

Will the U.S. Bank Recapitalization Plan Succeed? Lessons from Japan

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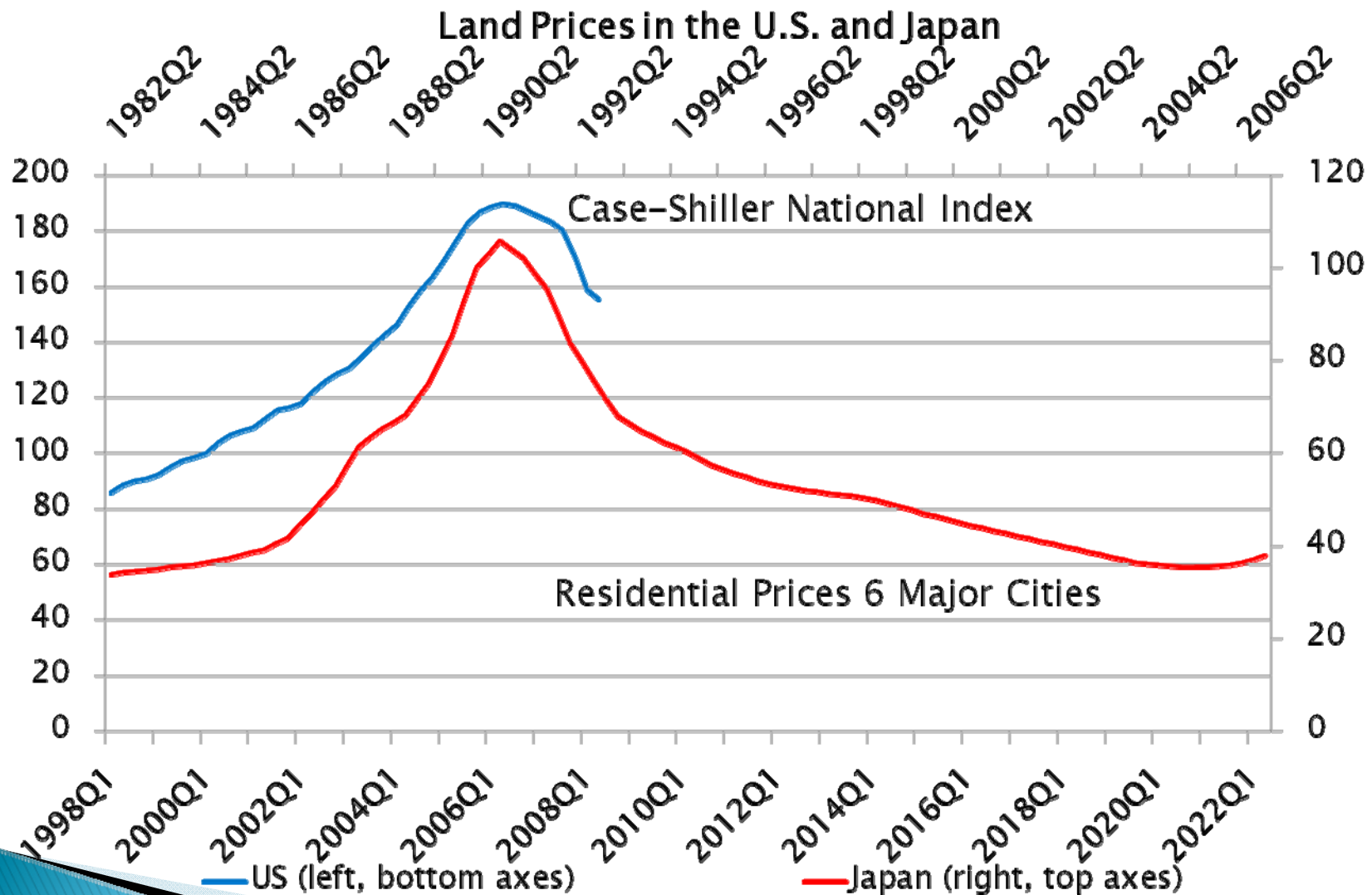
Based on

“Will the U.S. Bank Recapitalization Succeed? Lessons from Japan” (with Anil Kashyap), NBER Working Paper 14401, December 2008.

Outline

1. Some similarities between the U.S. and Japan
 - 1997–1999 in Japan = 2008–2009 in the U.S.
2. Lessons from the Japanese asset purchase and capital injection experience
3. Preliminary assessment of U.S. policy responses

Housing prices



Nov. 1997 to Mar. 1999 in Japan

(Chapter 8 of Hoshi and Kashyap 2001)

- ▶ Unexpected failure of large institutions (Nov 1997)
- ▶ Spike in the interbank borrowing rate
- ▶ New accounting to cover up problems (Jan 1998)
- ▶ Half-hearted recapitalization (Mar 1998)
 - All banks get the same injection = amount desired by the strongest bank
- ▶ Freefall of bank stock prices
- ▶ LDP loses election, government resigns (June 1998)
- ▶ Second round crisis legislation (Oct 1998)
- ▶ Several major financial firms nationalized (Nov 1998)
- ▶ Second round recapitalization (Mar 1999)
 - MOF official declares crisis “will be over in 2 weeks” (Feb 1999)

Mar. 2008 to Feb. 2009 in the U.S.

