

Risk Management: Lessons from Subprime and Financial Market Turmoil

**Ping Chew
Corporate & Government Ratings
Standard & Poor's**

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Agenda

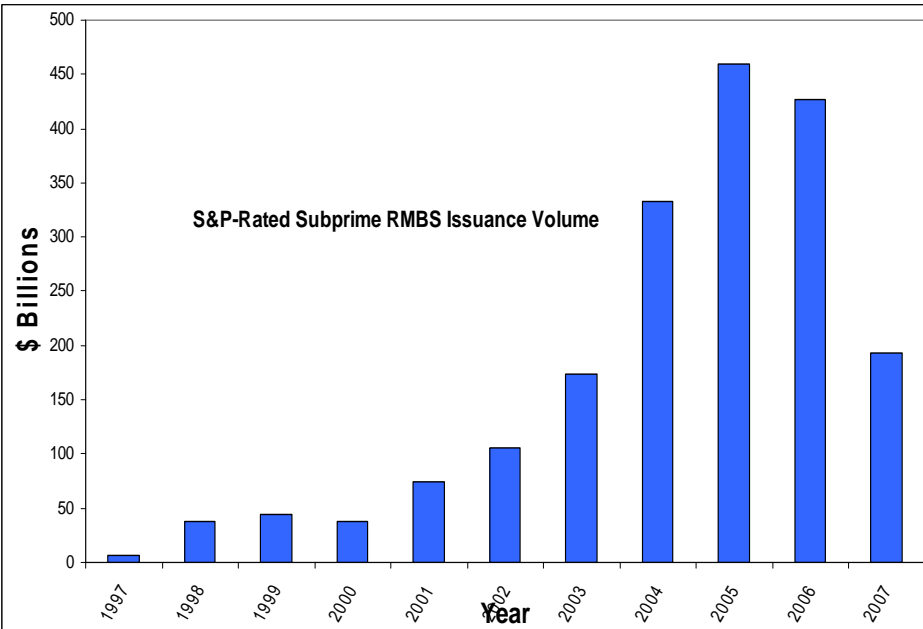
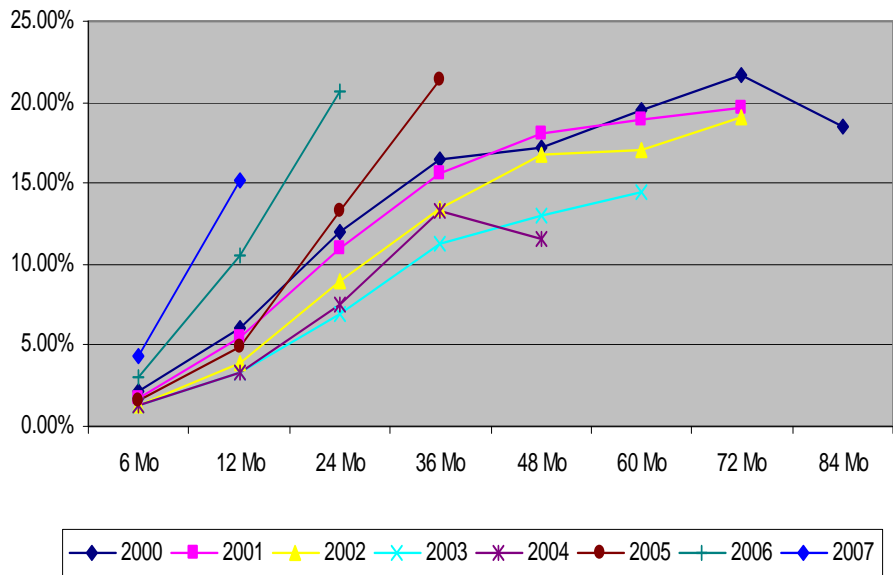
- **The trigger: Subprime**
- **But is that the only indulgence?**
- **Lessons Learnt on Risk Management**
- **Outlook for Banks**

Subprime and its broad contagion effect

- **Credit boom ended in summer 2007**
- **Boom characterized by excesses in residential RE (subprime), leveraged finance**
- **Global write-downs (for banks, brokers, monolines, institutional investors) of subprime ABS could exceed \$265 billion – more than half already disclosed**
- **Illiquidity rapidly spread into other credit markets:**
 - **Other segments of the Structured Finance Market**
 - **US Municipal Bond Insurers and Market**
 - **Banks and Bank Loan Market**
 - **High Yield Bond Market**
- **This coupled with economic slowdown, inflation, adjustments in financial and global imbalances**

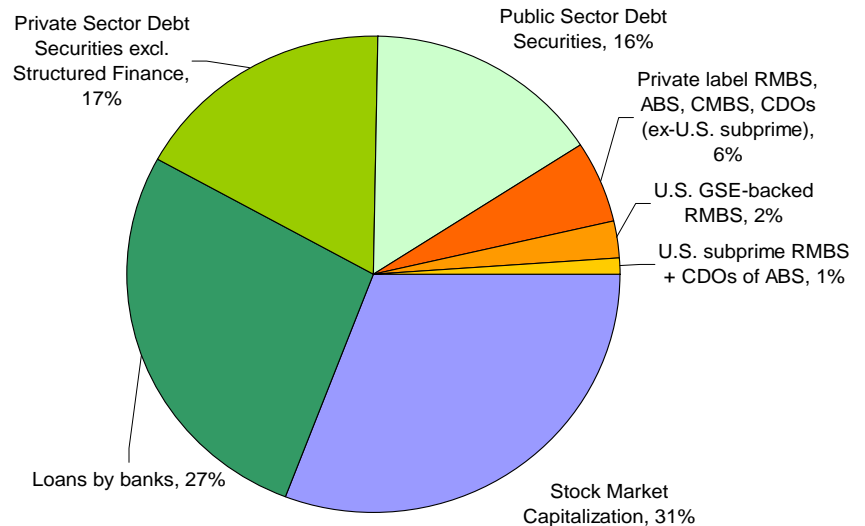
Sub-prime Market and Collateral Performance

