CAPITAL SHORTFALL: A NEW APPROACH TO RANKING AND REGULATING SYSTEMIC RISK

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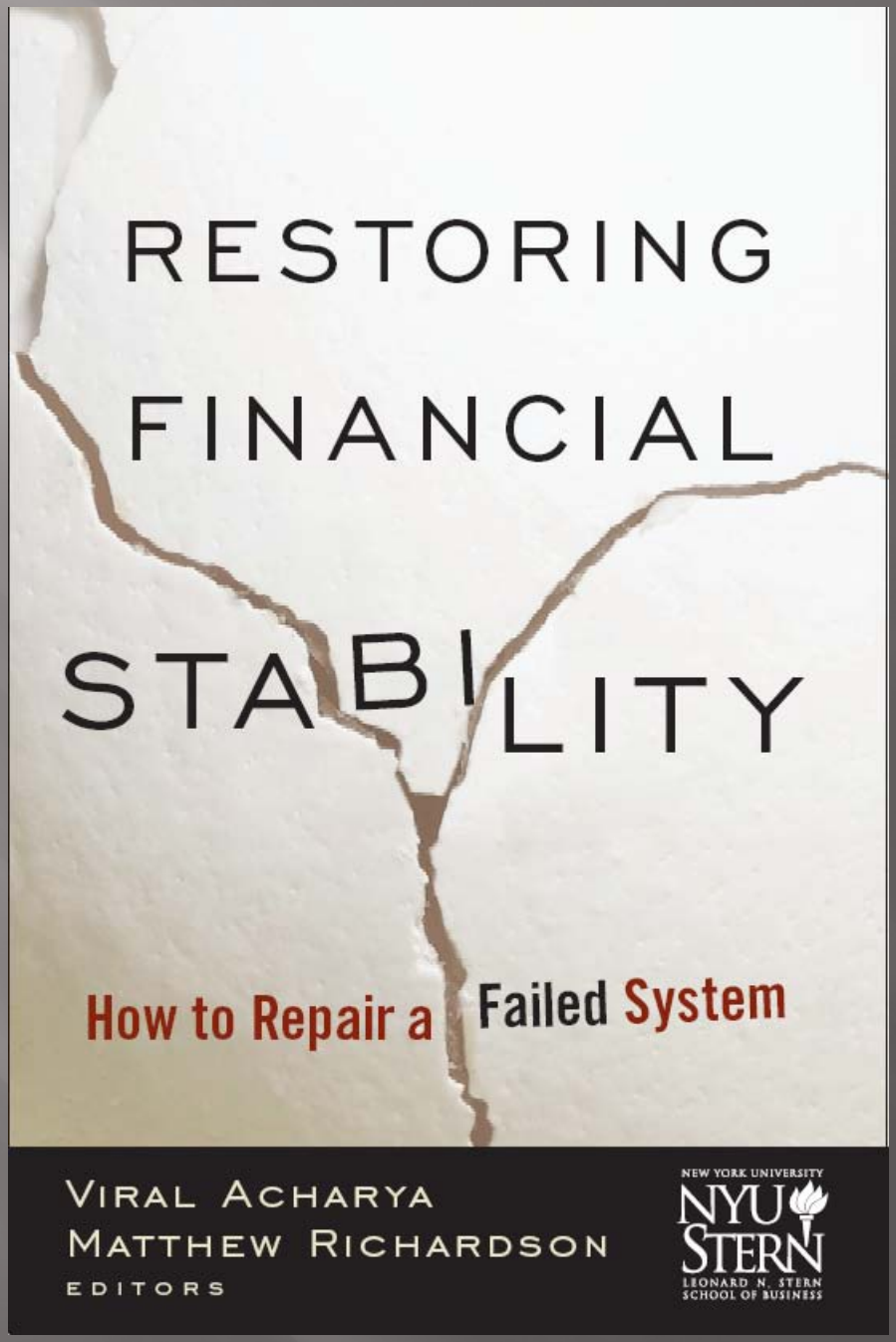
February 2012


RESTORING
FINANCIAL
STABILITY
How to Repair a Failed System
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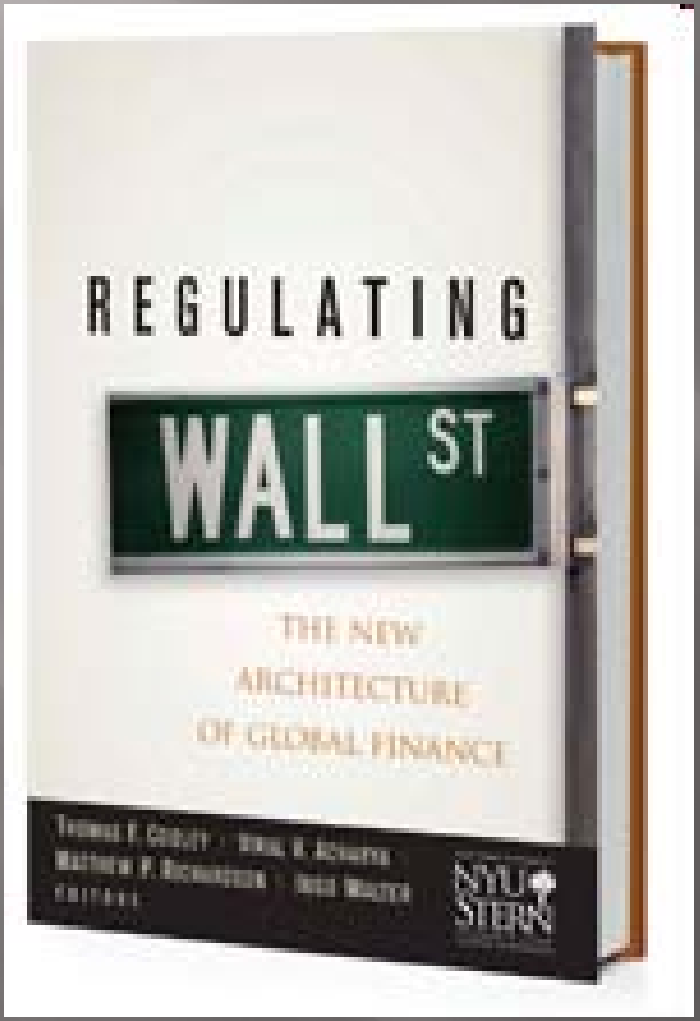
STERN VIEW OF DODD-FRANK



Released
November 2010

FAILURE OF FINANCIAL INSTITUTIONS

- September 15, 2008 Lehman declared bankruptcy and the most severe events of the financial crisis began.
- The U.S. had arranged an orderly rescue of Fannie Mae and Freddie Mac the week before and then saved AIG, Merrill Lynch, Citigroup, Bank of America, Morgan Stanley, Goldman Sachs, Washington Mutual and Wachovia in the following days and weeks
- Should we rescue such firms? Should we have rescued Lehman?
- If firms count on being rescued, they will take on too much risk. Dodd Frank seeks improved resolution authority and "living wills" so future bailouts may be unnecessary.

ANOTHER CHOICE?

- Whether to rescue or not are not the only choices.
- We can regulate *ex ante* systemically important financial institutions to reduce the probability of facing this choice.
- How do we identify such institutions and how do we regulate them? What are the costs and benefits?
- Systemic risk is an externality and should be restricted.

Quasi-fiscal operations?

Soft landing?

SYSTEMIC RISK

- *"Financial institutions are systemically important if the failure of the firm to meet its obligations to creditors and customers would have significant adverse consequences for the financial system and the broader economy."*
  - Daniel Tarullo
  - Federal Reserve Governor

DISCUSSION

- EMPHASIZES FIRM FAILURE
- EMPHASIZES IMPACTS ON THE REAL ECONOMY

- NEGLECTS TO POINT OUT THAT FIRM FAILURES WHEN THE FINANCIAL SECTOR IS STRONG ARE NOT AS SERIOUS AS WHEN THE FINANCIAL SECTOR IS WEAK.
- CO-MOVEMENT IS A KEY FEATURE.

ACHARYA, PEDERSEN, PHILIPPON,RICHARDSON(2010)

- Model of banks choosing assets and leverage in an environment where systemic risk emerges whenever the financial sector capital falls below a threshold.

Real systemic risk of a firm = Real social costs of a crisis per dollar of capital shortage

× Probability of a crisis (i.e., an aggregate capital shortfall)

× Expected capital shortfall of the firm in a crisis

- We will focus on the capital shortfall of a firm in a crisis.

$$E\left(Capital\ \ Shortfall \middle| Crisis\right)$$

CAPITAL SHORTFALL

- This single measure captures many of the features used by FSOC such as size, leverage, interconnectedness and risk.
- It provides a natural cost benefit calculation as it is the dollars that would be invested in a firm in order to prevent its failure in a crisis.
- Dodd Frank requires stress tests on a regular basis which can assess the capital shortfall.
- We will show a methodology that can measure capital shortfall with publicly available data.