- ▶ Unexpected failure of large institutions (Mar and Sep 2008)
- ▶ Spike in the interbank borrowing rate, sharp rise in the cost of insuring debts, frozen capital markets
- ▶ Call for suspending mark-to-market accounting, restriction on short sales (Sep 2008)
- ▶ Original TARP (Oct 3, 2008)
- ▶ Capital Purchase Program (Oct 14, 2008)
- ▶ Republicans lost big, new President chosen (Nov 2008)
- ▶ 2nd capital injections to Citigroup, Bank of America
- ▶ Freefall of bank stock prices
- ▶ “Bad Bank” idea: Back to TARP? Maybe not. (Announcement expected today)

Asset Management Companies in Japan

Name	Dates (purchases)	Target Purchases	Amount Spent (¥ Trillion)	Amount Collected (¥ Trillion)	Comments
Cooperative Credit Purchasing Co. (CCPC)	12/1992- 3/2001	Non-performing loans with land collateral of contributing banks	5.8 (market) [=15.4 book]		Bank financed, created tax benefits by buying loans Liquidated in 3/2004
Tokyo Kyodo Bank	1/1995- 4/1999	Initially assets of failed credit unions, later assets of any failed banks	4.718	5.362	Reorganized as Resolution and Collection Bank (RCB) in 9/1996
Housing Loan and Administration Corp. (HLAC)	7/1996- 4/1999	Loans of failed <i>jusen</i> (specialty housing loan companies)	4.656 (market)	3.233	Financed with mix of public and private money
Resolution and Collection Corp.	4/1999- 6/2005	Combined RCB and HLAC, mandate extended to allow purchases of assets from solvent banks	0.356 (market) [=4.046 book] (beyond earlier HLAC and RCB spending)	0.649	Starting in 2001 also reorganized loans, ultimately involved in restructuring 577 borrowers
Industrial Revitalization Corp. of Japan	5/2003- 3/2005	Buy non-performing loans through 2005, restructure them within 3 years	0.53(market) [=0.97(book)]	NA [0.094 surplus as of 5/2007]	Restructured 41 borrowers with 4 trillion total debt Closed in 5/2007

Size of the Banking Problem in Japan (All banks, ¥ billion)

End of	Loan Losses	Cumulative Loan Losses since 4/1992	Number of Major Banks
3/1994	3.872	5.512	21
3/1995	5.232	10.744	21
3/1996	13.369	24.113	20
3/1997	7.763	31.877	20
3/1998	13.258	45.135	20
3/1999	13.631	58.766	17
3/2000	6.944	65.710	18
3/2001	6.108	71.818	18
3/2002	9.722	81.540	15
3/2003	6.658	88.198	13
3/2004	5.374	93.572	13
3/2005	2.848	96.420	13
3/2006	0.363	96.783	11
3/2007	1.046	97.829	11
3/2008	1.124	98.953	11

≈19%
of
GDP

Japanese AMC Experience (i.e. Why they mostly did not work)

1. Limited scope of assets and financial institutions
2. Insufficient scale of operation
3. Warehoused bad loans without selling or restructuring them (especially in the 1990s)
4. Ultimately asset purchases did not remedy the capital shortage

Recapitalizations in Japan

Legislation	Date	Securities Used	Number of financial institutions (# with nonzero outstanding balance)	Amount Injected (Trillion ¥)	Amount Sold or Collected to date (as of September 2008) (Trillion ¥)
Financial Function Stabilization Act	3/1998	Preferred shares, subordinated debts	21 (2)	1.816	1.653 [1.626 (book)]
Prompt Recapitalization Act	3/1999 – 3/2002	Preferred shares, subordinated debts	32 (10)	8.605	8.820 [7.556 (book)]
Financial Reorganization Promotion Act	9/2003	Subordinated debts	1 (0)	0.006	0.006 [0.006 (book)]
Deposit Insurance Act (Article 102-1)	6/2003	Common shares, preferred shares	1 (1)	1.960	0.611 [0.017 (book)]
Act for Strengthening Financial Functions	11/2006-12/2006	Preferred shares	2 (2)	0.041	0.000

Date	Official Core capital	Deferred Tax Assets	Estimated Under- reserving	Modified Capital	Capital held by gov't	Bank Assets	Capital Gap
	A	B	C	D=A-B-C	E	F	G=0.03*F-D
Mar-96	27.9	0.0	NA	27.9	0.0	846.5	-2.5
Mar-97	28.5	0.0	15.0	13.5	0.0	856.0	12.2
Mar-98	24.3	0.0	4.9	19.4	0.3	848.0	6.0
Mar-99	33.7	8.4	4.0	21.3	6.3	759.7	1.5
Mar-00	35.6	8.2	5.8	21.6	6.9	737.2	0.5
Mar-01	37.6	7.1	7.5	23.0	7.1	804.3	1.1
Mar-02	30.2	10.6	6.8	12.8	7.2	756.1	9.9
Mar-03	24.8	10.6	5.4	8.8	7.3	746.3	13.6
Mar-04	29.0	7.2	5.7	16.1	8.9	746.7	6.3
Mar-05	31.4	5.7	6.9	18.8	8.1	745.9	3.6
Mar-06	37.3	2.3	8.3	26.7	5.2	766.9	-3.7
Mar-07	40.0	1.3	9.4	29.4	3.5	761.1	-6.5
Mar-08	34.8	3.6	10.2	21.0	3.1	780.7	2.4

How the bank capital was restored ?

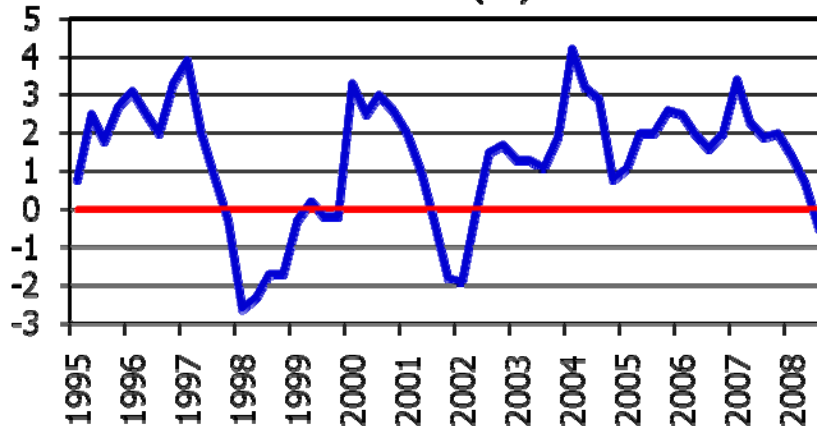
- ▶ Recapitalization attempts in 1998 and 1999 did not have sustained impacts
- ▶ Eventually, the financial health of major banks were restored by:
 1. Takenaka plan
 2. Macroeconomic recovery