Subprime Serious Delinquency Comparison

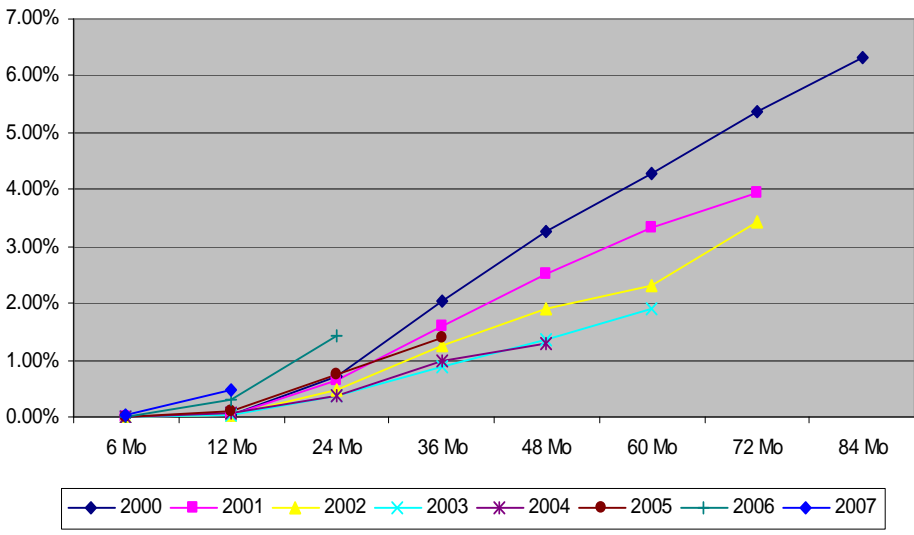


Approximate Size of Global Capital Markets

Sum total exceeds US\$160 trillion at year-end 2006

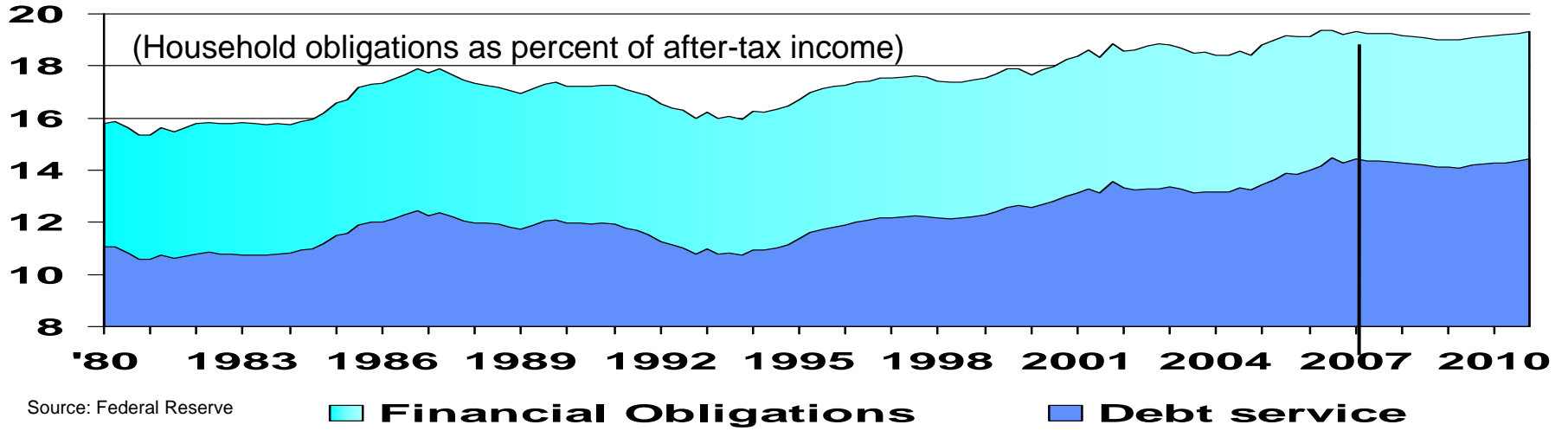


Subprime Cumulative Loss Comparison



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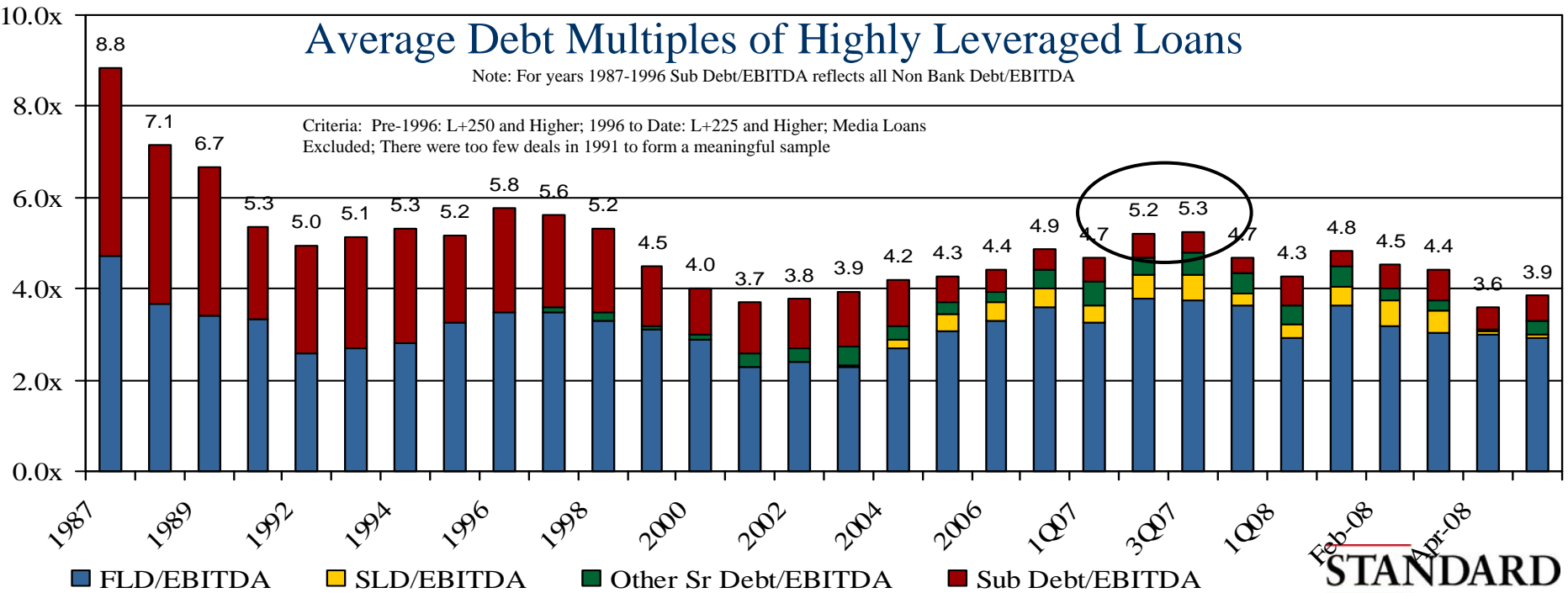
Mounting Evidence: Consumer Debt and Leveraged Loans



Average Debt Multiples of Highly Leveraged Loans

Note: For years 1987-1996 Sub Debt/EBITDA reflects all Non Bank Debt/EBITDA

Criteria: Pre-1996: L+250 and Higher; 1996 to Date: L+225 and Higher; Media Loans
Excluded; There were too few deals in 1991 to form a meaningful sample

