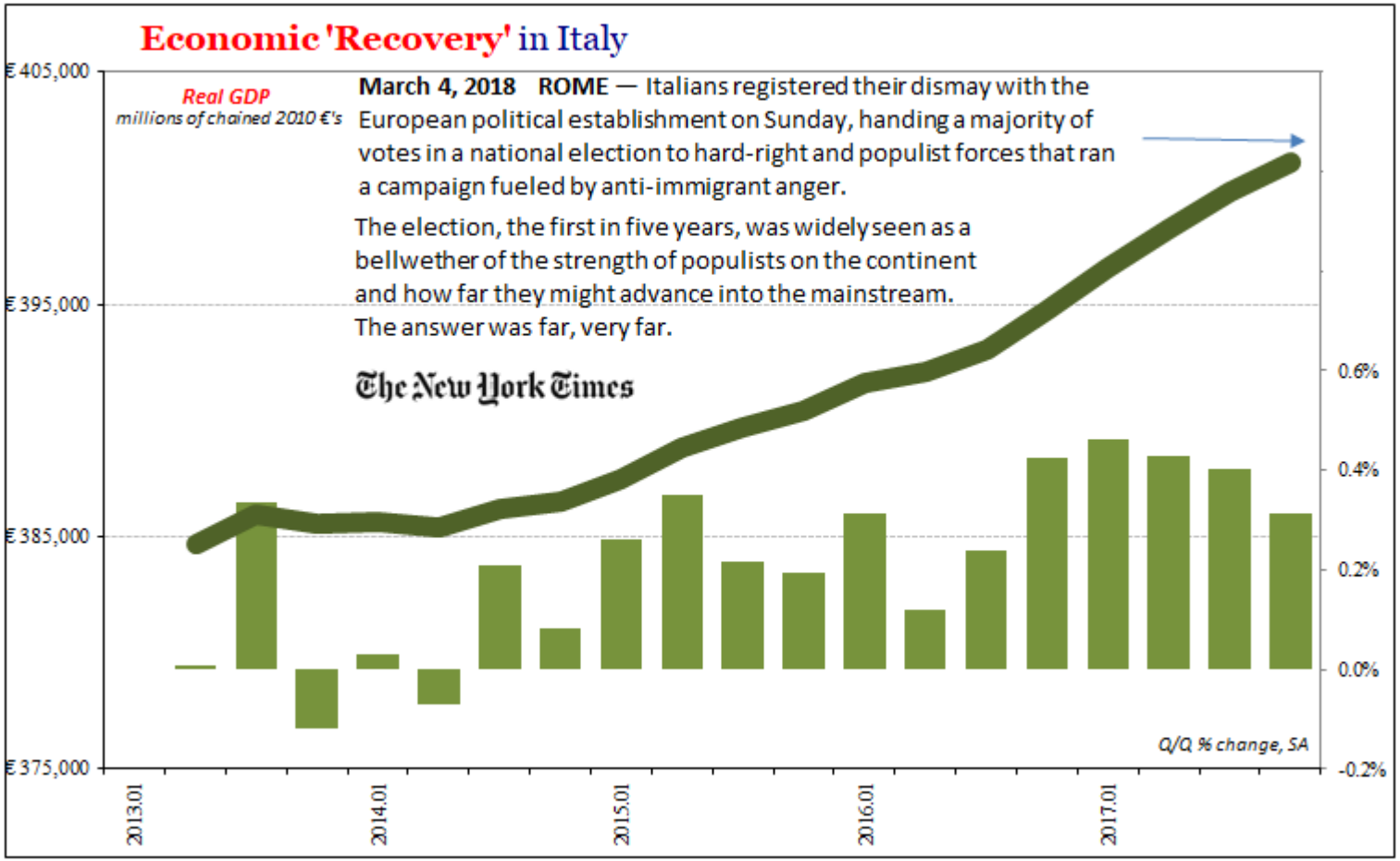
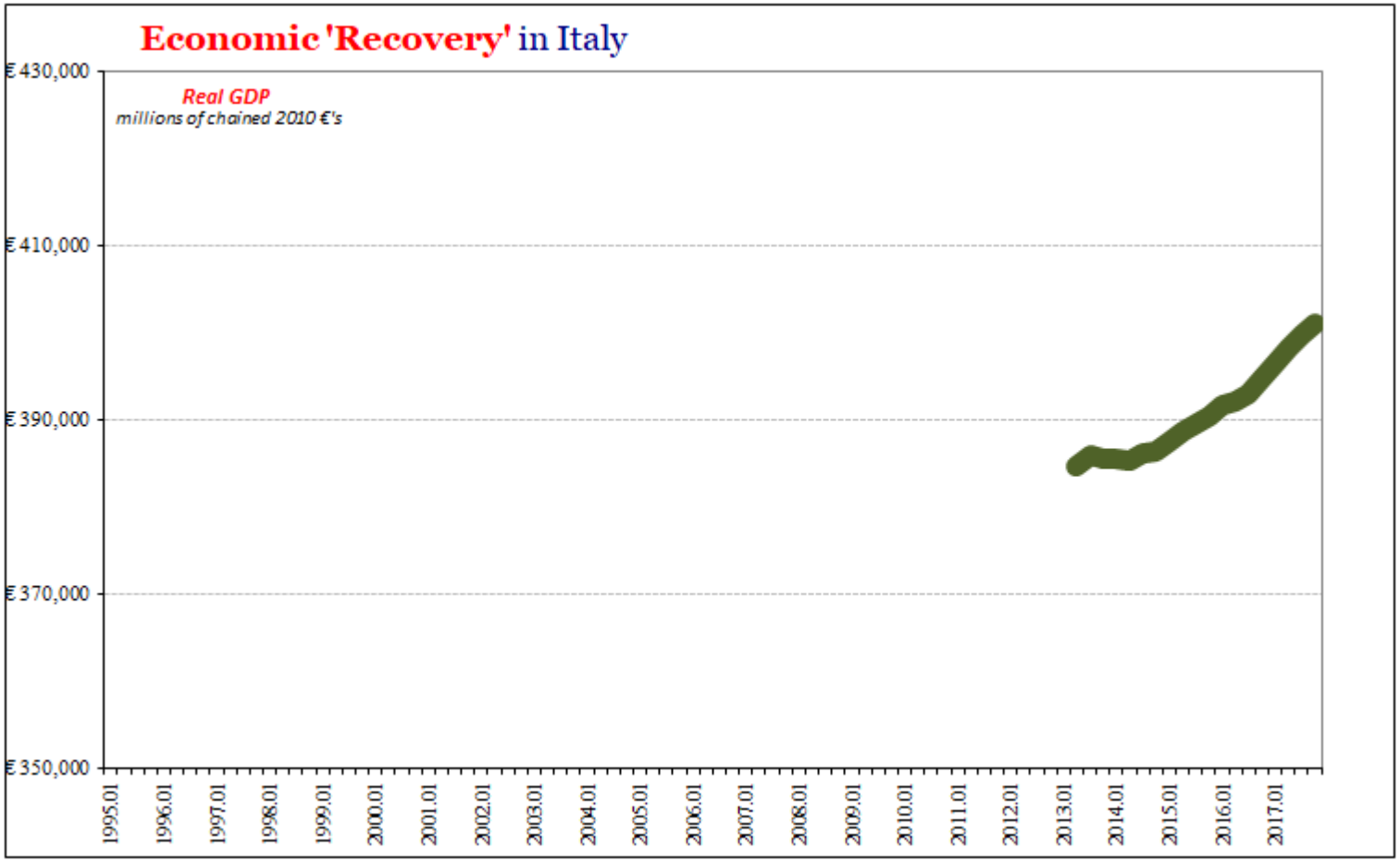
Structural Changes to Euro$ System

Liquidity Risk, not Credit

4b. The costs of this **unstable** monetary arrangement are no longer strictly economic.

The issue was, and remains,
'dollar.'


Economic 'Recovery' in Italy
Real GDP
millions of chained 2010 €'s
March 4, 2018 ROME — Italians registered their dismay with the European political establishment on Sunday, handing a majority of votes in a national election to hard-right and populist forces that ran a campaign fueled by anti-immigrant anger.
The election, the first in five years, was widely seen as a bellwether of the strength of populists on the continent and how far they might advance into the mainstream. The answer was far, very far.