WHAT LIMITS LEVERAGE? RISK!

- With a certain amount of cash or equity, the firm chooses leverage to leave an adequate cushion.
- In a low volatility environment, financial institutions are likely to increase leverage.
- When volatility rises, asset prices decrease, leverage increases more, amplifying volatility, leading to further losses in firm value.
- This applies to US subprime mortgages and to European sovereign debt. It may also apply to Chinese municipal debt.

CAUSALITY

- Does the crisis cause the firm distress or does the distress cause the crisis?
- Both: crisis is driven by "common" shocks that induce co-dependence in firm distress
- These are jointly endogenous variables
- Cannot have a financial crisis without weak firms. Those with the greatest capital shortfall are the biggest contributors to the crisis.

BROWNLEES AND ENGLE(2011)

- Use flexible time series approaches to modeling volatilities, correlations and tails.
- The Model:

$$R_{m,t} = \sigma_{m,t}\varepsilon_{m,t}$$

$$R_{i,t} = \sigma_{i,t}\left(\rho_t\varepsilon_{m,t} + \sqrt{1-\rho_t^2}\,\xi_{i,t}\right)$$

$$\left(\varepsilon_{m,t}, \xi_{i,t}\right) \sim F$$

- Disturbances are serially independent, mean zero, variance one, uncorrelated with random variables drawn from a Copula, *F*.
- Volatilities are Asymmetric GARCH models
- Correlations are **DCC.**
- Copula is empirical with kernel smoothing

MULTI-STEP FORECASTING

- Simulate the bivariate outcome of (r_i, r_m) for six months starting on date t using the estimated model for volatilities, correlations and copula.
- Examine all the scenarios where market return falls by at least 40%. Find trimmed mean loss = *Long Run Marginal Expected Shortfall.*

$$LRMES_{i,t} = E_t\left(1-\exp\sum_{j=1}^{126} r_{i,t+j} \,\middle|\, \exp\sum_{j=1}^{126} r_{m,t+j} < .60\right)$$

$$\approx 1-\exp\left(-18 * MES_{i,t}\right)$$

SRISK

- As equity values fall in a crisis, leverage increases until the firm is in distress.
- Nominal debt is taken from Bloomberg and changes little over time. It is from 10-K and 10-Q filings= Book Value Assets-Book Value Equity

$$
\begin{aligned}
SRISK_{i,t} &= E_{t-1}\left(Capital\ \ Shortfall_i \middle| Crisis\right) \\
&= E_{t-1}\left(k\left(Debt + Equity\right) - Equity \middle| Crisis\right) \\
&= kDebt - \left(1-k\right)\left(1 - LRMES_{i,t}\right) Equity_{i,t}
\end{aligned}
$$

- k is a prudential standard ratio of equity to assets = 8% (e.g., ratios of safest banks like JPM and HSBC during crises).

AN EXTENSION

- A crisis is an aggregate capital shortfall
- Do same simulations and consider a crisis path to be a path where aggregate financial sector is undercapitalized.

$$Eq_t = \sum_{financial\ sector} Equity_{i,t},\ D_t = \sum_{financial\ sector} Debt_{i,t}$$

- Crisis: $$Eq \leq \frac{k}{1-k} D$$
- Undercapitalization is an externality.

MARKET BASED APPROACH TO REGULATION AND RISK WEIGHTS

- To insure that a firm does not need capital in a crisis, regulators could demand SRISK≤0.
- This implies that
- $Equity \geq k\ Debt/(1-k)(1-LRMES)$
- Firm specific capital requirement
- Could be expressed as a universal capital requirement on risk weighted assets as Basel II.
- $Equity_i \geq k\ Assets_i/(1-(1-k)LRMES_i)$

NUMERICAL EXAMPLES

- If LRMES is 100% then equity values fall to zero in a crisis. Then Debt=0
- If LRMES is zero, then Equity =k Assets
- In recent crisis, 25% worst performing firms had return of -87%. Hence capital requirement would be 24% if k=4%
- The best performing 25% had return of -17%. Their capital requirement would be 4.78%

COUNTER-CYCLICALITY

- This regulatory strategy has built in some counter-cyclicality.
- In a low volatility period, financial institutions will naturally seek increasing leverage and in high volatility, will seek to deleverage.
- By using a time invariant value of k, leverage will be restricted in low volatility states and allowed to increase more in high volatility states.
- Possibly this should be exaggerated.

FIRM IMPLICATIONS

- TO REDUCE REQUIRED CAPITAL, A FIRM COULD REDUCE
  - LEVERAGE
  - RISK
  - CORRELATION
  - SIZE
- THESE ARE EXACTLY THE OUTCOMES WE WANT TO ENCOURAGE.
- ARE THERE OTHER WAYS TO AVOID CAPITAL REQUIREMENTS? ACCOUNTING, EQUITY MANIPULATION???

RESULTS ON V-LAB

NYU STERN SYSTEMIC RISK RANKINGS

- We have a page in VLAB providing estimates of systemic risk for the largest US Financial firms.
- This is updated weekly to allow regulators, practitioners and academics to see early warnings of system risks.
- We now have 1200 firms globally.

vlab.stern.nyu.edu/welcome/risk or systemicriskranking.stern.nyu.edu

1/20/2012 US Risk Ranking

Systemic Risk Rankings for 2012-01-20 (MES is equity loss for a 40% semiannual market decline)

Institution	SRISK%	RNK	SRISK ($ m)	MES	Beta	Cor	Vol	Lvg	MV
Bank Of America	16.9%	1	133,613	72.24	2.74	0.71	47.4	27.50	71660.6
JP Morgan Chase	16.8%	2	133,030	74.31	2.51	0.80	38.3	15.67	141959.1
Citigroup	15.4%	3	121,669	82.51	3.35	0.67	61.3	20.56	86658.7
Goldman Sachs	6.6%	4	52,155	63.39	2.57	0.78	40.5	17.39	53534.1
Morgan Stanley	6.5%	5	51,539	80.22	3.19	0.77	50.9	21.45	35444.9
MetLife	6.0%	6	47,832	71.40	1.96	0.78	30.8	19.84	38445.0
Prudential Financial	4.8%	7	38,240	69.27	1.67	0.84	24.4	22.19	27073.9
Wells Fargo	3.7%	8	29,298	56.48	1.49	0.78	23.4	8.28	161053.5
American International Group	2.7%	9	21,450	67.88	2.24	0.78	35.2	10.20	48715.1
Hartford Financial Services	2.5%	10	19,978	65.16	2.37	0.75	38.5	35.24	8259.6
Bank Of New York Mellon	1.8%	11	14,130	61.44	1.80	0.57	38.6	12.28	25804.8

Global Systemic Risk Rankings

"A Look Back"

Risk Rankings Before Lehman

Systemic Risk Rankings for 2008-08-29 (MES is equity loss for a 40% semiannual market decline)