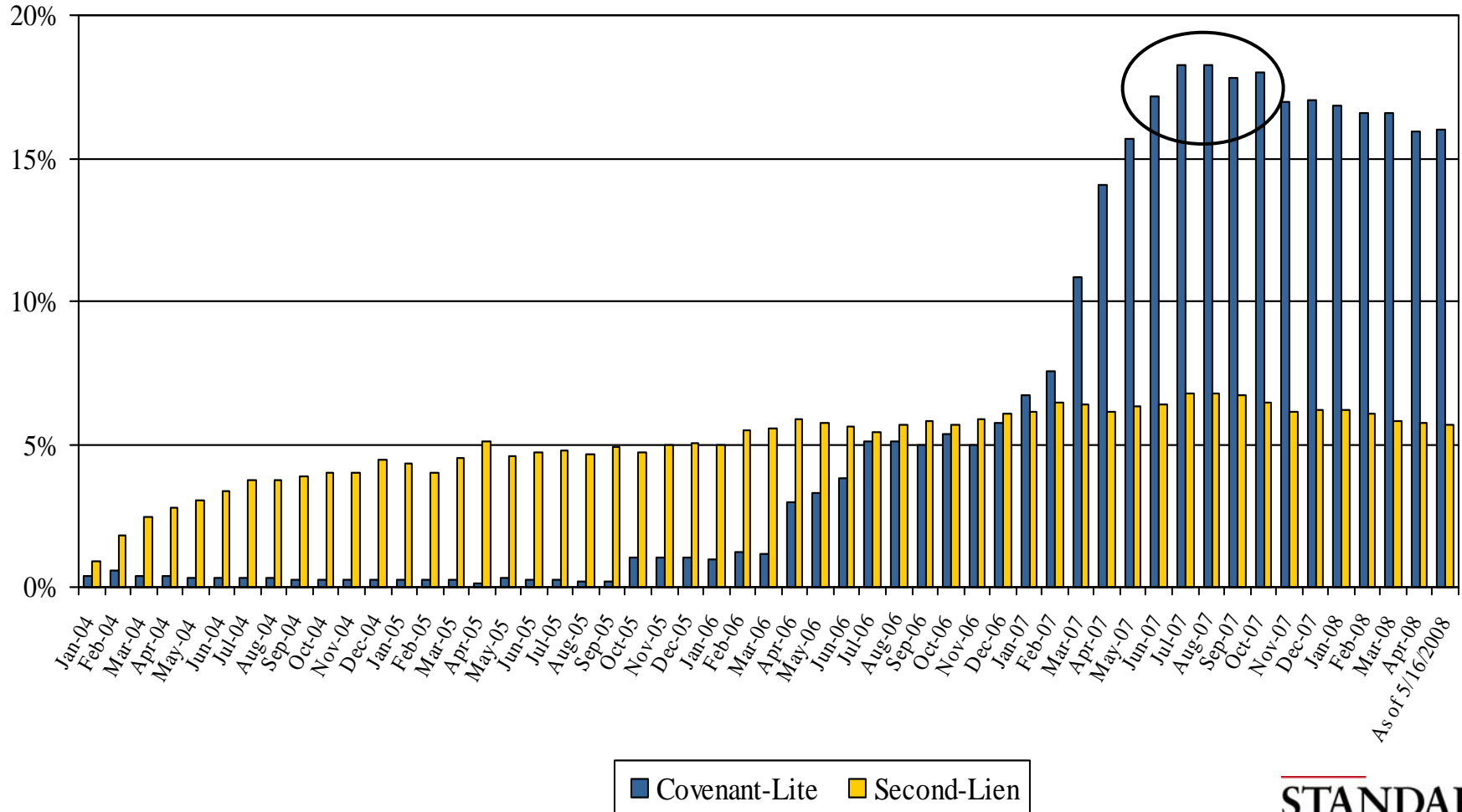


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