The New York Times
€405,000
€395,000
€385,000
€375,000
0.6%
0.4%
0.2%
0.0%
-0.2%
Q/Q % change, SA
2013.01
2014.01
2015.01
2016.01
2017.01


Economic 'Recovery' in Italy
Real GDP
millions of chained 2010 €'s
€ 430,000
€ 410,000
€ 390,000
€ 370,000
€ 350,000
1995.01
1996.01
1997.01
1998.01
1999.01
2000.01
2001.01
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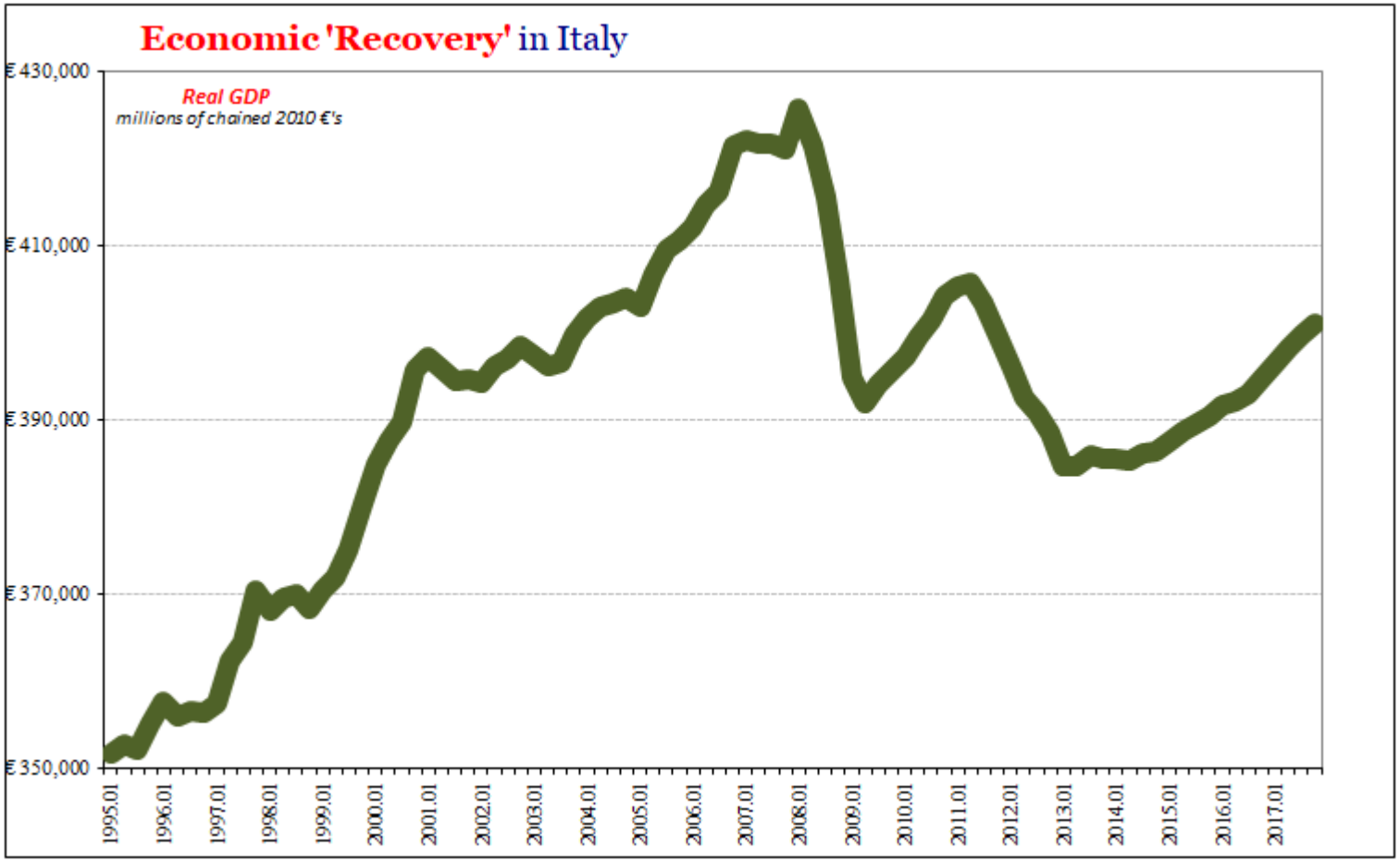
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€ 350,000
1995.01
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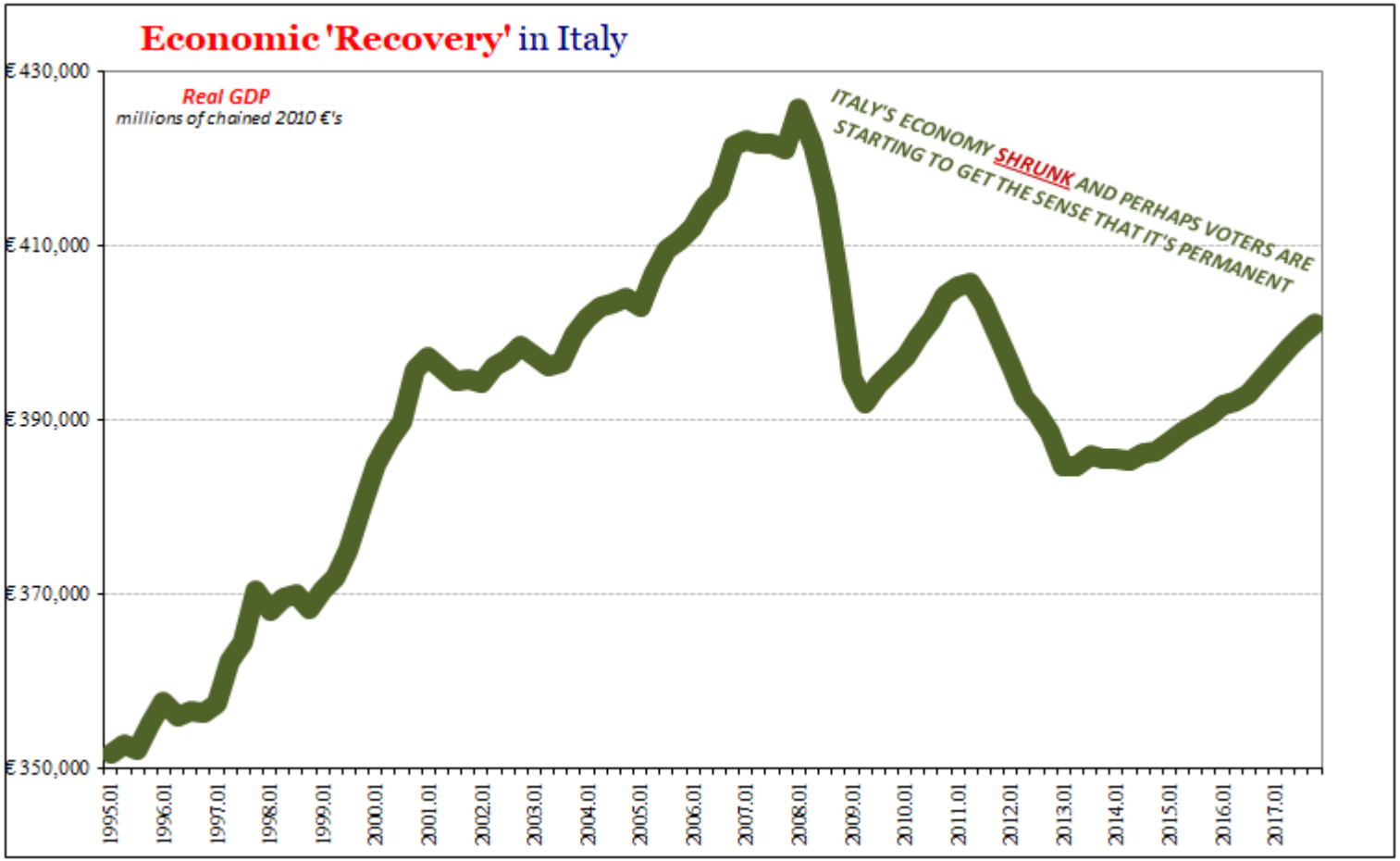