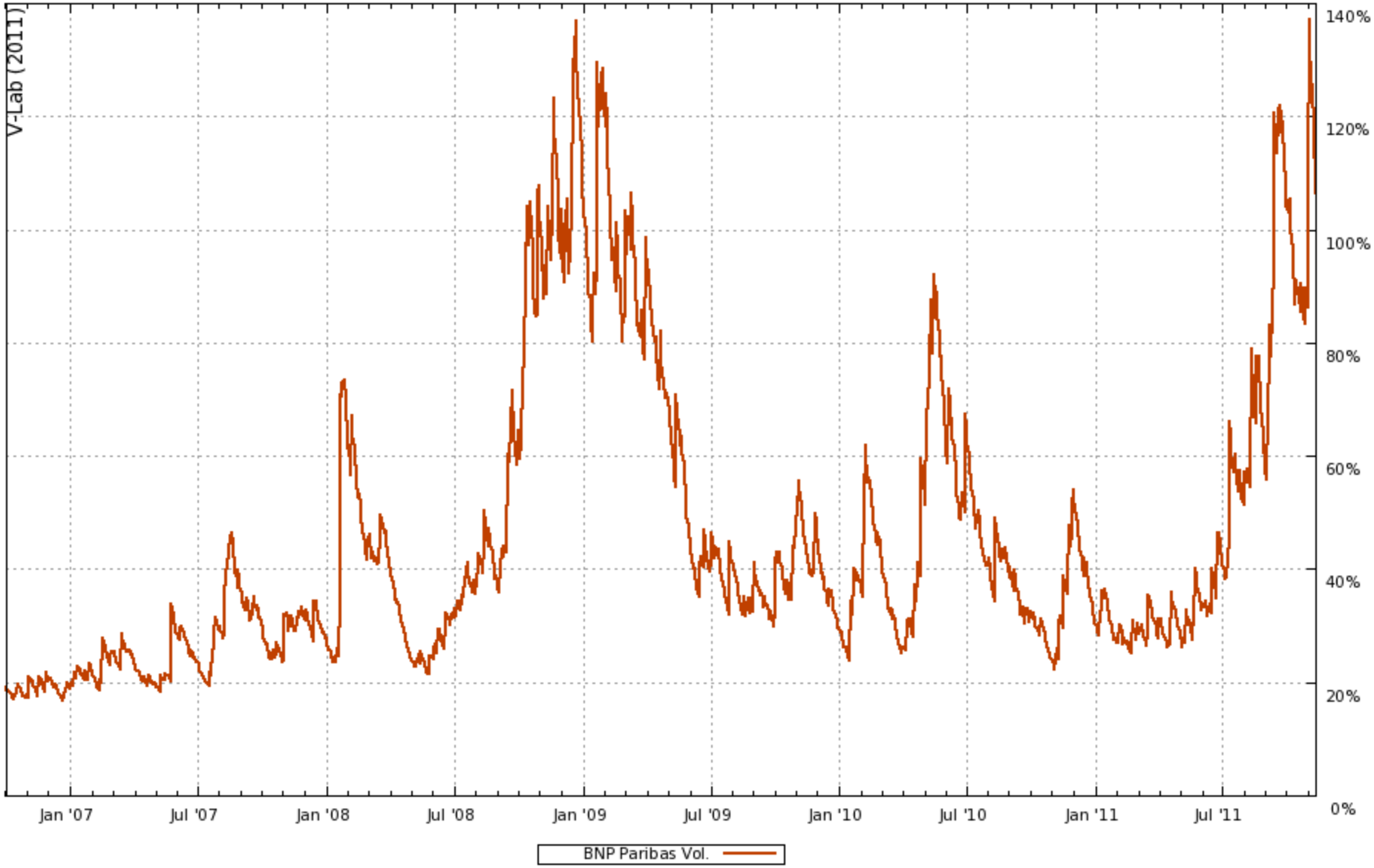
Institution	SRISK%	RNK	SRISK ($ m)	MES	Beta	Cor	Vol	Lvg	MV
Citigroup	12.6%	1	136,739	78.58	2.62	0.79	63.5	19.99	103407.9
JP Morgan Chase	10.2%	2	110,950	83.20	2.42	0.74	62.9	13.42	132291.7
Bank Of America	9.0%	3	97,315	79.32	2.90	0.74	75.3	11.94	142001.9
Morgan Stanley	6.5%	4	70,507	77.84	2.09	0.74	53.7	23.01	45281.0
Freddie Mac	6.3%	5	68,807	82.50	5.02	0.44	220.4	297.76	2918.0
Merrill Lynch	6.3%	6	68,523	85.00	3.43	0.78	84.0	22.45	43417.0
Fannie Mae	6.2%	7	67,068	92.71	5.51	0.51	205.3	115.68	7363.9
American International Group	6.1%	8	66,345	80.25	3.47	0.69	97.1	17.62	57783.0
Goldman Sachs	5.3%	9	57,738	58.14	1.70	0.75	43.3	16.99	64572.2
Wachovia Bank	5.0%	10	54,173	85.52	3.06	0.66	88.3	22.40	34304.2
Lehman Brothers	4.4%	11	47,552	85.40	5.00	0.74	129.9	55.88	11172.9

GLOBAL RISK RANKING

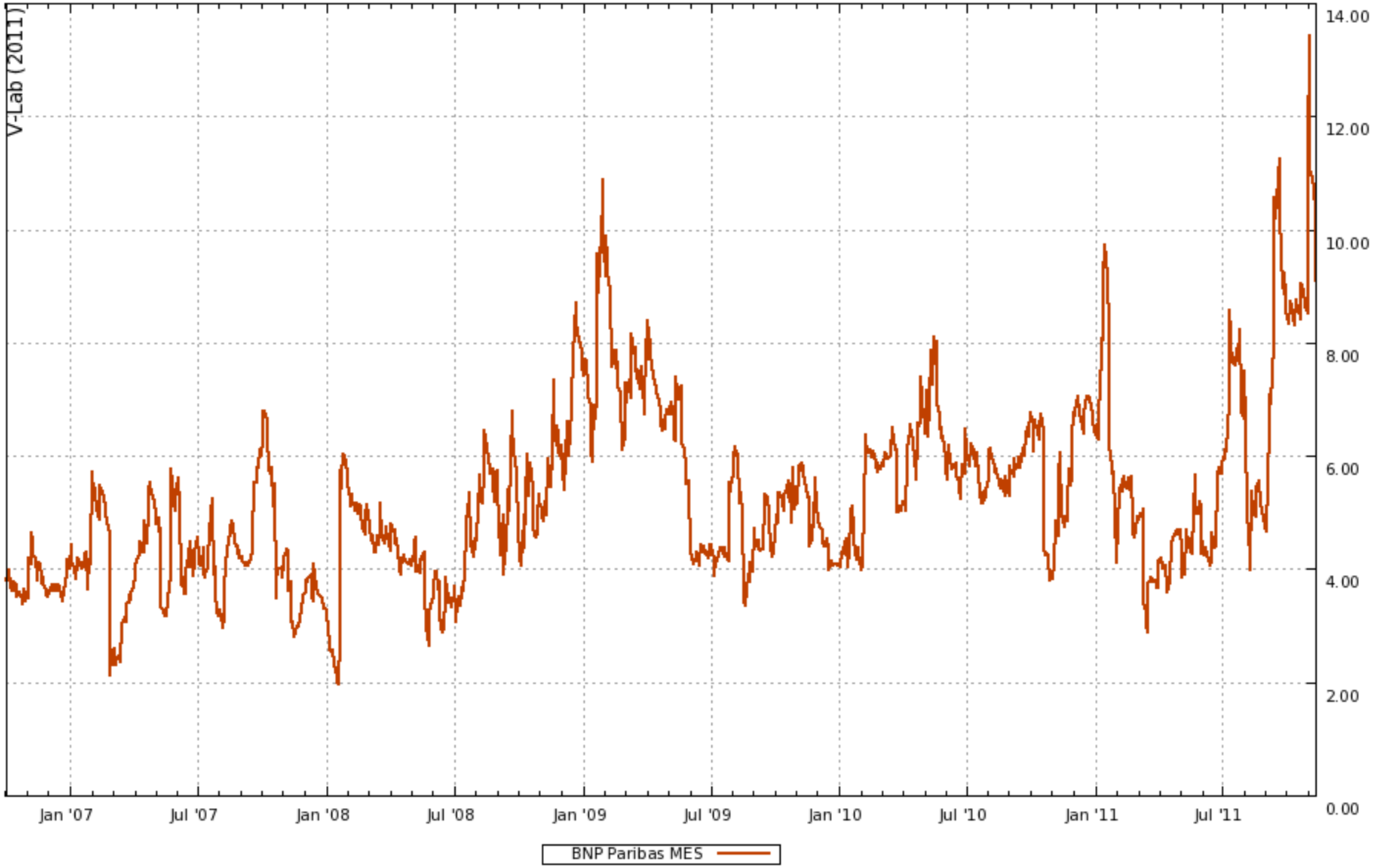
FINE PRINT

- The global risk measures do not use simulation
- They do not correct for IFRS vs. GAAP accounting. Under IFRS, the balance sheet is much bigger as derivative netting is substantially reduced.
- As a correction, they use 4% capital ratio
- They use coefficients conditioned on two day lags.
- They use an ETF ACWI as proxy for global returns with early sample period approximated with traded ETFs.
- They assume that the market return is serially uncorrelated