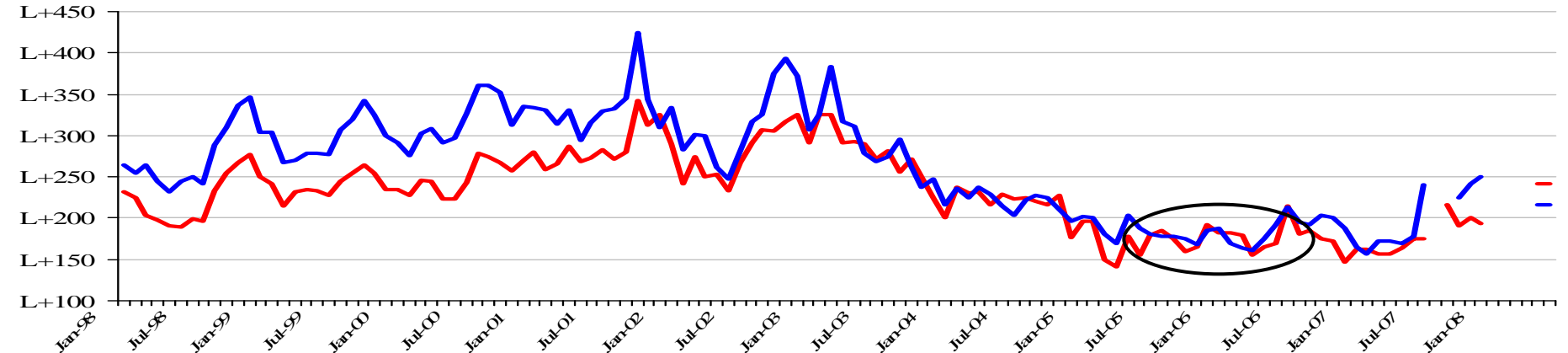
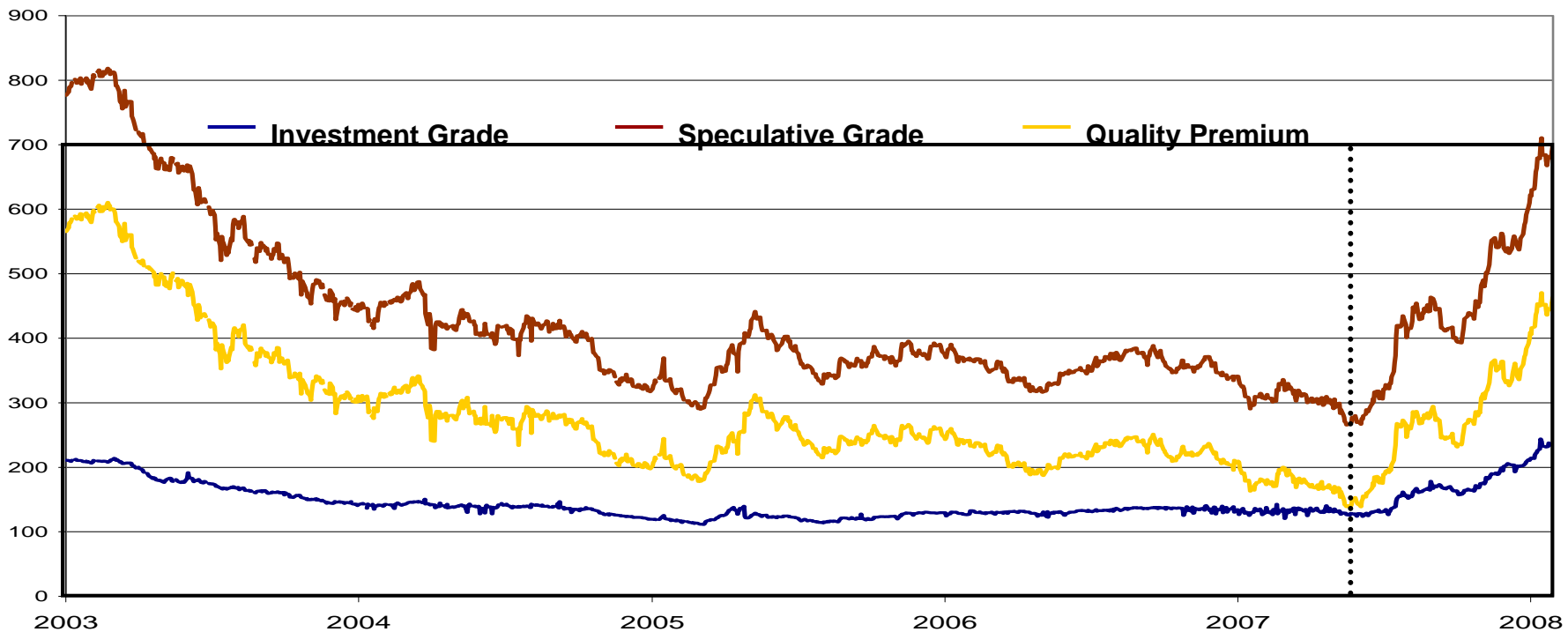
Mounting Evidence: Lending Standards Drop

