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Sources of Systemic Risk: Preliminary Table Setting

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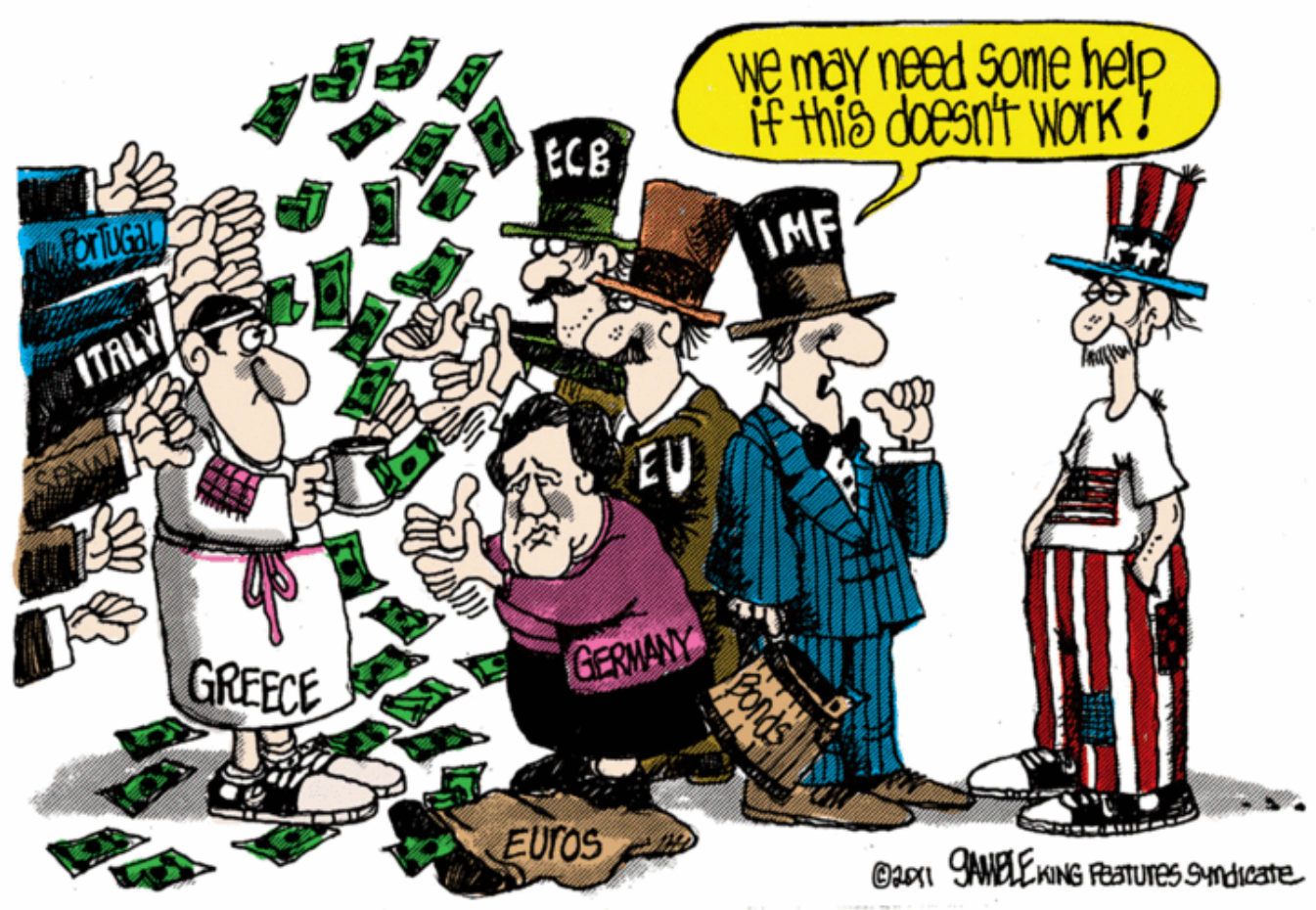
Main Sources of Systemic Risk

- Possibility of a Series of Individual-Bank Defaults: Tail-Risk Exposures and Unbooked Losses in Financial-Sector balance sheets that generate doubt about **stand-alone repayment capacities**, particularly at Megabanks
- Conflicting effects of National, Regional and Global Arrangements that seek to avoid defaults, but protect creditors against these defaults. Apt to subsidize tail risk by generating an **expectation that governments will Improvise a Taxpayer Rescue of Managers and Creditors of Insolvent Institutions in a crisis.**
- Safety nets are not just webs of explicit guarantees, but include additional options to close or support Zombie Banks through their troubles in a number of other ways.

THIS IS WHAT SYSTEMIC RISK IN EU TRULY LOOKS LIKE



WHY? BECAUSE MOVEMENTS IN STAND-ALONE DEFAULT PROBABILITIES OF MAJOR BANKS IN US AND EU ARE HIGHLY CORRELATED

Bank Pair	Correlation Coefficient in KRIS data
BAC and C	.94
BAC and JPM	.80
BAC and GS	.93
BAC and MS	.94
BAC and DBK	.51
BAC and BBVA	.73
BAC and UBI	.60
BAC and CSGN	.71

KRIS posted these figured on 3-17-17. These high correlations destroy the credibility of bail-in promises. They tell us that, when one of these banks is in distress, the others are more apt to need help than to be able to assist them.