Takenaka Plan

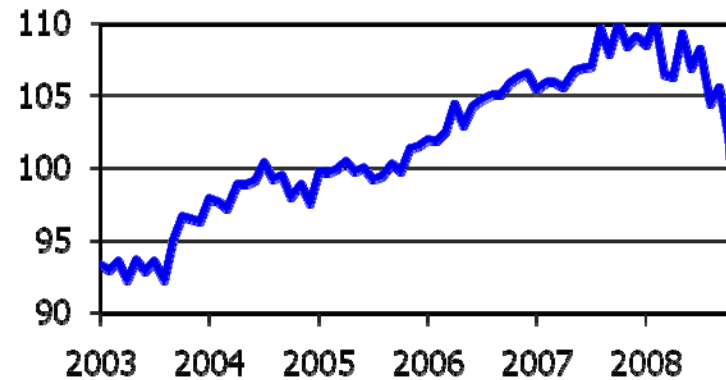
1. Have banks make more rigorous evaluation of assets using discounted expected cash flows or market prices of non-performing loans
2. Check cross-bank consistency in classifying loans to large debtors
3. Publicize the discrepancy between the banks' self evaluations and the FSA's evaluations
4. Be prepared to inject public funds if necessary
5. Prohibit banks from declaring unrealistically large deferred tax assets
6. Impose business improvement orders for banks that substantially underachieved the revitalization plans.

Macroeconomic recovery

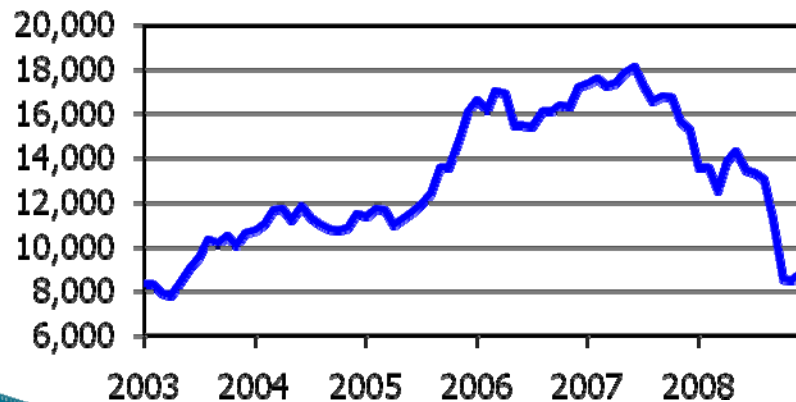
GDP Growth (%)



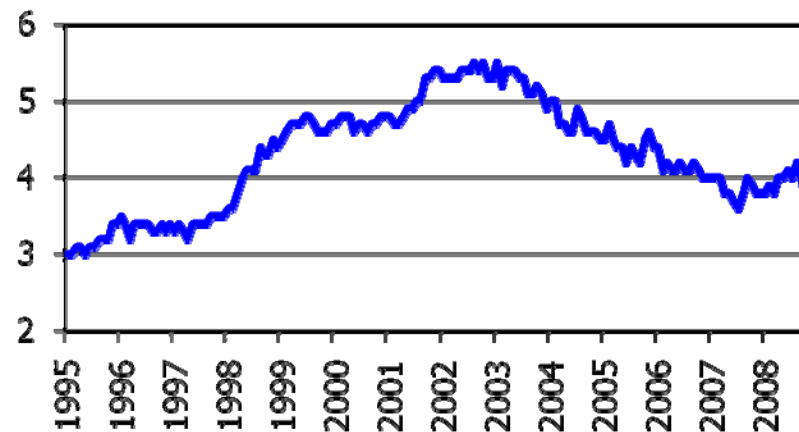
Industrial Production (SA)



Nikkei225



Unemployment Rate (%)



Lessons from Japanese Recapitalizations

1. Banks may refuse public funds (fear of signaling troubled situation; creation of claims senior to the existing shares)
2. Small (and repeated) recapitalizations ease the capital shortage only temporarily
3. Recapitalization of failing banks is counter-productive
4. Recapitalization with requirement to increase lending to small and medium firms may have been counter-productive
5. Recapitalization ultimately driven by macroeconomic recovery

Selected Data on Major Institutions Participating in the TARP (\$ billion)

Data as of September 2008 (except Morgan Stanley and Goldman Sachs as August)			Exposure to					
Name	Total Assets	Total Commitments	Lending	Real Estate	Credit Card	Other Consumer	Equity/ Assets	Max Dividend Payout
JPMORGAN CHASE	2,251.5	1,223.6	57.8%	19.2%	25.3%	1.8%	6.5%	5.67
BANK OF AMERICA	1,836.5	1,423.1	73.3%	29.4%	28.8%	3.0%	8.8%	5.84
MERRILL LYNCH	875.8	123.7	20.0%	8.8%	0.0%	0.5%	4.4%	2.22
STATE STREET CORP	286.7	50.9	20.3%	7.4%	1.1%	2.7%	4.6%	0.41
CITIGROUP	2,050.1	1,560.0	65.0%	12.4%	32.9%	4.3%	6.1%	3.49
BANK OF NY MELLON	267.6	45.5	33.4%	9.9%	0.2%	0.4%	10.3%	1.10
WELLS FARGO (incl. Wachovia)	1,382.9	476.9	75.5%	45.7%	6.2%	5.2%	7.0%	4.52
MORGAN STANLEY	987.4	162.0	15.8%	21.9%	0.0%	0.0%	3.6%	1.20
GOLDMAN SACHS	1,081.8	78.5	9.3%	8.3%	0.0%	0.0%	4.2%	0.55
TOTAL	11,020.3	5,144.3	54.5%	21.1%	19.3%	2.6%	6.3%	25.0
Note: Combined Merrill Lynch and Bank of America	2,712.2	1,546.8	60.8%	24.5%	22.0%	2.4%	7.4%	8.1