Covenant-Lite Outstandings as a Percent of All Leveraged Loans
 Comprises all loans, including those not tracked in the LSTA/LPC mark-to-market service
 Vast majority are institutional tranches
 Source: Standard and Poor's LCD and S&P/LSTA Leveraged Loan Index



Risk Aversion Returning After Extreme Risk Appetite

Basis Point Spread Over Treasury Yields



Average New-Issue Pro Rata & Weighted Average First-Lien Institutional Spread of BB/BB- Loans
As of 10/5/06 LCD began using Corporate Credit Ratings by S&P and Corporate Family Ratings by Moody's for rated spread and rated upfront fee calculations

— Pro Rata

— Institutional

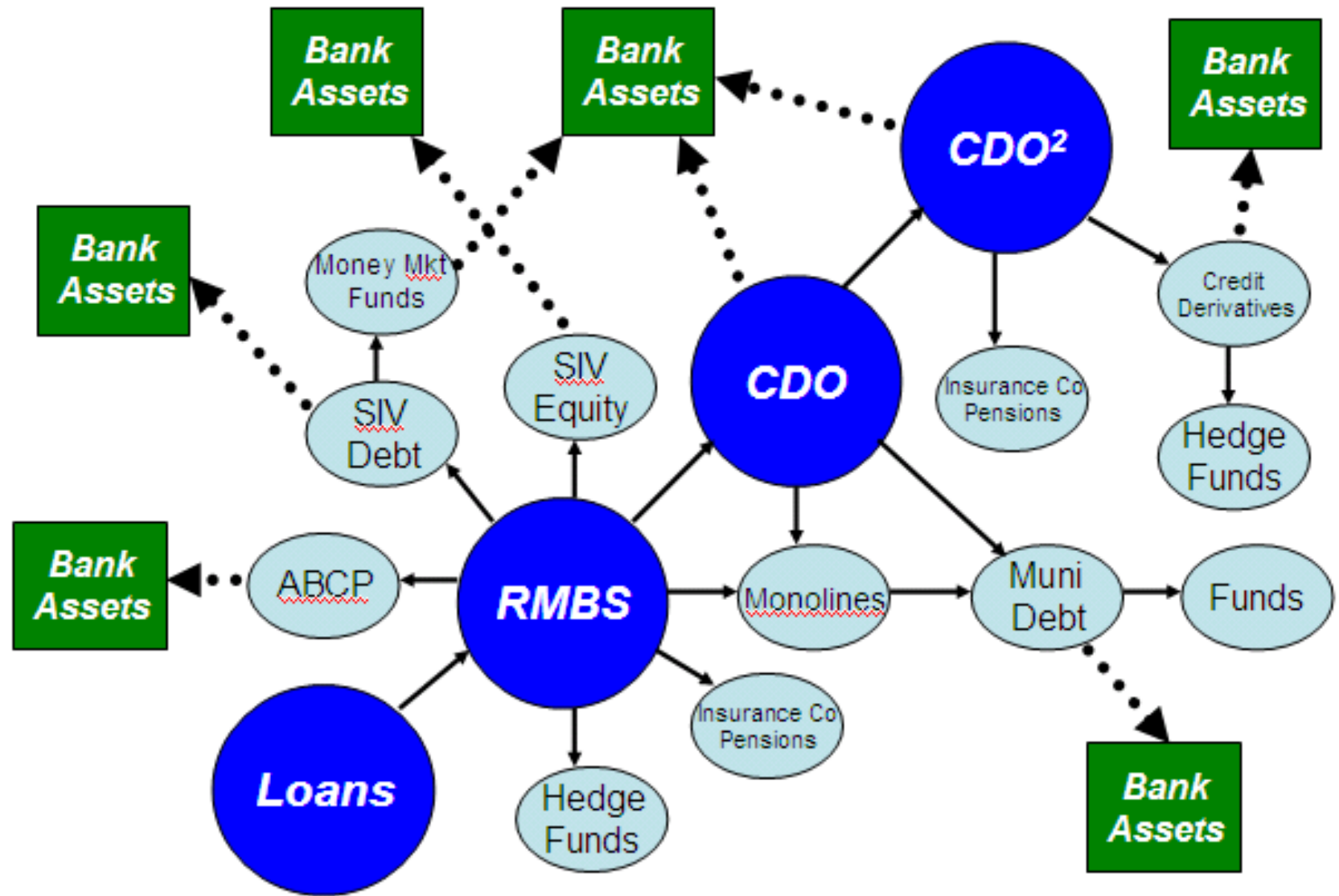
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Lessons For Risk Managers