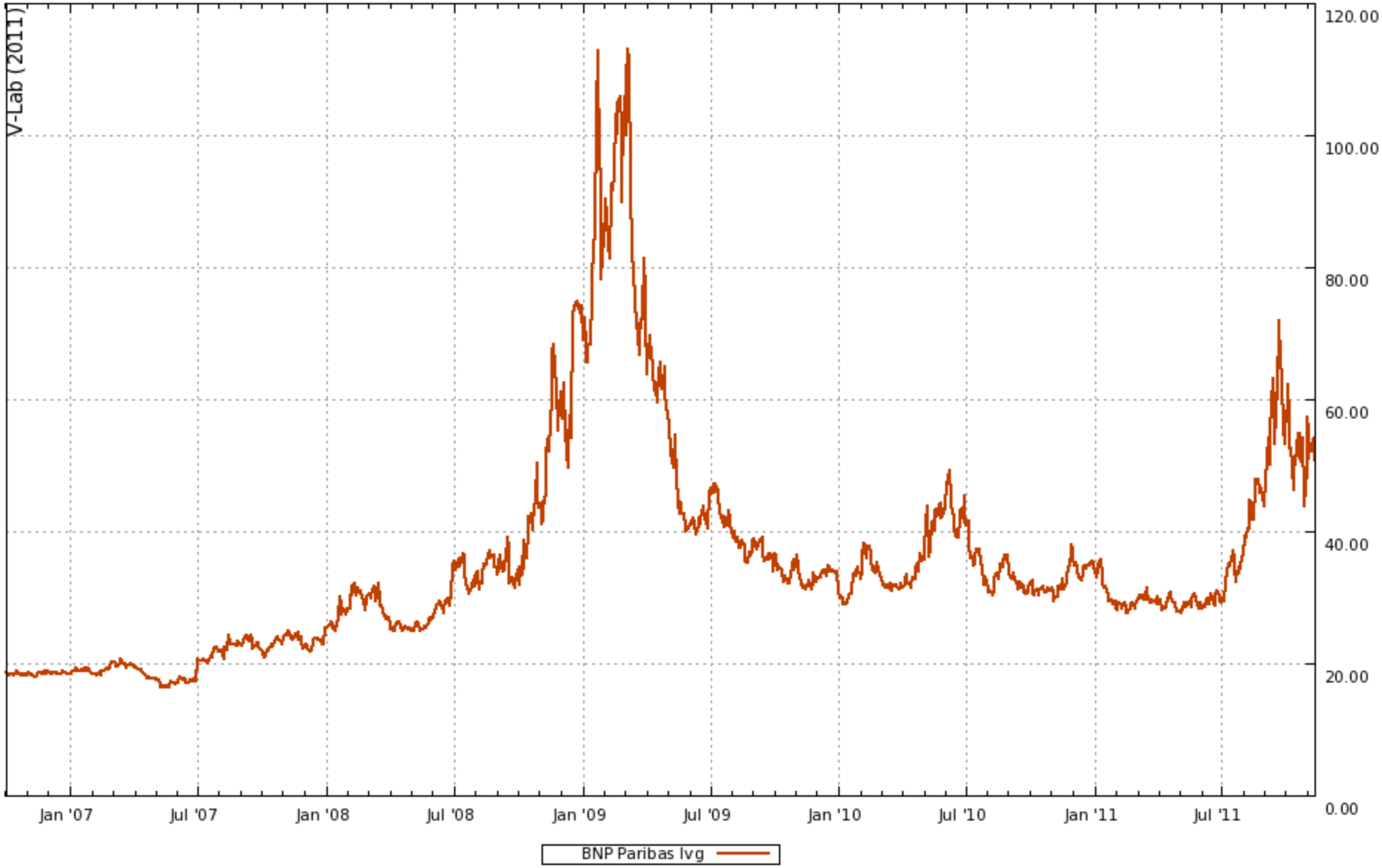
BNP Paribas Volatility



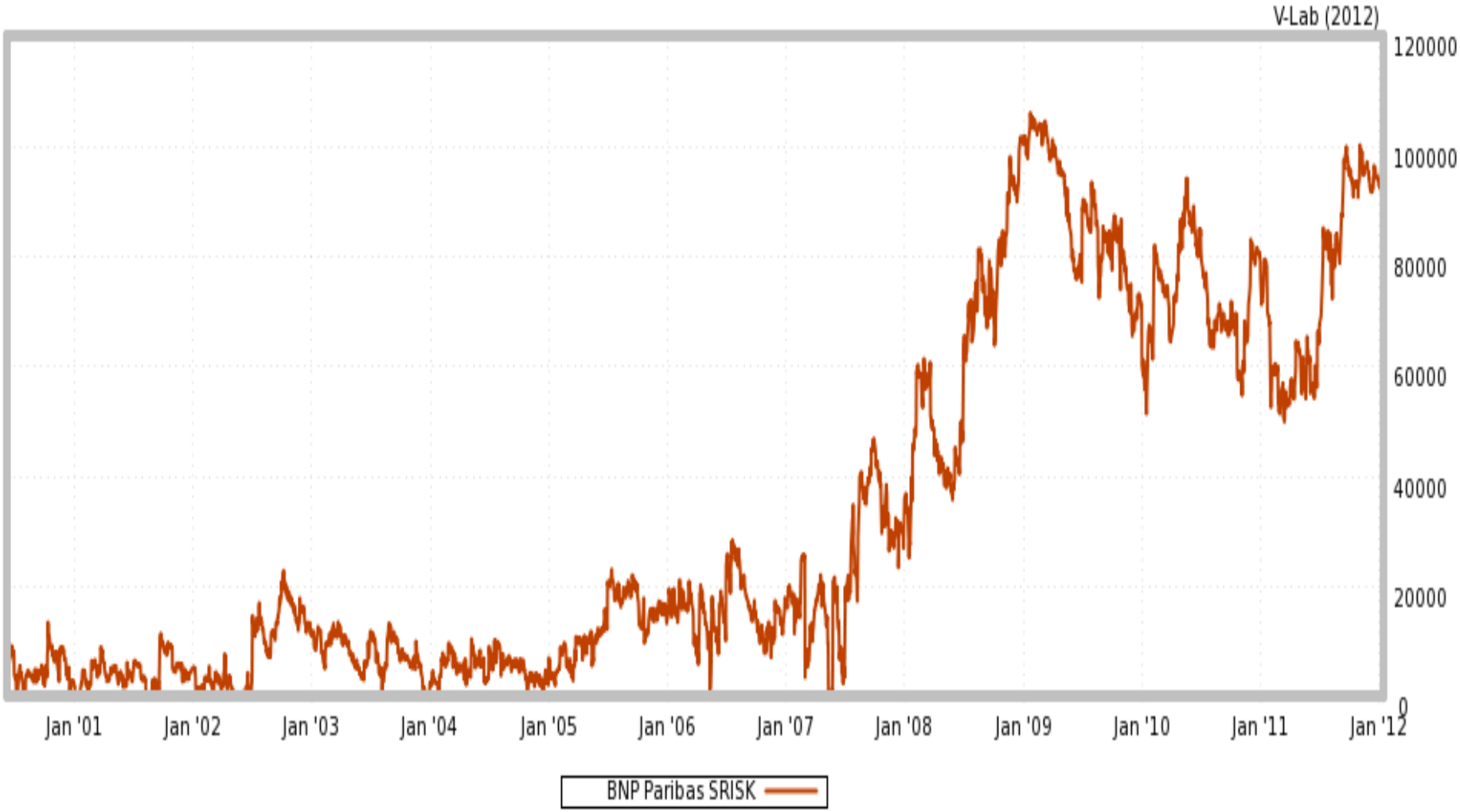
BNP Paribas MES



BNP Paribas Leverage



BNP Paribas SRISK (mln$)