Bailouts Create Zombies

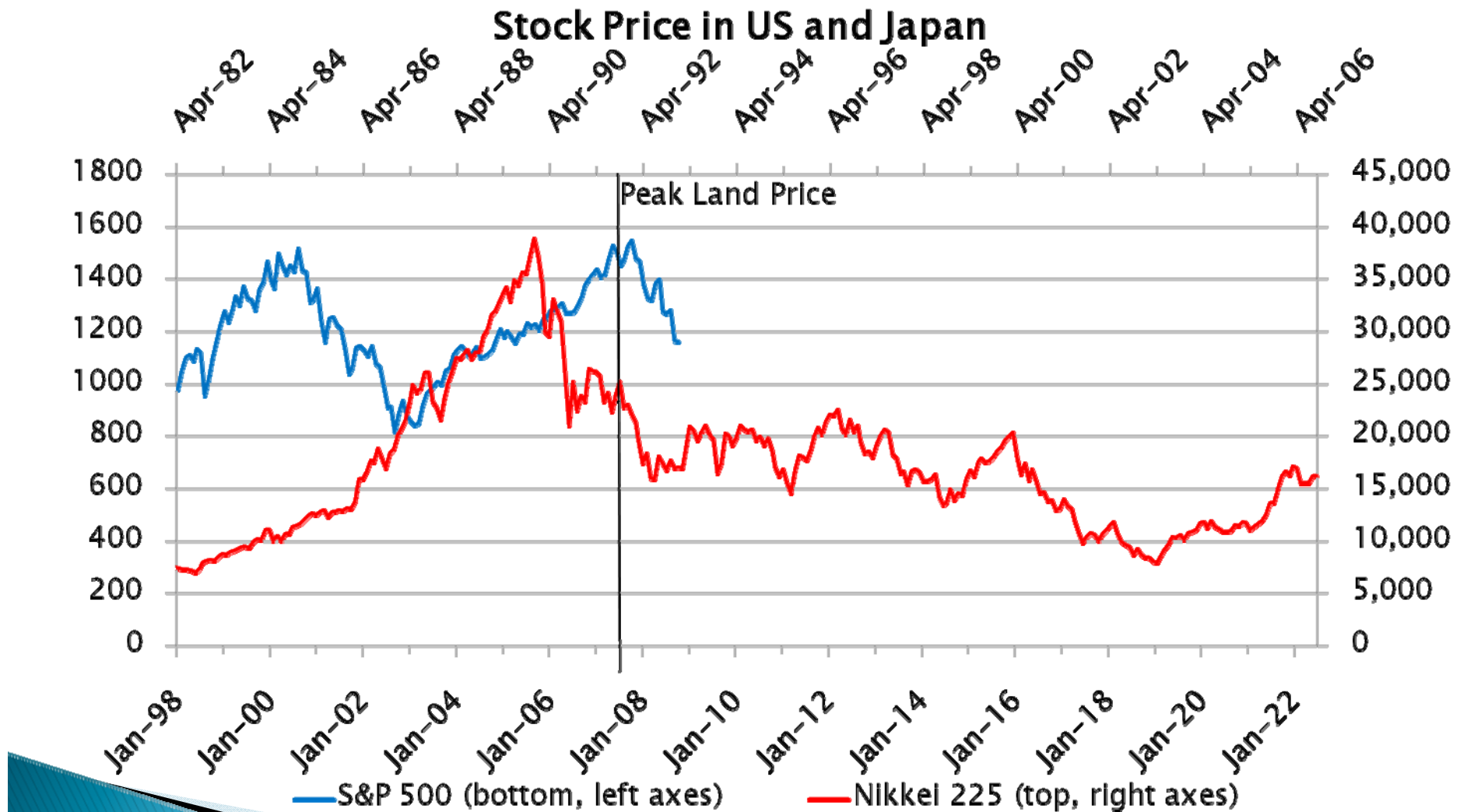
- ▶ Another problem in the Japanese responses: Encouraged banks to support non-viable firms (to protect employment, etc.)
- ▶ The zombie firms prevented entry/expansion of more productive firms
- ▶ Government bailouts may create American zombies
- ▶ Autos, Auto parts, Airlines, Housing finance, Insurance, ...; name your favorite special interest!
- ▶ Different mechanism, same results

Conclusions

- ▶ Too early to declare victory – some increasingly scary analogies to Japan
- ▶ Details of the programs matter
- ▶ Bailouts to distressed industries could turn the recession into an extended period of slow growth