Economic 'Recovery' in Italy
Real GDP
millions of chained 2010 €'s
ITALY'S ECONOMY SHRUNK AND PERHAPS VOTERS ARE STARTING TO GET THE SENSE THAT IT'S PERMANENT
€ 430,000
€ 410,000
€ 390,000
€ 370,000
€ 350,000
1995.01
1996.01
1997.01
1998.01
1999.01
2000.01
2001.01
2002.01
2003.01
2004.01
2005.01
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2014.01
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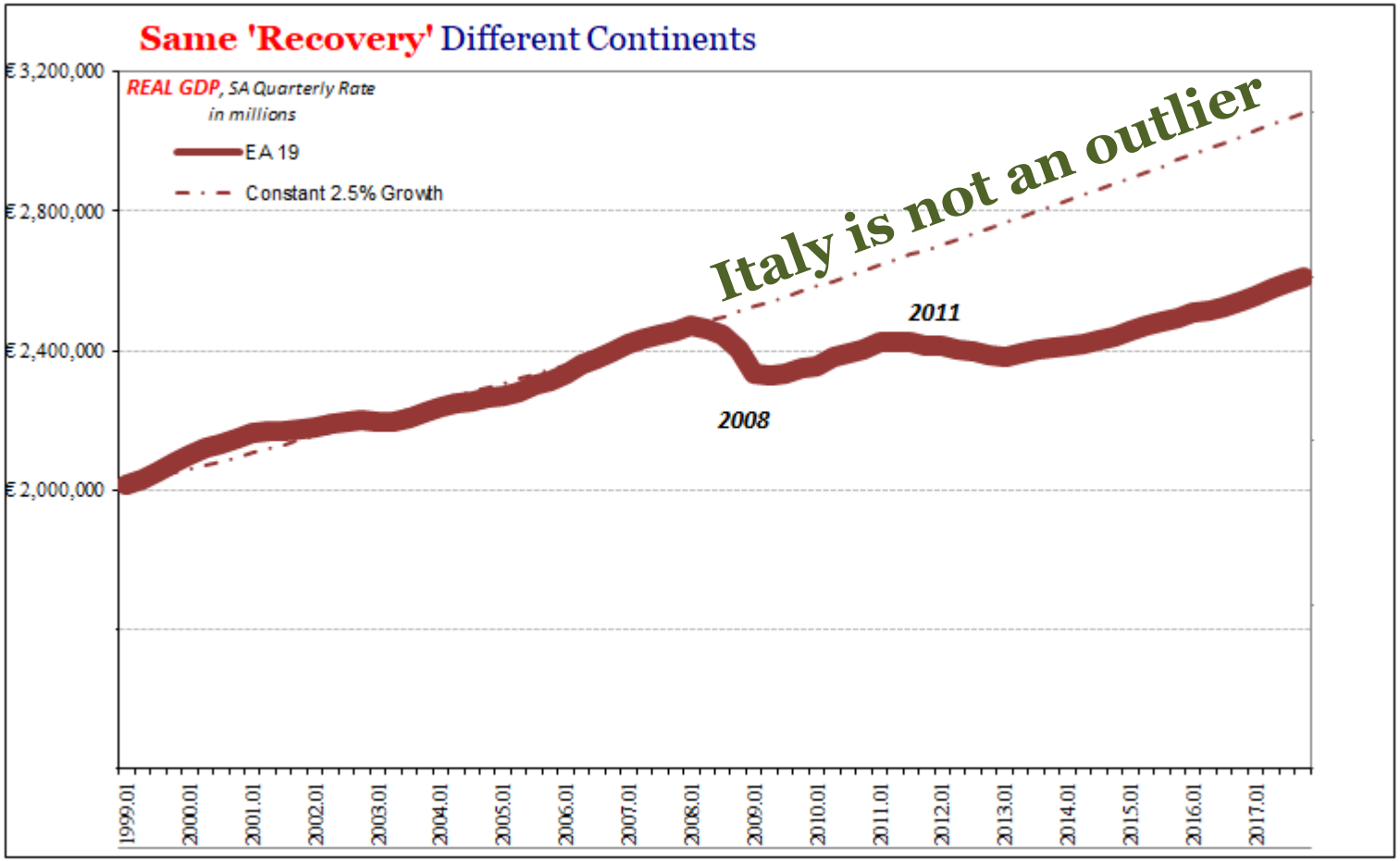
2016.01
2017.01