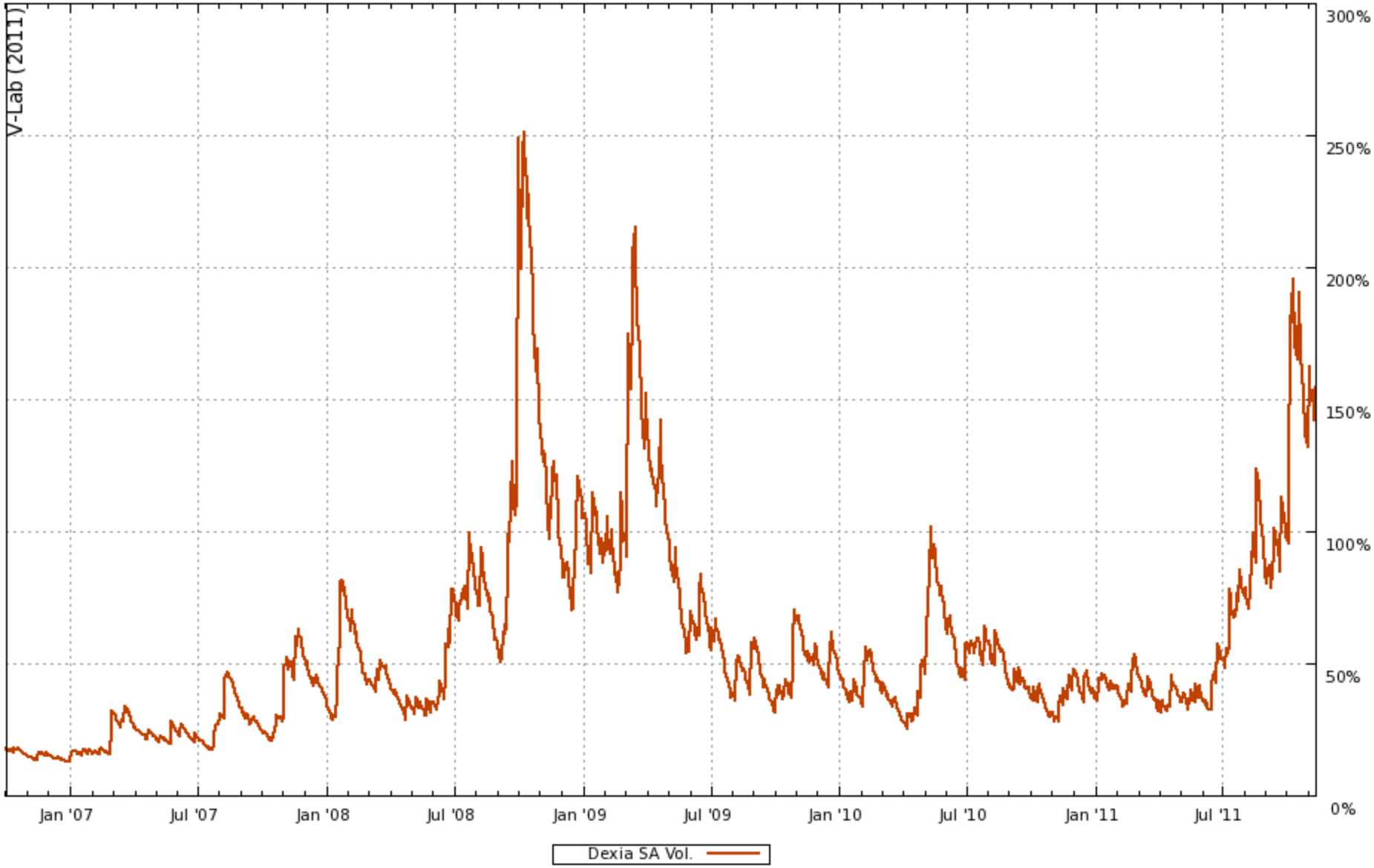
GLOBAL RISK

- November 4, 2011 BIS with FSB of the G-20 released its list of Global Systemically Important Financial Institutions GSIFIs.
- They listed 17 European Banks
- November, our list of the top 17 banks is identical with one exception:
  - We have Intesa Sanpaolo instead of Dexia
- Furthermore, we have ranked these
- It took BIS two years and many meetings. We have now updated many times.

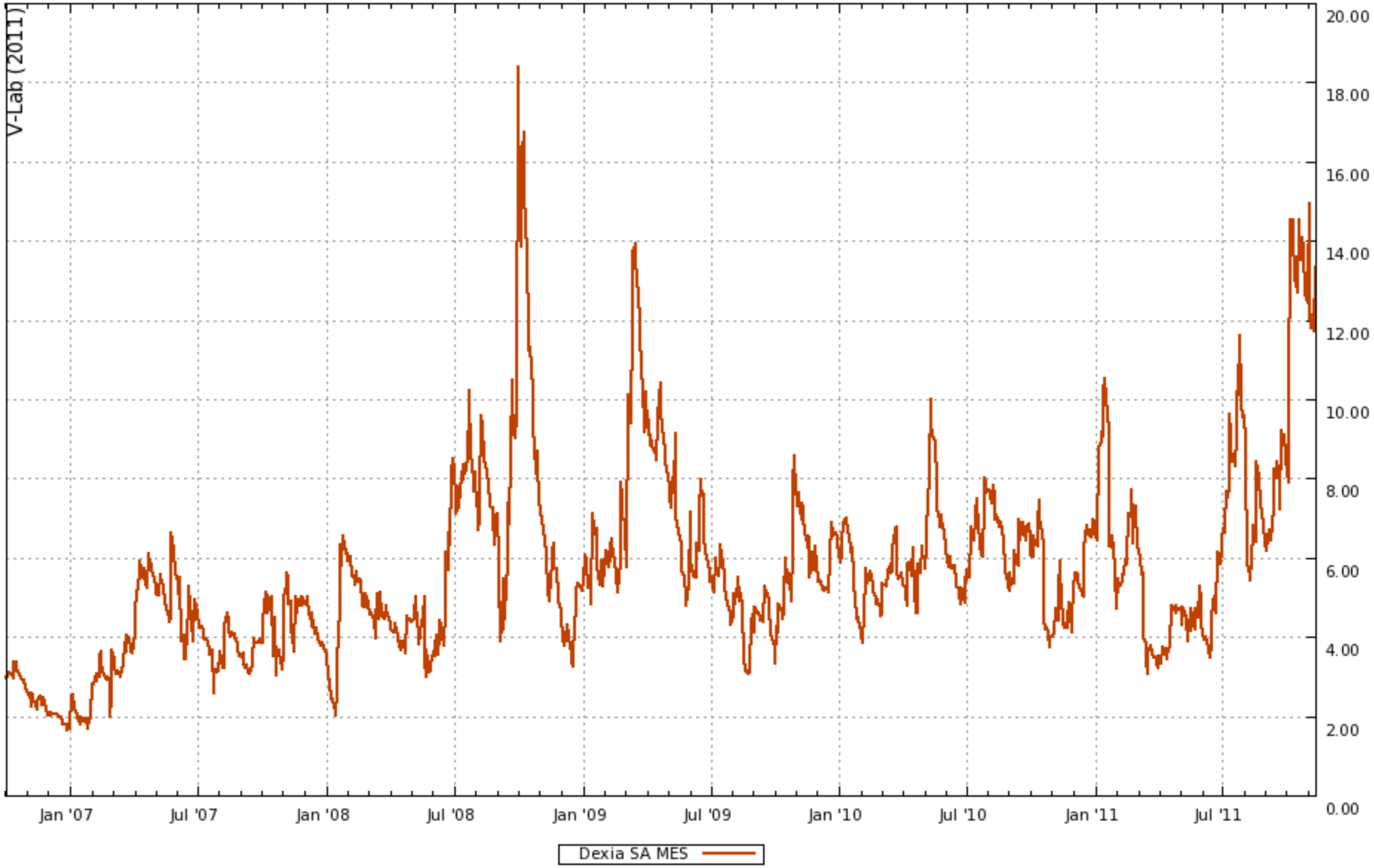
Relation to stress test results and FSB list of G-SIFIs

- Dexia rated one of the safest firms in European stress tests of 2011!
  - Are Basel risk-weights the real culprit?
  - Is current regulatory capital requirement divorced from systemic risk? …
- Relationship to FSB list of G-SIFIs better, but important differences remain
  - Size, Leverage, MES individually do not reflect the same ranking as SRISK
  - Of course, SRISK does not capture everything…