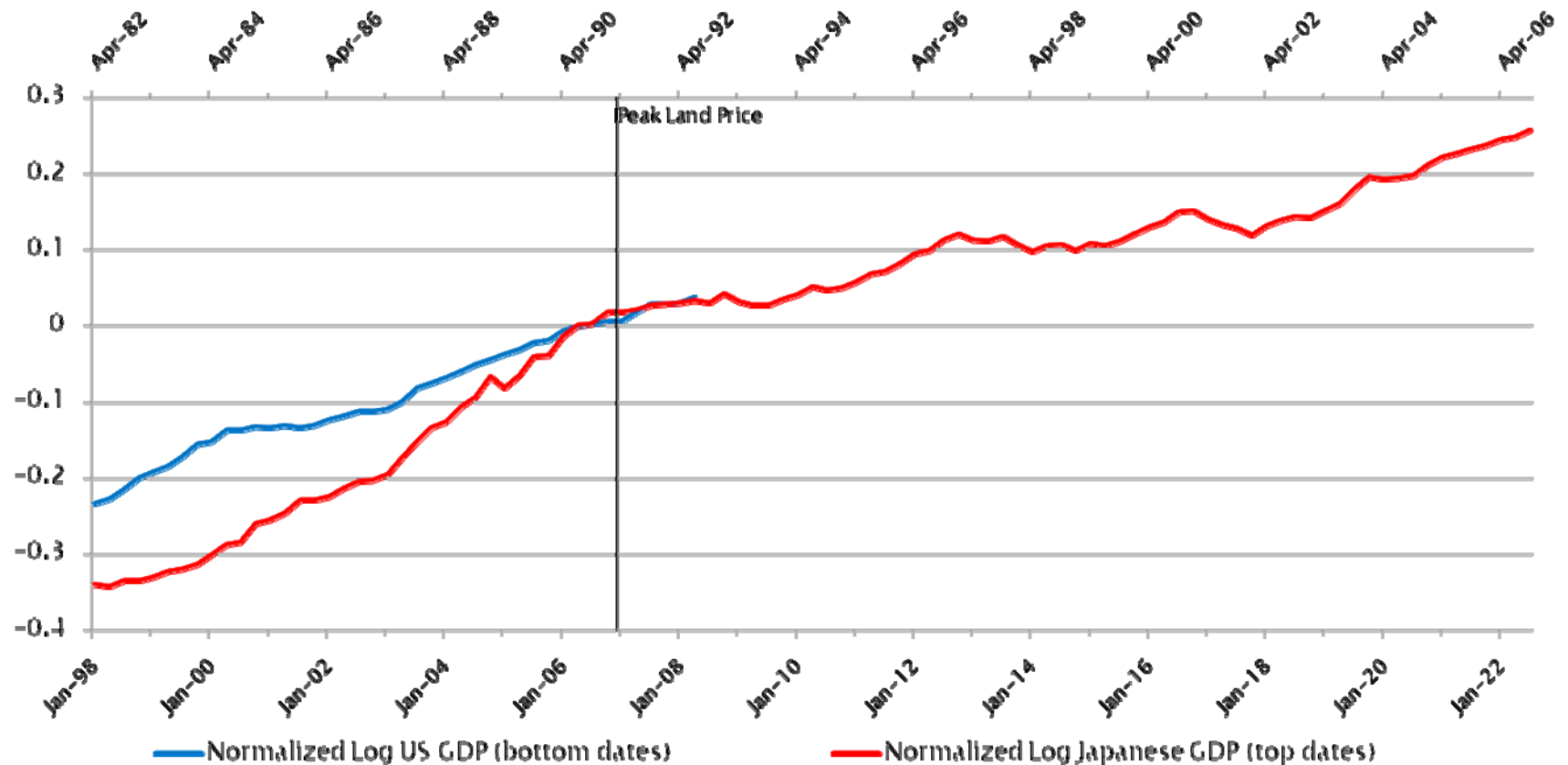
Extra Slides

Stock prices

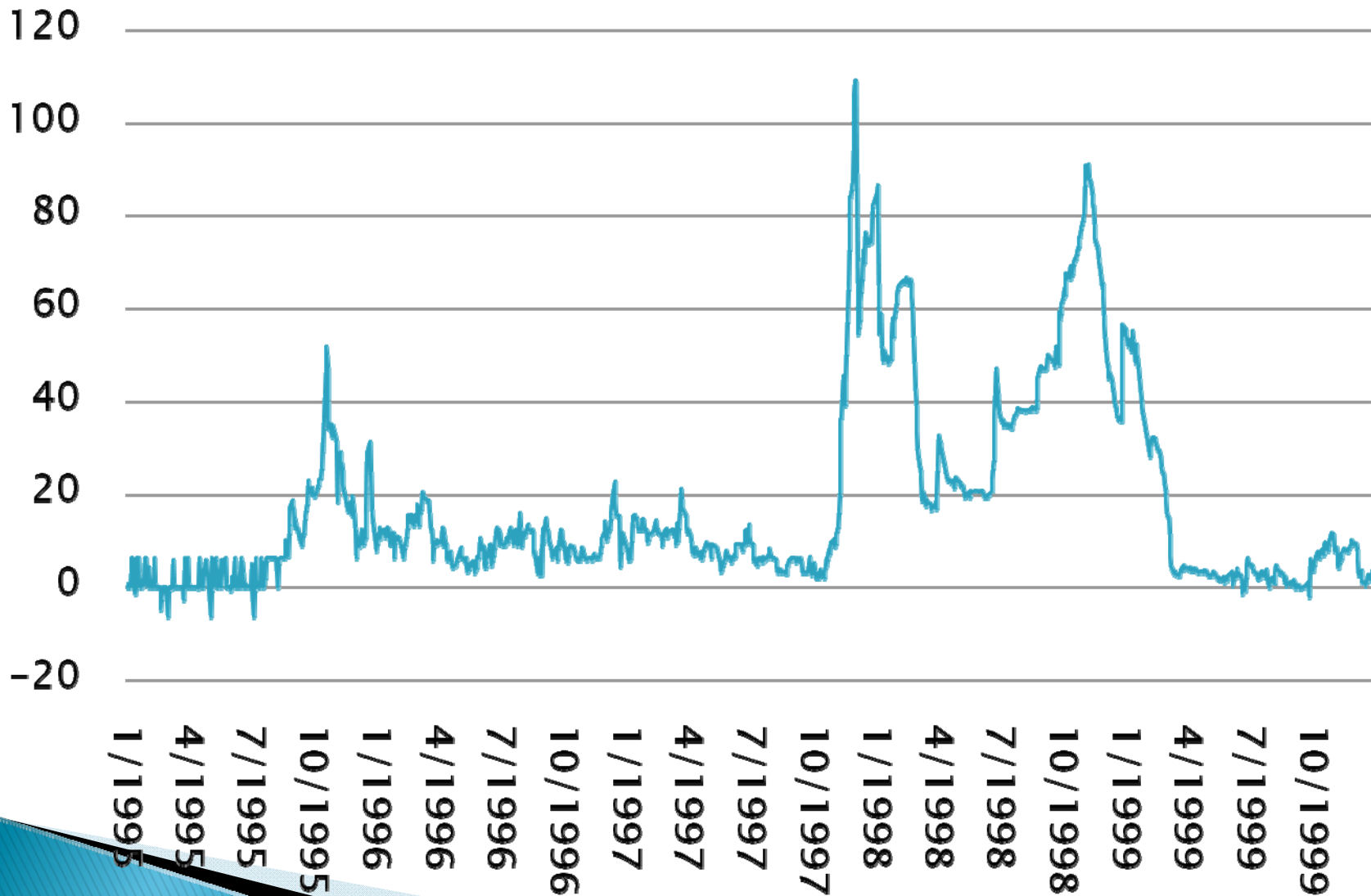


Real GDP

Real GDP in US and Japan
(Normalized to be 0 when land prices peak)