The model of default probability used to generate the probabilities is Kamakura Risk Information Services version 6.0 Jarrow-Chava reduced form default probability model (abbreviated on the KRIS site as KDP-jc6)

- This model uses a sophisticated combination of financial ratios, stock price history, and macro-economic factors.

  The version 6.0 model was estimated over the period from 1990 to 2014, and includes the insights of the recent credit crisis. Kamakura default probabilities are based on **2.2 million observations and more than 2,700 defaults.**

  A term structure of default over different horizons is constructed by using a related series of econometric relationships estimated on this data base. KRIS covers 35,000 firms in 61 countries, updated daily

In the next few slides, we analyze banks operating in the United States (regardless of headquarters location) that were subject to the Federal Reserve's CCAR stress testing in 2016. Banks are ranked in this table by the size of their three-year cumulative default probabilities on 3-9-17 :

Ticker	Company	Country	S&P Rating	1 yr	3 yr	10 yr
DBK	DEUTSCHE BANK AG	DEU	BBB+	2.06	6.49	22.90
SAN	BANCO SANTANDER SA	ESP	A-	0.86	4.11	20.83
BBVA	BBVA	ESP	BBB+	1.01	4.05	19.75
8306	MITSUBISHI UFJ FINANCIAL GRP	JPN	A	0.49	3.43	19.79
ALLY	ALLY FINANCIAL INC	USA	BB+	0.63	3.17	19.35
601988	BANK OF CHINA LTD	CHN	A	0.82	2.83	15.28
HSBA	HSBC HLDGS PLC	GBR	A	0.22	2.34	17.69
RF	REGIONS FINANCIAL CORP	USA	BBB	0.14	1.71	14.61
HBAN	HUNTINGTON BANCSHARES	USA	BBB	0.14	1.63	14.13
TPB	BNP PARIBAS	FRA	A	0.11	1.57	15.27

Ticker	Company	Country	S&P Rating	1 yr	3 yr	10 yr
KEY	KEYCORP	USA	BBB+	0.12	1.43	13.55
CFG	CITIZENS FINANCIAL GROUP INC	USA	BBB+	0.11	1.42	13.52
FITB	FIFTH THIRD BANCORP	USA	BBB+	0.12	1.33	13.05
ZION	ZIONS BANCORPORATION	USA	BBB-	0.07	1.32	14.28
BAC	BANK OF AMERICA CORP	USA	BBB+	0.10	1.21	13.29
MS	MORGAN STANLEY	USA	BBB+	0.07	1.07	12.54
STI	SUNTRUST BANKS INC	USA	BBB+	0.06	1.06	11.32
COF	CAPITAL ONE FINANCIAL CORP	USA	BBB	0.05	1.03	10.70
BBT	BB&T CORP	USA	A-	0.07	0.96	10.44
CMA	COMERICA INC	USA	BBB+	0.05	0.96	10.50
C	CITIGROUP INC	USA	BBB+	0.05	0.93	11.53
WFC	WELLS FARGO & CO	USA	A	0.06	0.93	10.38
STT	STATE STREET CORP	USA	A	0.05	0.89	10.21
TD	TORONTO DOMINION BANKS	CAN	AA-	0.03	0.87	10.22

Ticker	Company	Country	S&P Rating	1 yr	3 yr	10 yr
USB	U S BANCORP	USA	A+	0.06	0.83	9.43
BK	BANK OF NEW YORK MELLON CORP	USA	A	0.06	0.83	10.02
BMO	BANK OF MONTREAL	CAN	A-	0.02	0.80	9.99
JPM	JPMORGAN CHASE & CO.	USA	A-	0.03	0.79	9.73
PNC	PNC FINANCIAL SVCS GROUP INC	USA	A-	0.03	0.78	9.01
GS	GOLDMAN SACHS GROUP INC	USA	BBB+	0.02	0.72	9.30
MTB	M & T BANK CORP	USA	A-	0.02	0.68	7.95

Note: This chart uses the KRIS public firm default probabilities for parent companies, not the default probabilities of U.S. bank subsidiaries.

Post-Crisis Reforms convey bail-in powers, but incentive to use these powers is weak

In the wake of the Great Financial Crisis, authorities in the US and EU have waged a propaganda war on the presumption that many of the world's most important banks are too vital economically, too complex structurally, and/or too politically powerful to fail and unwind(TBTFU).

In both venues, regulators extol new laws and directives designed to **impede bailouts, to convey new resolution authority, and to require megabanks to strengthen their capital, their liquidity, and their "resolvability."** But in a crisis the incentives for top regulators and distressed bankers to paper over the effects of falling asset prices and to delay resolution are as strong as ever.

SOME UNPLEASANT EMPIRICAL TRUTHS

- Yields on debt securities of distressed megabanks act as if estimated surges in their default probabilities are virtually irrelevant Nonstandard behavior of credit spreads on **"unguaranteed"** megabank bonds show surge in value of implicit guarantees in distress
- Interpreted by means of a diff-on-diff model that treats surges in default probability as exogenous and surges in credit spreads as endogenous, this finding is consistent with the hypothesis that rescue propensities intensify systemic risk. If regulatory forbearance and rescue were not presumed, credit spreads would surge with PDs during a crisis