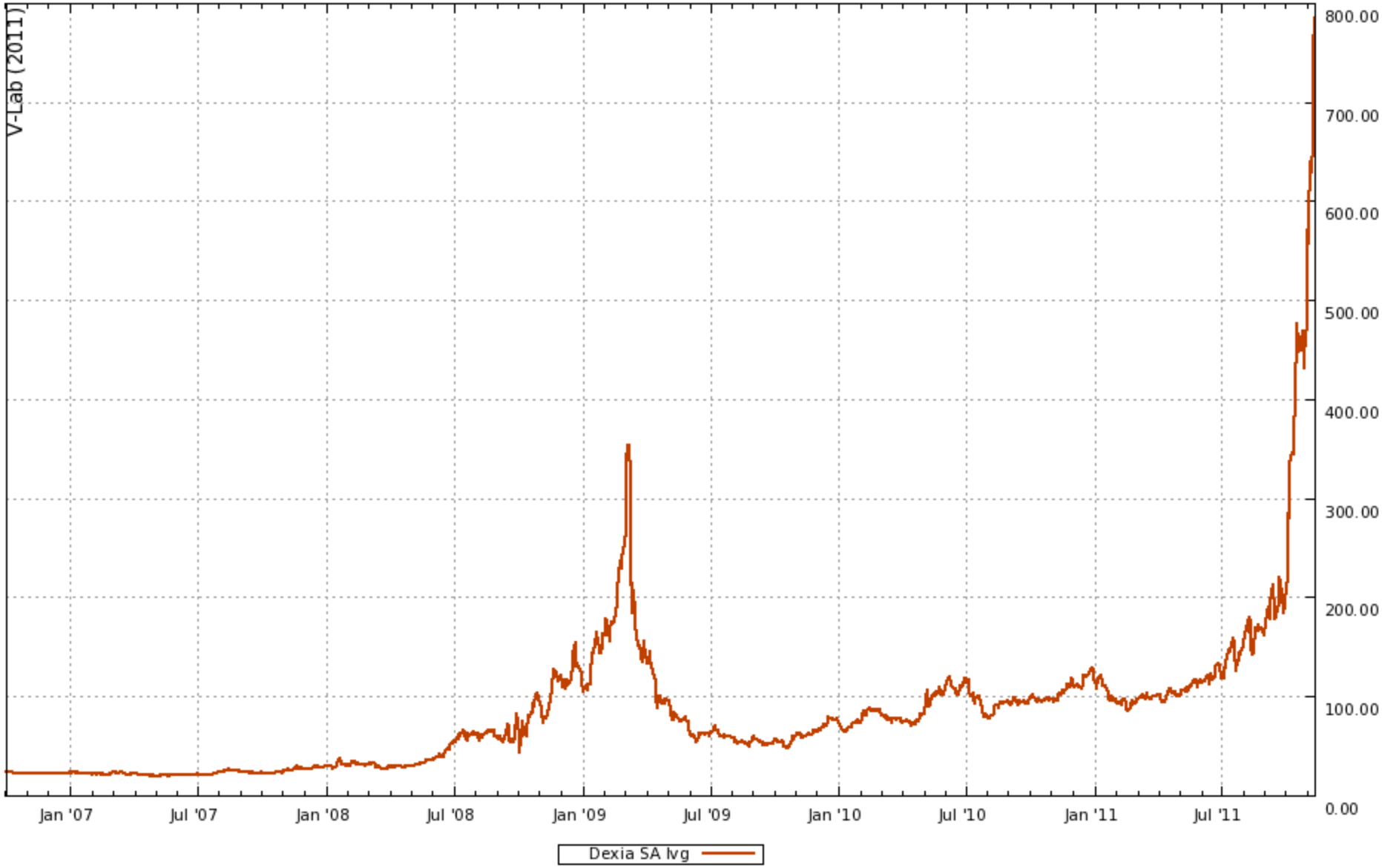
Dexia Volatility



Dexia MES


V-Lab (2011)
20.00
18.00
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Jan '07
Jul '07
Jan '08
Jul '08
Jan '09
Jul '09
Jan '10
Jul '10
Jan '11
Jul '11
Dexia SA MES

Dexia Leverage



Dexia SRISK (mln$)

EUROPEAN SYSTEMIC RISK MEASURES (IFRS ACCOUNTING, 4% CAPITAL REQ.)

Systemic Risk Rankings for 2012-01-13 (MES is equity loss for a 2% daily market decline)

Institution	SRISK%	RNK	SRISK ($ m)	MES	Beta	Cor	Vol	Lvg	MV
Deutsche Bank AG	8.69	1	111,746	7.66	2.55	0.70	60.2	89.59	33,844.2
BNP Paribas	7.40	2	95,192	7.76	2.35	0.62	62.5	55.83	48,676.0
Credit Agricole SA	6.67	3	85,825	7.07	2.19	0.60	60.0	168.72	13,326.7
Royal Bank of Scotland Group PLC	6.29	4	80,830	5.36	1.63	0.50	53.4	59.88	40,631.2
Barclays PLC	6.25	5	80,389	6.31	1.99	0.62	52.8	62.24	37,542.1
Societe Generale	4.72	6	60,688	8.24	2.44	0.58	69.6	100.81	16,077.2
ING Groep NV	4.50	7	57,843	6.65	2.03	0.65	51.6	57.31	29,476.2
Lloyds Banking Group PLC	3.86	8	49,633	5.87	1.83	0.53	56.6	49.31	31,046.1
UniCredit SpA	3.71	9	47,663	13.83	4.87	0.48	168.5	58.60	21,428.9
UBS AG-REG	3.27	10	42,054	4.53	1.37	0.58	39.0	34.59	45,750.7
Banco Santander SA	3.11	11	40,035	5.53	1.88	0.64	48.4	25.27	64,945.6
Commerzbank AG	2.79	12	35,901	6.99	2.33	0.59	65.2	106.79	9,069.4
Credit Suisse Group AG	2.70	13	34,727	5.14	1.47	0.57	42.3	42.46	27,185.0
AXA SA	2.32	14	29,890	7.21	2.12	0.62	55.9	31.37	31,378.8
HSBC Holdings PLC	2.30	15	29,620	3.44	1.14	0.67	28.1	19.30	137,930.1
Intesa Sanpaolo SpA	2.06	16	26,515	7.60	2.65	0.61	71.9	33.11	25,492.8
Natixis	1.79	17	23,071	7.42	2.20	0.51	70.6	80.49	7,882.0
Nordea Bank AB	1.76	18	22,665	5.00	1.67	0.70	39.3	29.04	30,981.5
Dexia SA	1.70	19	21,820	7.05	2.09	0.45	76.3	748.58	736.3
Banco Bilbao Vizcaya Argentari	1.33	20	17,084	6.33	1.95	0.64	50.6	19.41	39,778.0

ASIA 4%

Systemic Risk Rankings for 2012-01-13 (MES is equity loss for a 2% daily market decline)

Institution	SRISK%	RNK	SRISK ($ m)	MES	Beta	Cor	Vol	Lvg	MV
Mitsubishi UFJ Financial Group	29.18	1	66,245	2.18	0.27	0.17	25.4	44.13	61,493.4
Mizuho Financial Group Inc	25.17	2	57,144	1.93	0.29	0.18	27.4	59.92	34,052.8
Sumitomo Mitsui Financial Group	16.97	3	38,520	2.15	0.32	0.22	24.6	40.63	41,255.6
Resona Holdings Inc	5.78	4	13,129	1.51	0.22	0.15	24.9	48.72	11,155.1
Dai-Ichi Life Insurance	5.20	5	11,813	3.80	0.40	0.17	38.7	43.13	9,833.5
Nomura Holdings Inc	5.17	6	11,739	3.69	0.48	0.18	43.8	36.68	12,579.5
Sumitomo Mitsui Trust Holdings	4.18	7	9,483	2.37	0.34	0.18	31.5	36.26	12,101.7
Shinkin Central Bank	3.34	8	7,592	0.79	0.20	0.18	18.8	40.66	10,074.2
Daiwa Securities Group Inc	2.70	9	6,131	3.25	0.38	0.17	37.5	41.87	5,574.9
Bank Of Communications Co-H	1.44	10	3,273	3.91	0.52	0.24	35.3	14.62	46,564.1
State Bank Of India	0.87	11	1,978	3.11	0.80	0.32	40.8	16.97	21,921.8
Bank Of China Ltd-H	0.00	12	-1,118	3.23	0.39	0.22	29.7	14.19	126,428.3
China Citic Bank Corp Ltd-H	0.00	13	-3,007	3.32	0.46	0.26	29.2	11.72	30,384.2
Shanghai Pudong Development Bank-A	0.00	14	-5,978	1.13	0.15	0.11	21.2	14.98	26,695.9
Bank of China Ltd	0.00	15	-40,144	0.70	0.10	0.10	16.8	14.20	126,354.2
China Construction Bank-H	0.00	16	-40,654	2.68	0.36	0.27	21.5	10.31	184,930.0
Agricultural Bank Of China-A	0.00	17	-41,612	1.00	0.15	0.16	15.8	13.48	137,723.2

Global Systemic Risk Rankings

"A Look Back"

PRE LEHMAN EUROPEAN FIN

Systemic Risk Rankings for 2008-08-29 (MES is equity loss for a 2% daily market decline)

Institution	SRISK%	RNK	SRISK ($ m)	MES	Beta	Cor	Vol	Lvg	MV
Royal Bank of Scotland Group PLC	11.64	1	114,340	4.94	1.43	0.43	54.1	52.36	68,881.0
Deutsche Bank AG	10.46	2	102,795	4.20	1.31	0.62	34.0	69.05	45,256.1
Barclays PLC	8.94	3	87,870	5.61	1.54	0.43	58.2	51.79	52,246.7
BNP Paribas	7.75	4	76,199	4.56	1.27	0.52	39.8	34.77	82,071.1
Credit Agricole SA	7.21	5	70,843	4.92	1.37	0.43	51.8	48.33	47,329.2
ING Groep NV	5.73	6	56,291	4.44	1.15	0.48	38.6	33.43	65,027.3
UBS AG-REG	5.54	7	54,416	5.02	1.29	0.46	46.0	31.93	64,140.9
Societe Generale	4.23	8	41,605	4.69	1.23	0.47	42.5	29.51	57,168.8
Dexia SA	3.38	9	33,203	5.98	1.84	0.49	60.4	59.77	16,406.2
Natixis	2.99	10	29,379	7.08	1.95	0.38	82.6	76.59	10,663.0
Commerzbank AG	2.81	11	27,642	3.39	0.93	0.43	35.3	49.68	19,387.5
UniCredit SpA	2.34	12	22,993	3.05	0.85	0.42	32.4	22.82	72,106.5
Credit Suisse Group AG	2.10	13	20,606	3.98	0.93	0.44	34.6	22.19	54,417.3
Allianz SE	2.06	14	20,285	3.18	0.97	0.56	28.5	21.24	75,626.4
Danske Bank A/S	1.84	15	18,068	3.25	0.89	0.50	29.1	37.37	19,652.1
Legal & General Group PLC	1.77	16	17,400	5.21	1.51	0.45	55.1	50.55	10,833.2
AXA SA	1.63	17	16,055	5.28	1.40	0.52	43.5	16.35	66,060.8
Aviva PLC	1.61	18	15,863	5.35	1.55	0.45	55.4	26.11	24,849.5
Lloyds Banking Group PLC	1.56	19	15,318	4.71	1.48	0.40	59.8	23.31	31,832.2
Skandinaviska Enskilda Banken AB	1.05	20	10,294	5.33	1.45	0.47	49.4	31.14	12,284.4