- **Heed the macro signs and know when to stop: don't dance until the closing bell**
- **Risk Function and Processes. Don't let traders browbeat risk managers.**
- **Vulnerabilities in both Origination and Distribution**
- **Concentrations still the killers**
- **Stress scenario is never the one you modeled**
 - Disappearance of a market
 - Indiscriminate shunning of an asset class
- **Diversify funding sources**
- **Liquidity is never there when you need it**
- **Misguided capital allocation models send false signals on ROR**
- **Be aware of short-term focus due to fair value accounting**
- **Risk transfer can have unintended consequences**

The Path of Contagion Leads Back to the Banks



Investment Banking Write-downs June 2007-1Q 2009

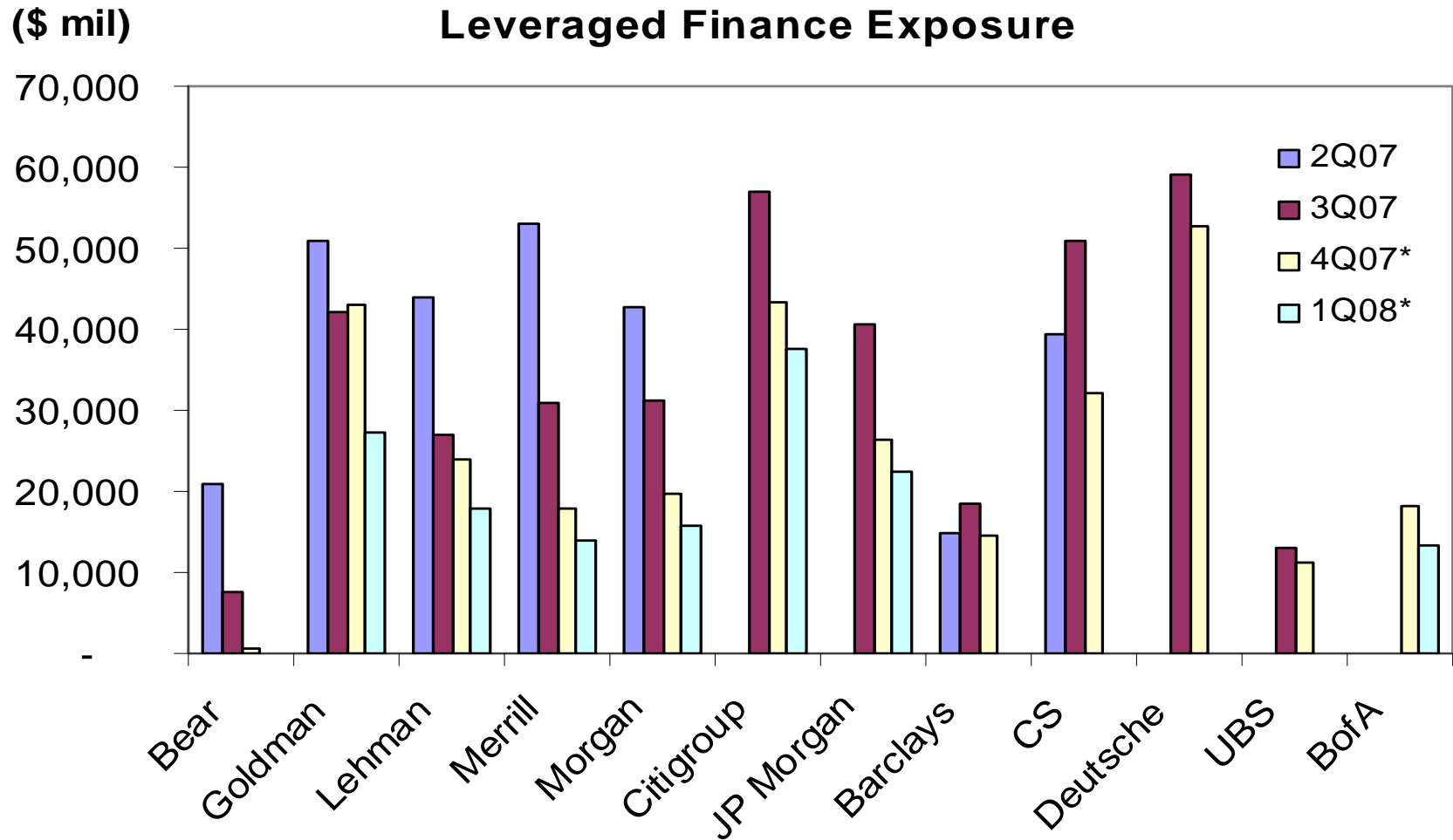
(\$ Mil)	Super-Senior CDOs	Other Mortgage Related*	Hedge Counterparties	Comm'l Mortgages	Leveraged Loans	Total Charges
UBS	14,500	19,300	2,500	400	522	37,222
Citigroup	20,000	7,503	2,395	600	4,635	35,133
Merrill Lynch	18,167	6,098	6,100	177	1,514	32,056
RBS	1,980	6,454	4,416	402	3,070	16,322
Morgan Stanley	9,400	-763	600	0	1,610	10,847
Barclays	3,840	4,102			117	8,059
Credit Suisse	0	4,121		1,270	2,293	7,684
Deutsche Bank	1,026	1,043	467	1,065	3,761	7,362
JP Morgan	0	3,157			2,400	5,557
Lehman Bros	0	2,700		1,600	900	5,200
SocGen	2,326	529	1,679		126	4,660
Bear Stearns	200	2,700			260	3,160
Goldman Sachs	0	1,000			2,000	3,000
BNP Paribas	282	242	1,456		464	2,443
Total	71,721	58,187	19,613	5,514	23,672	178,705

*Investment banking division only

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Decreasing Leverage Finance Exposure



**Starting 4Q07, totals include funded and unfunded commitments. 3Q07 and prior, totals relate mainly to contingent commitments.*

Source: Company Reports, Standard & Poor's Research.