Same 'Recovery' Different Continents
REAL GDP, SA Quarterly Rate
in millions
EA 19
Constant 2.5% Growth
€ 3,200,000
€ 2,800,000
€ 2,400,000
€ 2,000,000
Italy is not an outlier
2011
2008
1999.01
2000.01
2001.01
2002.01
2003.01
2004.01
2005.01
2006.01
2007.01
2008.01
2009.01
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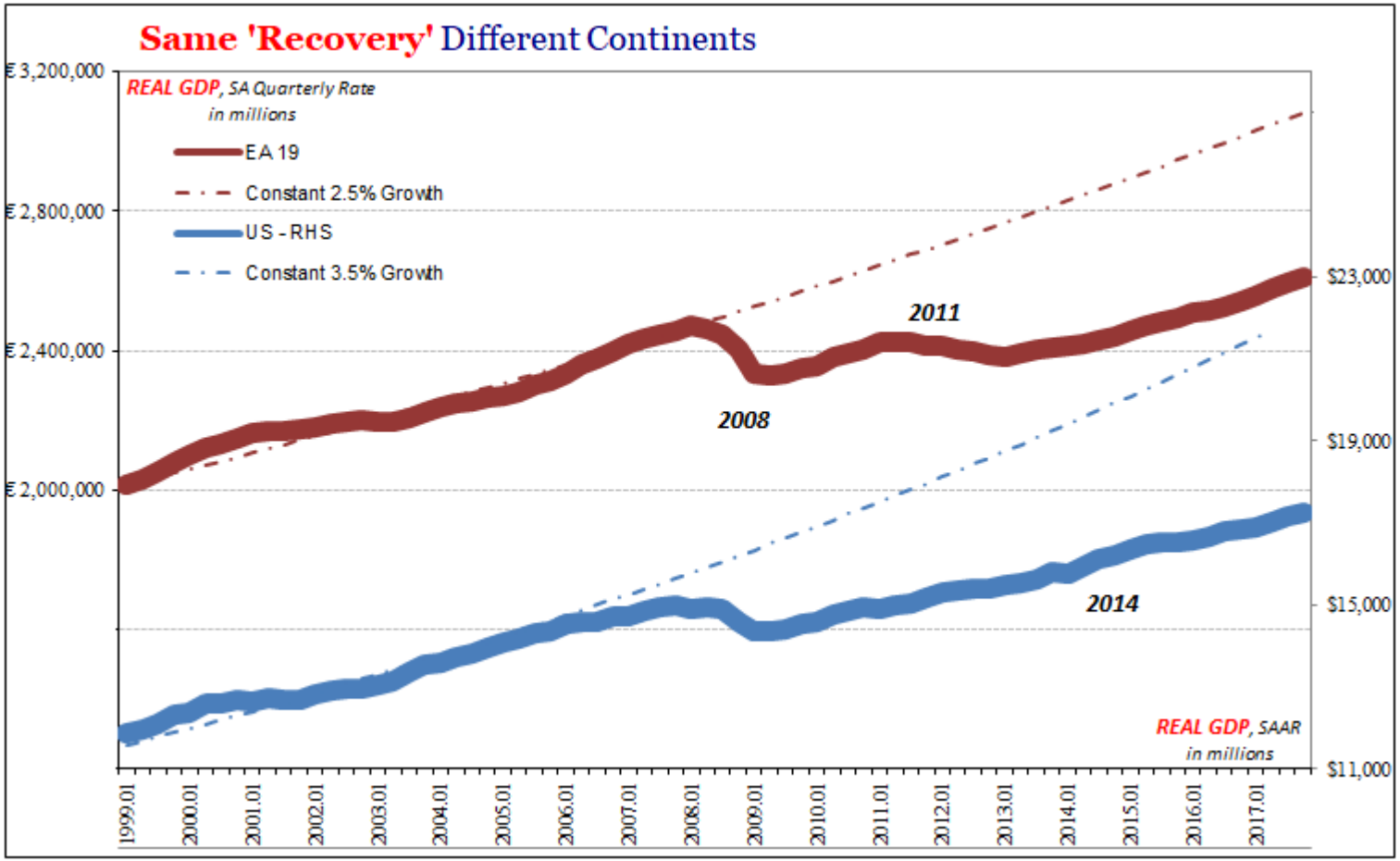
2012.01
2013.01
2014.01
2015.01
2016.01
2017.01


Same 'Recovery' Different Continents
REAL GDP, SA Quarterly Rate
in millions
EA 19
Constant 2.5% Growth
US - RHS
Constant 3.5% Growth