JAN 31, 2007

Systemic Risk Rankings for 2007-01-31 (MES is equity loss for a 2% daily market decline)

Institution	SRISK%	RNK	SRISK ($ m)	MES	Beta	Cor	Vol	Lvg	MV
Deutsche Bank AG	26.74	1	34,909	2.26	0.80	0.59	15.8	28.84	73,469.6
Credit Agricole SA	16.74	2	21,852	2.57	0.85	0.45	22.1	23.88	70,407.6
Barclays PLC	11.13	3	14,529	2.20	0.69	0.40	20.3	20.99	94,916.9
BNP Paribas	11.10	4	14,495	2.95	0.93	0.49	22.4	18.60	103,821.9
Commerzbank AG	10.45	5	13,640	2.27	0.81	0.42	22.4	29.26	27,679.1
ING Groep NV	5.95	6	7,774	2.91	0.96	0.57	19.9	17.24	96,238.6
Allianz SE	4.12	7	5,380	3.11	1.15	0.58	23.1	16.28	86,019.8
Dexia SA	2.90	8	3,783	1.52	0.50	0.37	15.8	21.99	34,455.3
Schweizerische Nationalbank	2.66	9	3,469	1.13	0.16	0.05	39.0	821.06	108.3
Legal & General Group PLC	2.61	10	3,411	2.04	0.68	0.41	19.6	21.92	19,836.5
CNP Assurances	1.70	11	2,221	2.16	0.49	0.27	21.0	20.53	16,975.5
Natixis	1.58	12	2,060	2.44	0.50	0.21	28.2	17.98	34,200.4
Credit Industriel et Commercial	1.10	13	1,437	2.07	0.73	0.23	37.0	20.05	14,291.4
Standard Life PLC	0.83	14	1,084	1.28	0.43	0.28	17.6	22.30	12,150.5
Bank of Greece	0.30	15	394	2.09	0.40	0.16	29.6	22.07	2,144.9

JAN 31, 2005

Systemic Risk Rankings for 2005-01-31 (MES is equity loss for a 2% daily market decline)

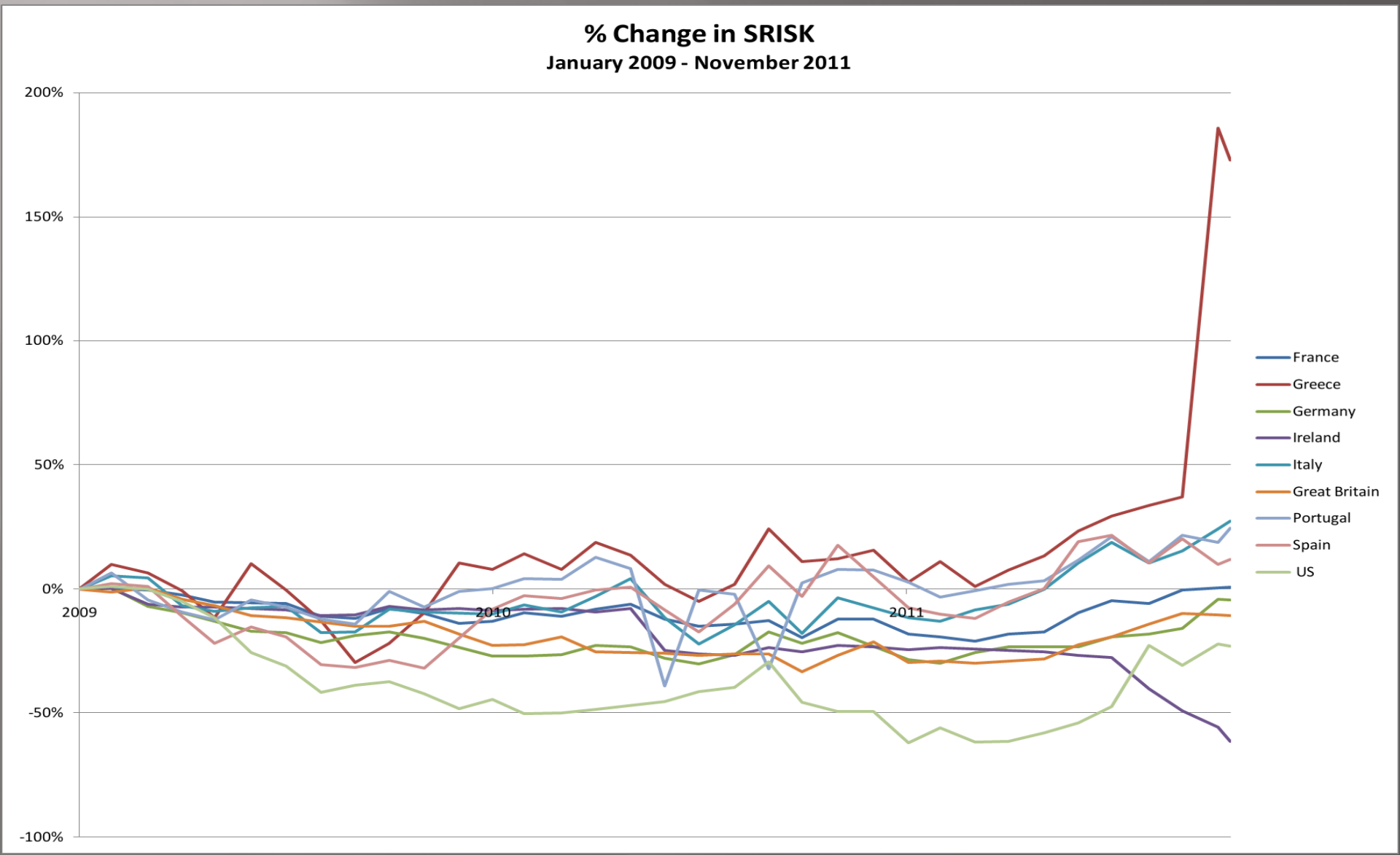
Institution	SRISK%	RNK	SRISK ($ m)	MES	Beta	Cor	Vol	Lvg	MV
Allianz SE	23.62	1	27,103	3.23	1.17	0.55	23.6	29.23	45,748.6
Deutsche Bank AG	15.96	2	18,310	3.00	1.13	0.62	20.1	24.88	46,224.7
Commerzbank AG	12.13	3	13,921	2.00	0.74	0.45	18.2	45.07	12,729.9
Credit Agricole SA	11.35	4	13,022	1.95	0.73	0.40	20.2	25.30	43,925.9
ING Groep NV	5.73	5	6,573	2.42	0.72	0.46	17.3	19.12	63,508.2
Credit Suisse Group AG	4.94	6	5,670	2.29	0.74	0.42	19.3	19.80	48,821.6
BNP Paribas	4.40	7	5,044	2.08	0.66	0.45	16.1	19.48	63,883.9
CNP Assurances	4.37	8	5,010	3.22	0.73	0.32	25.1	27.07	9,911.3
Landesbank Berlin Holding AG	4.26	9	4,891	1.14	0.44	0.32	15.3	66.74	2,646.6
Schweizerische Nationalbank	2.57	10	2,950	0.58	0.29	0.12	27.0	968.56	78.0
Societe Generale	2.31	11	2,651	2.18	0.71	0.46	16.9	18.70	44,303.3
Swiss Life Holding AG	1.81	12	2,071	1.87	0.60	0.34	19.4	28.33	5,075.8
Skandinaviska Enskilda Banken AB	1.80	13	2,069	2.80	0.94	0.42	24.7	19.63	12,546.1
Legal & General Group PLC	1.69	14	1,938	1.94	0.74	0.41	20.2	21.38	14,038.5
Deutsche Postbank AG	1.19	15	1,365	1.56	0.60	0.37	18.2	23.77	7,351.5
UBS AG-REG	0.75	16	860	2.24	0.68	0.44	17.2	17.29	91,401.7
Dexia SA	0.63	17	725	1.25	0.48	0.33	16.2	20.88	25,609.0
Bank of Greece	0.45	18	517	1.74	0.52	0.27	21.4	27.14	1,505.2
Erste Group Bank AG	0.05	19	59	2.61	0.92	0.37	27.7	16.13	11,938.0
Banca Monte dei Paschi di Siena SpA	0.01	20	6	1.92	0.66	0.36	20.6	18.01	9,793.3

TODAY

- The total SRISK of the top 20 European Financial companies is about 15% *higher* today than it was in the summer of 2008.

- The European Banking sector is fragile and will need massive recapitalization to avoid financial meltdown. Our current number is $990 billion.
- New liquidity facility of the ECB is a big help but will not replace lost capital.