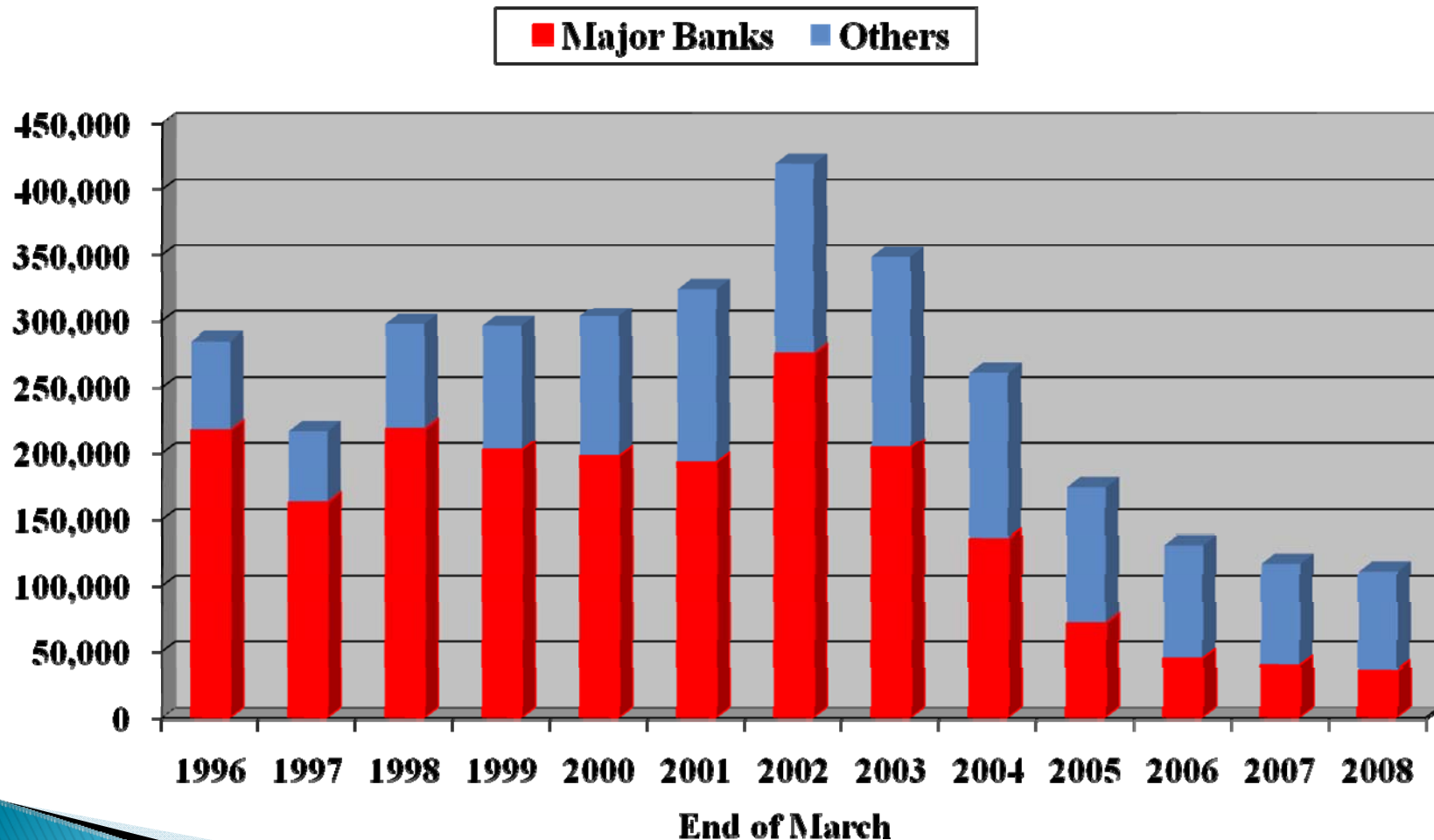
Japan Premium: 1995–1999 (%)