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Capital Raising Has Been A Big Positive

(\$ in Bil)	Convertible Preferred Securities	Preferred Securities	Mandatory Convertible	Enhanced Trust Preferred	Common Equity/ Discount	Total	Interest of SWF (%)	Tier 1/RWA Proforma
Citigroup	15.7	11.7	7.5	5.5	4.9/(4%)	45.3	12.7%	8.8
JPMorgan		6.0		1.8		7.8		8.5
Wachovia	4.1	3.5			4.0/(13.7%)	11.6		7.4
Bank of America	6.0	10.0				16.0		7.8
Wells Fargo		2.5				2.5		8.4
US Bancorp		0.5		0.5		1.0		8.6
Lehman Brothers		5.7				5.7		
Merrill Lynch		2.7	6.6		6.2/(13.6%)	15.5	10.5%	
Morgan Stanley			5.6			5.6	9.9%	
UBS		2.0	13.0		22.0/(31%)	37.0	10.5%	11.8
RBS					24.0/(34.9%)	24.0		*8.0+

*RBS estimates that its capital raise will increase its tier 1 ratio to above 8%

Source: US Banker, S&P Research

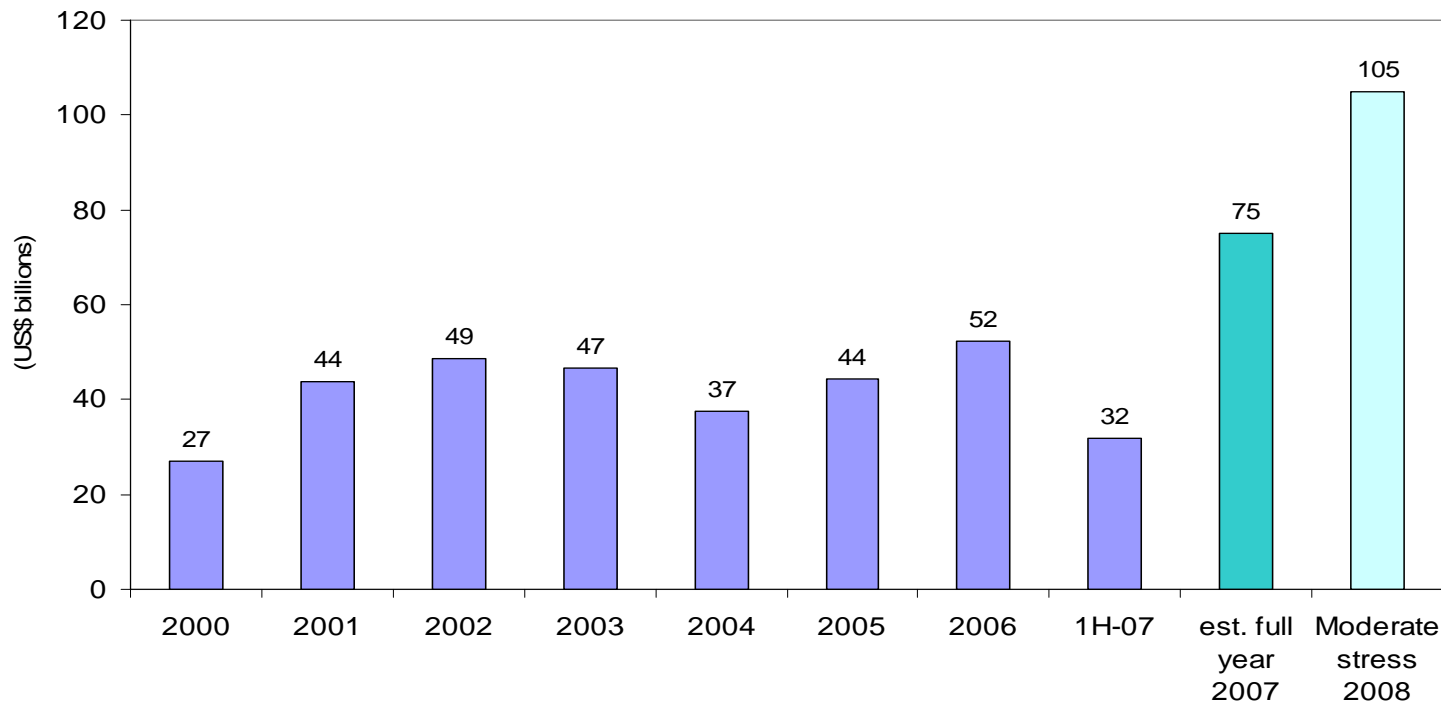
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Rise in Loan Loss Provisions from Low Base

Net New Credit Loss Provisions

Sum total of 19 largest European and U.S. banking groups (see list)