€ 3,200,000
€ 2,800,000
€ 2,400,000
€ 2,000,000
$23,000
$19,000
$15,000
$11,000
2011
2008
2014
REAL GDP, SAAR
in millions
1999.01
2000.01
2001.01
2002.01
2003.01
2004.01
2005.01
2006.01
2007.01
2008.01
2009.01
2010.01
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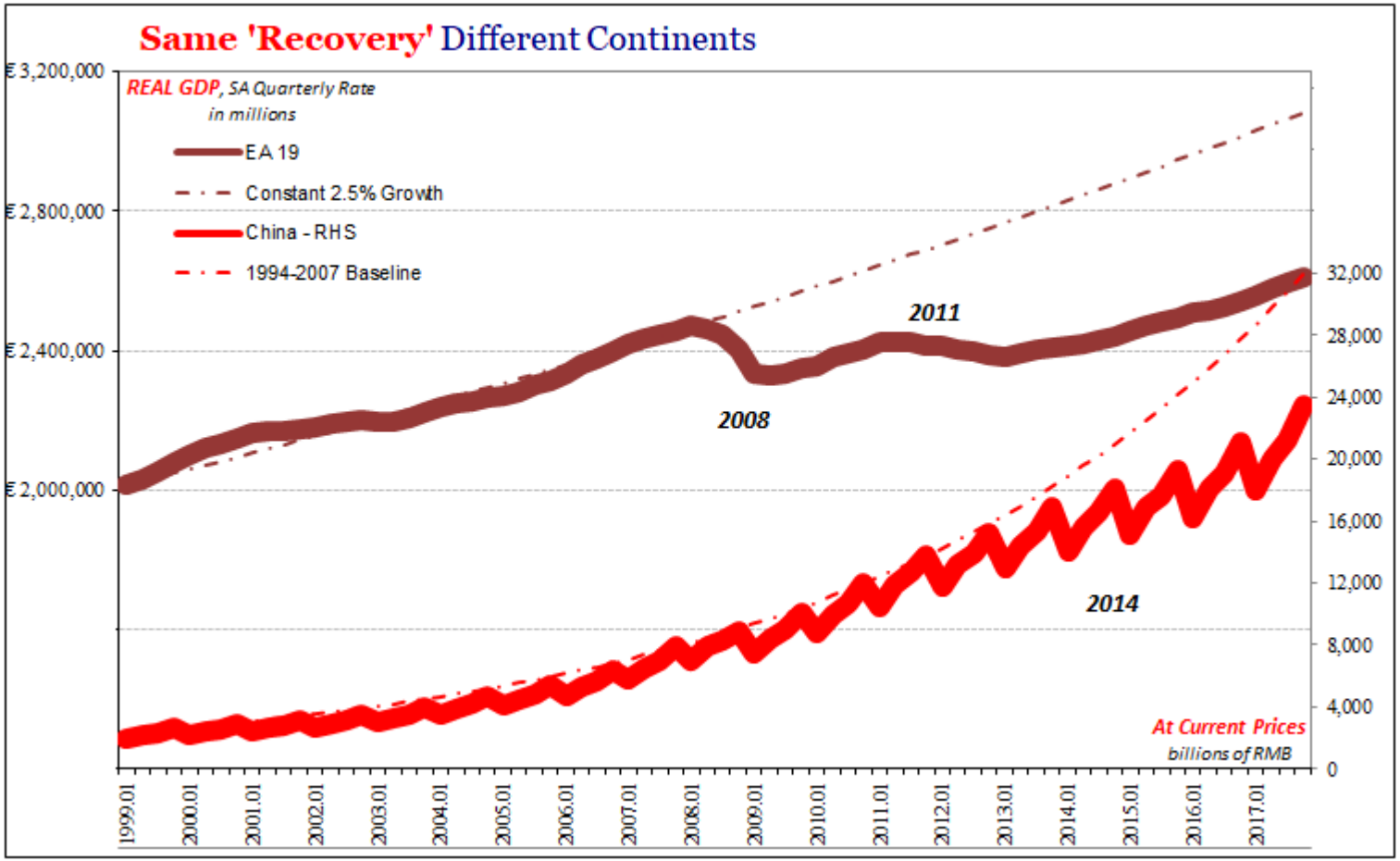
2012.01
2013.01
2014.01
2015.01
2016.01
2017.01


Same 'Recovery' Different Continents
REAL GDP, SA Quarterly Rate
in millions
EA 19
Constant 2.5% Growth
China - RHS
1994-2007 Baseline
€ 3,200,000
€ 2,800,000
€ 2,400,000
€ 2,000,000
32,000
28,000
24,000
20,000
16,000
12,000
8,000
4,000
0
2011
2008
2014
At Current Prices
billions of RMB
1999.01
2000.01
2001.01
2002.01
2003.01
2004.01
2005.01
2006.01
2007.01
2008.01
2009.01
2010.01
2011.01
2012.01
2013.01
2014.01
2015.01
2016.01
2017.01


Same 'Recovery' Different Continents
REAL GDP, SA Quarterly Rate
in millions
China - RHS
1994-2007 Baseline
19th Communist Party Congress
18th Communist Party Congress
2014
The New York Times
Ending Term Limits for China's Xi Is a Big Deal. Here's Why.