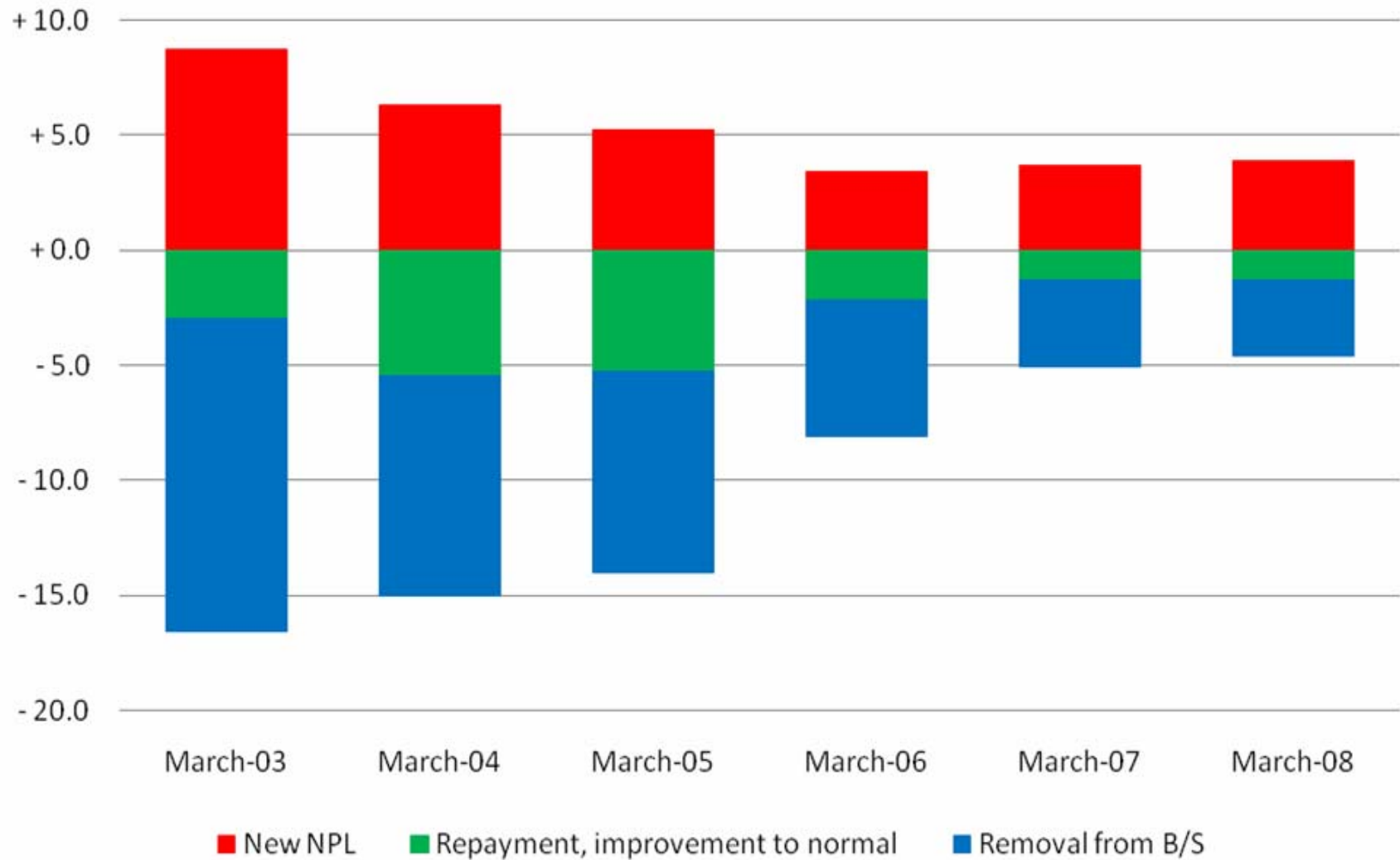
1998 Capital Injections			Preferred Shares					Subordinated loans/debts			
	S&P Rating	Total Funds	Type	Amount	dividend rate	Conversion start	Forced conversion	Type	Amount	yield for 5 years	yield after 6th year
City banks											
Dai-ichi Kangyo	BBB+	99	CPS	99	0.75	7/1/1998	8/1/2005				
Fuji	BBB+	100						SDP	100	L+1.10	L+2.60
Sakura	BBB	100						SDP	100	L+1.20	L+2.70
Sanwa	A-	100						SD10	100	L+0.55	L+1.25
Sumitomo	A-	100						SDP	100	L+0.90	L+2.40
Tokyo Mitsubishi	A	100						SDP	100	L+0.90	L+2.40
Asahi	BBB+	100						SLP	100	L+1.00	L+2.50
Daiwa	BBB-	100						SLP	100	L+2.70	L+2.70
Tokai	BBB+	100						SDP	100	L+0.90	L+2.40
Long-term Credit bank											
Ind. Bank of Japan	A-	100						SD10	100	L+0.55	L+1.25
LTCB	BBB-	177.6	CPS	130	1.00	10/1/1998	4/1/2008	SLP	46.6	L+2.45	L+3.95
Nippon Credit Bank	NR	60	CPS	60	1.00	10/1/1998	4/1/2018				
Trust banks											
Mitsubishi Trust	A-	50						SDP	50	L+1.10	L+2.60
Sumitomo Trust	A-	100						SDP	100	L+1.10	L+2.60
Mitsui Trust	BBB+	100						SDP	100	L+1.45	L+2.95
Chuo Trust	NR	60	CPS	32	2.50	7/1/1998	8/1/2018	SLP	28	L+2.45	L+3.95
Toyo Trust	NR	50						SDP	50	L+1.10	L+2.60
Regional Bank											
Bank of Yokohama	BBB	20						SLP	20	L+1.10	L+2.60
Hokuriku Bank	NR	20						SLP	20	L+2.45	L+3.95
Ashikaga Bank	NR	30						SDP	30	L+2.95	L+4.45

March 1999 injections			Preferred shares					Subordinated debt/loans				
	S&P Rating	Total	Type	Amt	div. rate	Conversion start date	Forced conversion	Type	Amt	yield	after step-up	step-up date
Dai-ichi Kangyo	BBB	900	CPS	200	0.41	8/1/2004	8/1/2006	SD10	100	L+0.75	L+1.25	4/1/2004
			CPS	200	0.70	8/1/2005	8/1/2008	SD11	100	L+0.75	L+1.25	4/1/2005
			NCPS	300	2.38							
Fuji	BBB+	1,000	CPS	250	0.40	10/1/2004	2/1/2009	SDP	200	L+0.65	L+1.35 L+2.15	4/1/2004 4/1/2009
			CPS	250	0.55	10/1/2006	2/1/2011					
			NCPS	300	2.10							
Sakura	BBB	800	CPS	800	1.37	10/1/2002	10/1/2009					
Sanwa	BBB+	700	CPS	600	0.53	7/1/2001	8/1/2008	SDP	100	L+0.34	L+1.34	10/1/2004
Sumitomo	BBB+	501	CPS	201	0.35	5/1/2002	2/27/2009					
			CPS	300	0.95	8/1/2005	2/27/2009					
Asahi	BBB+	500	CPS	300	1.15	7/1/2002	12/1/2009	SLP	100	L+1.04	L+2.54	4/1/2009
			CPS	100	1.48	7/1/2003	12/1/2014					
Daiwa	BB+	408	CPS	408	1.06	6/30/1999	4/1/2009					
Tokai	BBB-	600	CPS	300	0.93	7/1/2002	3/31/2009					
			CPS	300	0.97	7/1/2003	3/31/2009					
Industrial Bank of Japan	BBB+	600	CPS	175	0.43	7/1/2003	9/1/2009	SDP	250	L+0.98	L+1.48	4/1/2004
			CPS	175	1.40	9/1/2003	9/1/2009					
Mitsubishi Trust	BBB	300	CPS	200	0.81	7/31/2003	8/1/2008	SDP	100	L+1.75	L+2.25	4/1/2004
Sumitomo Trust	BBB	200	CPS	100	0.76	4/1/2001	3/31/2009	SD12	100	L+1.53	L+2.03	4/1/2006
Mitsui Trust	BBB-	400	CPS	250.3	1.25	7/1/1999	8/1/2009	SLP	150	L+1.49	L+1.99	3/31/2004
Chuo Trust	NR	150	CPS	150	0.90	7/1/1999	8/1/2009					
Toyo Trust	NR	200	CPS	200	1.15	7/1/1999	8/1/2009					
Bank of Yokohama	BBB	200	CPS	70	1.13	8/1/2001	7/31/2009	SDP	50	L+1.65	L+2.15	4/1/2004
			CPS	30	1.89	8/1/2004	7/31/2009	SL10	50	L+1.07	L+1.57	4/1/2004