Source: Bank reports, Standard & Poor's

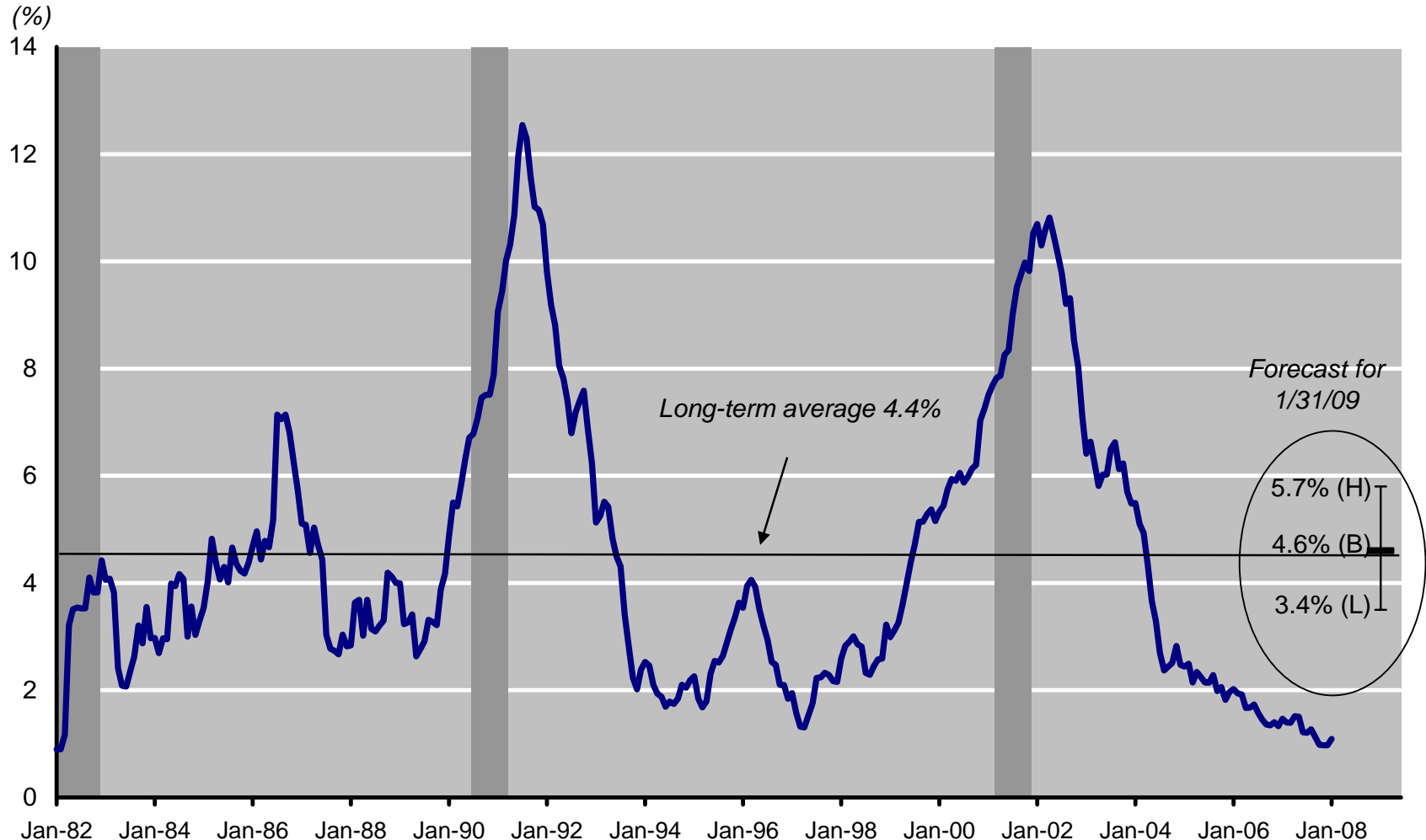
European banks: Banco Santander S.A., Barclays Bank PLC, BNP Paribas, Credit Agricole S.A., Credit Suisse Group, Deutsche Bank AG, HBOS PLC, HSBC Holdings PLC, ING Bank N.V., The Royal Bank of Scotland Group PLC, Societe Generale, UBS AG, UniCredito Italiano SpA; **U.S. banks:** Bank of America Corp., Citigroup Inc., JPMorgan Chase & Co., U.S. Bancorp, Wachovia Corporation, Wells Fargo & Co. *Stress Scenario—credit loss provisions increase to 0.84% of loans, the same as in 2002 (peak year of past decade).

Financial Institutions: Outlook for 2008

- **Negative bias in bank and broker-dealer ratings**
- **‘Classic’ commercial banks in Europe less vulnerable**
- **U.S. FIs under more pressure than those in Europe**
- **Largest 100 global banks and brokers remain in AA to A categories**
- **Emerging market banking sectors less affected but asset quality still dependent on economic cycles**
- **Default rates already at record low – only way is up**

US Spec-Grade Default Vs. 12-Month Forward Forecast

U.S. Speculative-Grade Default Rate And 12-Month Forward Forecast



B=Base, H=High, L=Low. Shaded areas are periods of recession as defined by the National Bureau of Economic Research (NBER).

Source: Standard & Poor's Global Fixed Income Research; Standard & Poor's CreditPro®.

For more information, please contact SI_Marketing@standardandpoors.com

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