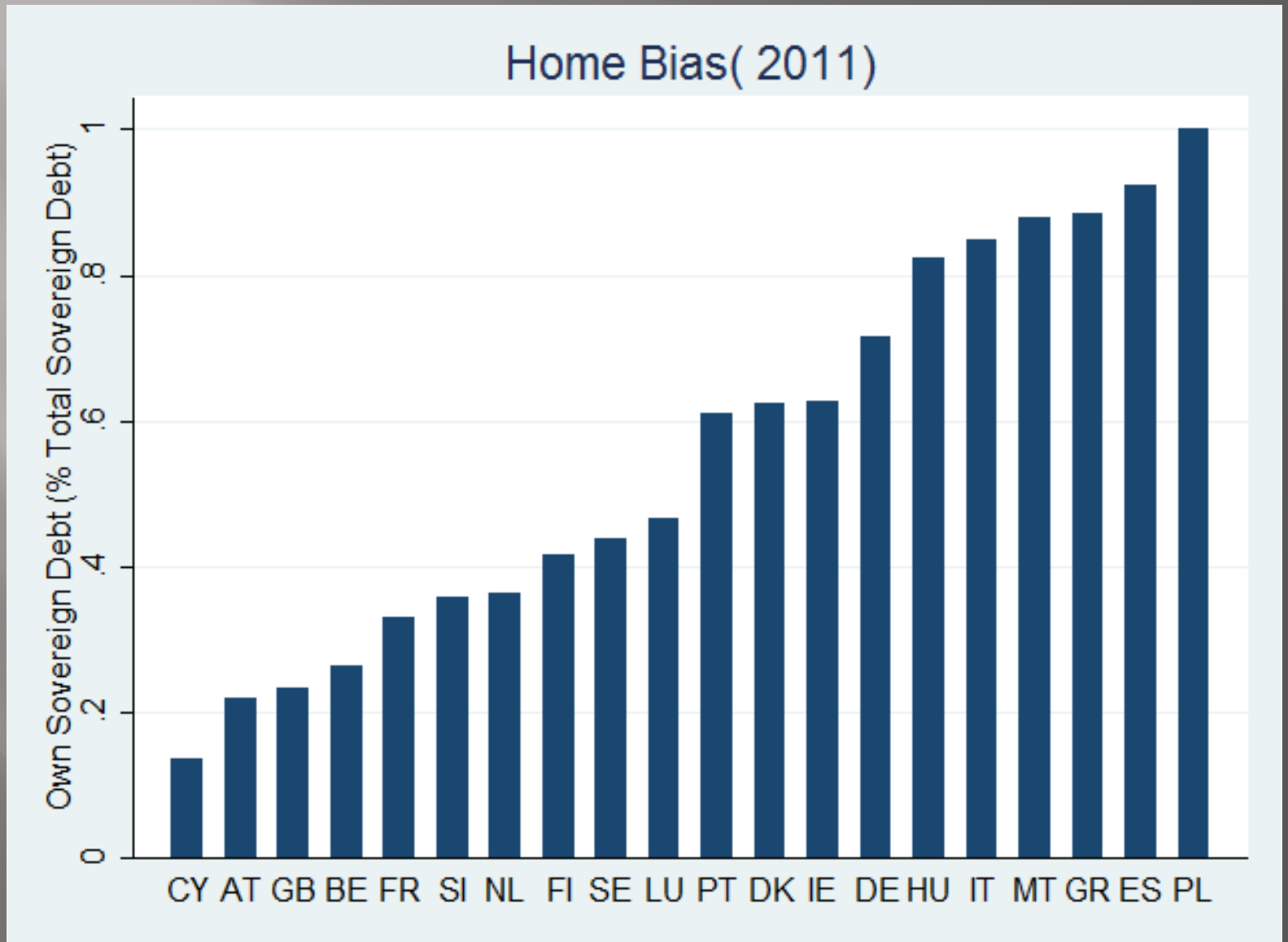
SYSTEM CAPITAL SHORTFALL BY COUNTRY (% CHANGE FROM JAN 2009)



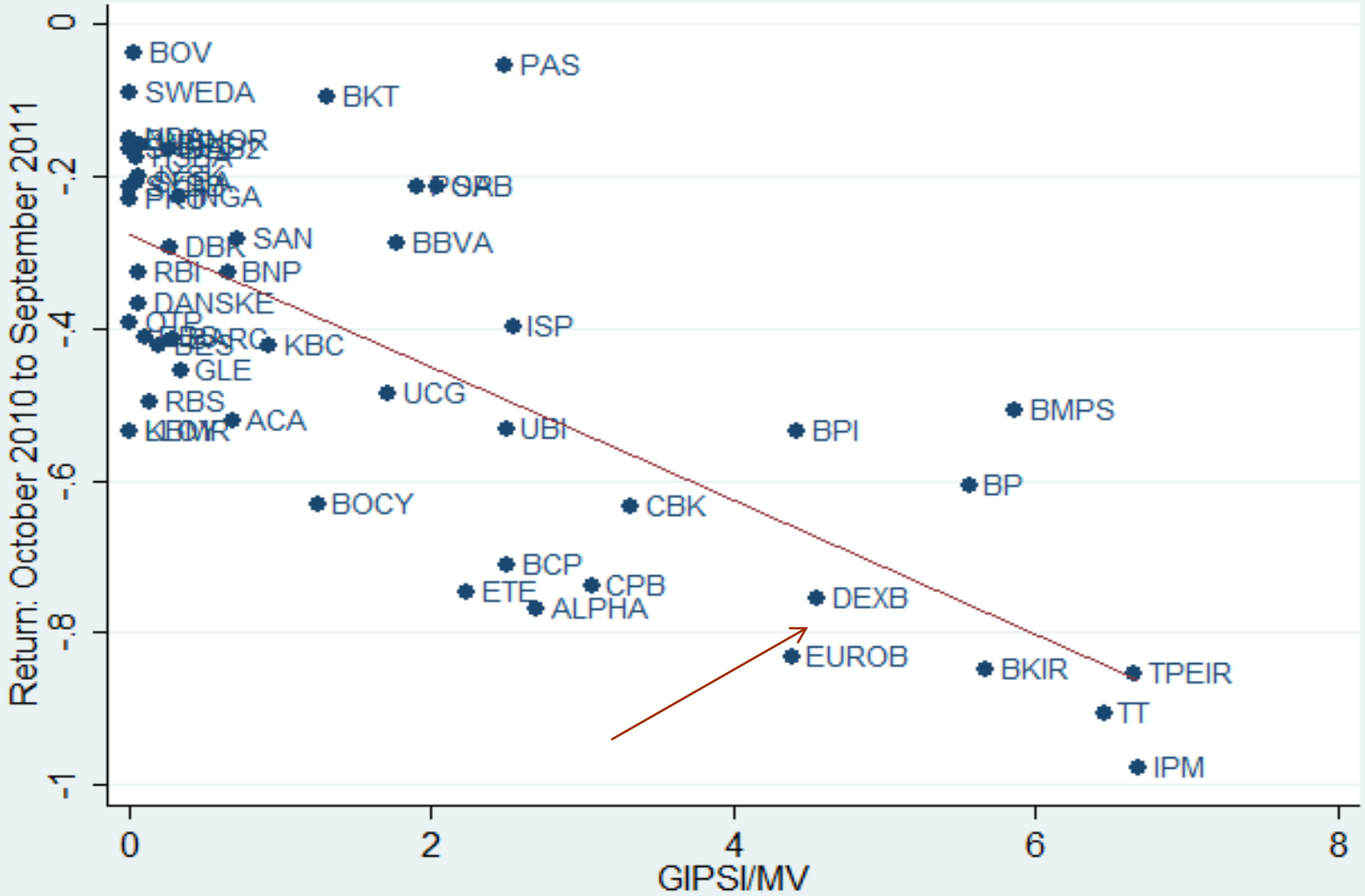
SOVEREIGN RISK OR BANKING CRISIS?

- Both
- Banks are weak because massive amounts of sovereign debt are on their books and have declined in value.
- Sovereigns are weak because they have borrowed substantially. They are also weak because recapitalizing their own banks will transfer risk from banks to sovereigns!!

Home Bias in Banks' Sovereign Bond Holdings (2011)



Bank return (Oct'10–Sep'11) vs GIPSI/MV exposure of Dec'10



OPEN QUESTIONS

- Counter-cyclical SRISK?
  - Stress = 40% downfall <u>from the peak</u>?
  - Ensure firms can raise required capital in a future crisis too, without restructuring (or bailout)?
- Dealing with externalities of the financial sector's equity and debt valuations
- Effect of capital raising on the macroeconomic state of the world, and thus on "stress" scenario
  - Deep nexus of financial and sovereign credit risks