查看简体中文版 | 查看繁體中文版
By CHRIS BUCKLEY and ADAM WU MARCH 10, 2018
At Current Prices
billions of RMB
32,000
28,000
24,000
20,000
16,000
12,000
8,000
4,000
0
1999.01
2000.01
2001.01
2002.01
2003.01
2004.01
2005.01
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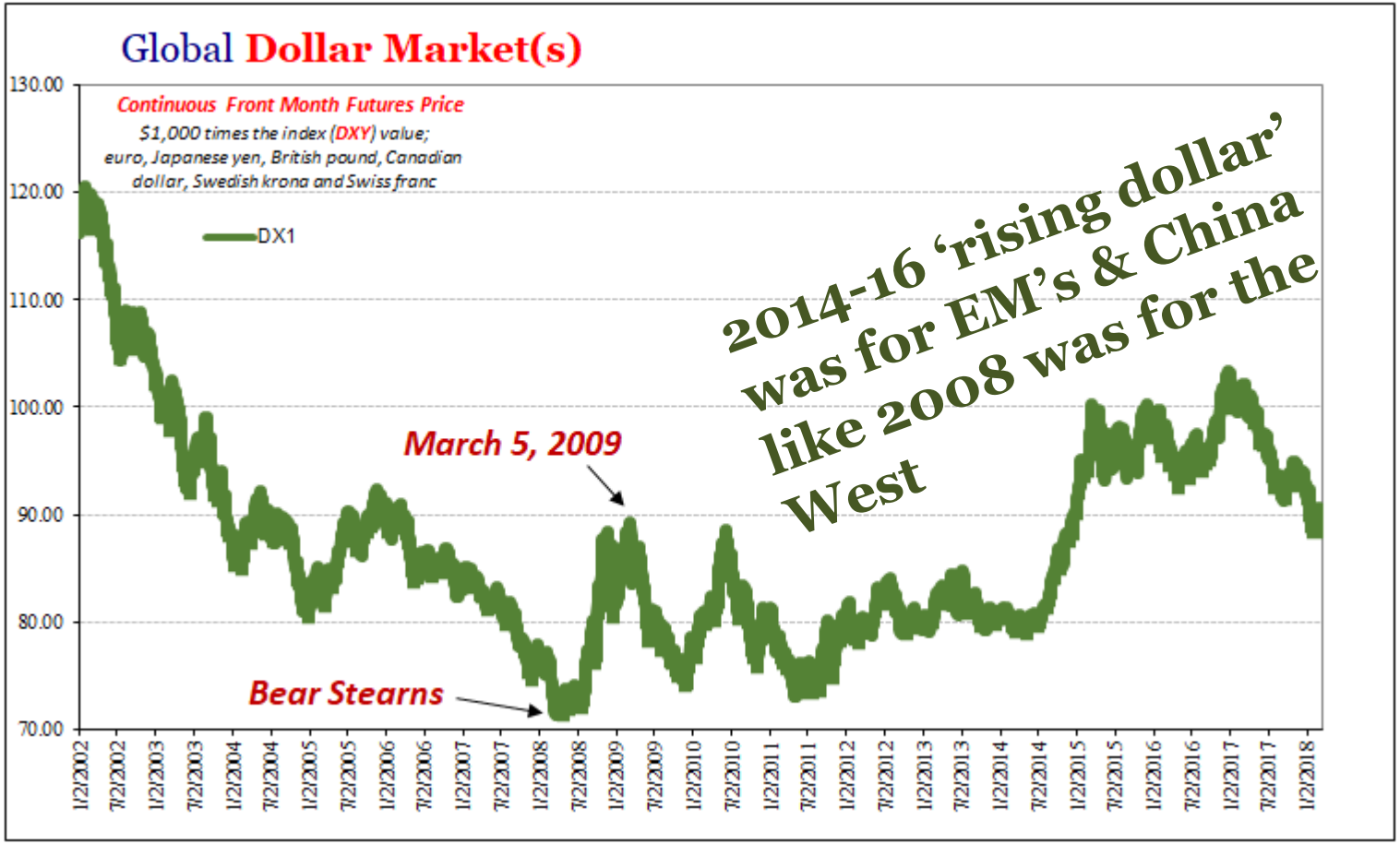
2012.01
2013.01
2014.01
2015.01
2016.01
2017.01


Global Dollar Market(s)
Continuous Front Month Futures Price
$1,000 times the index (DXY) value;
euro, Japanese yen, British pound, Canadian dollar, Swedish krona and Swiss franc
DX1
130.00
120.00
110.00
100.00
90.00
80.00
70.00
March 5, 2009
Bear Stearns
2014-16 'rising dollar' was for EM's & China like 2008 was for the West
1/2/2002
7/2/2002
1/2/2003
7/2/2003
1/2/2004
7/2/2004
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Part 2: What Goes Up Must Come Down

CONCLUDED