Non-Performing Loans (Risk Management Loans): 1996–2008 (100 million yen)



Changes in Non Performing Loans (¥ Trillion)



Capital Evolution for Japanese Banks 2003 to 2007 (¥ trillion)

	March-07	March-03	Change	Percent contribution to change
Official Capital	40.0	24.8	15.2	100.00%
Common stock	9.3	10.2	-0.9	-6.13%
Capital surplus	8.7	8.6	0.1	0.39%
Retained earnings	13.4	4.4	9.0	59.07%
Net unrealized gains on stocks and others	8.2	0.1	8.1	53.25%
Revaluation reserve for land	1.0	1.5	-0.6	-3.70%
Net deferred gains on hedging instruments	-0.3	0	-0.3	-2.07%

Note: Some small components have been omitted and because of this and rounding columns may not sum to totals.

Profit Decomposition for Japanese Banks 2004–2007 (¥ trillion)

	Cumulative (3/04-7/03)	March- 07	March- 06	March- -05	March- -04	March- -03	Difference (3/07-3/04)
Net income	8.1	3.4	4.2	1.3	-0.8		4.2
Operating profits	11.5	4.3	4.8	1.9	0.5		
Extraordinary profits - Extraordinary losses	2.8	0.4	1.2	0.7	0.5		
Operating income		19.2	18.0	16.9	17.6		1.6
Operating expenses		14.9	13.3	15.0	17.0		-2.2
Unrealized capital gains		8.2	6.8	3.7	3.1		
Nikkei 225		17,287	17,059	11,688	11,715	7,973	
GDP growth (% change from one year earlier)		1.7	2.5	2.4	2.0	2.1	

Veronesi–Zingales Gift accounting

- ▶ Use the CDS prices

$$B + \text{PV}(\text{Insurance Cost}) = \text{Gov } B$$

$$\Rightarrow \Delta B = -\Delta \text{PV}(\text{CDS})$$

Where $\text{PV}(\text{Insurance Cost}) = \sum_{t=0}^T \frac{(1-\pi)^t \frac{\text{CDS}}{10000} * D_t}{(1+r_f)^t}$

- ▶ where

$$\text{risk neutral default rate } \pi = \frac{\frac{\text{CDS}}{10000}}{1 - \text{recovery rate}}$$

They use $r_f = 3.5\%$ and recovery rate = 20%

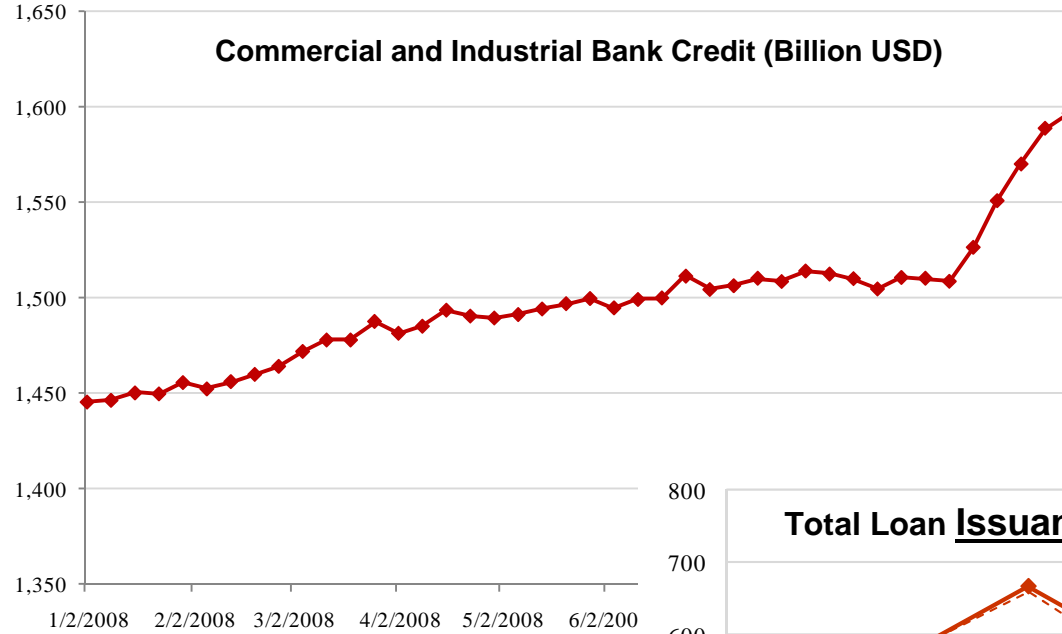
Their Crude Systemic Adjustment...

- ▶ To control for “market movements” they use the GE Capital CDS (a financial firm not affected by the bailout)

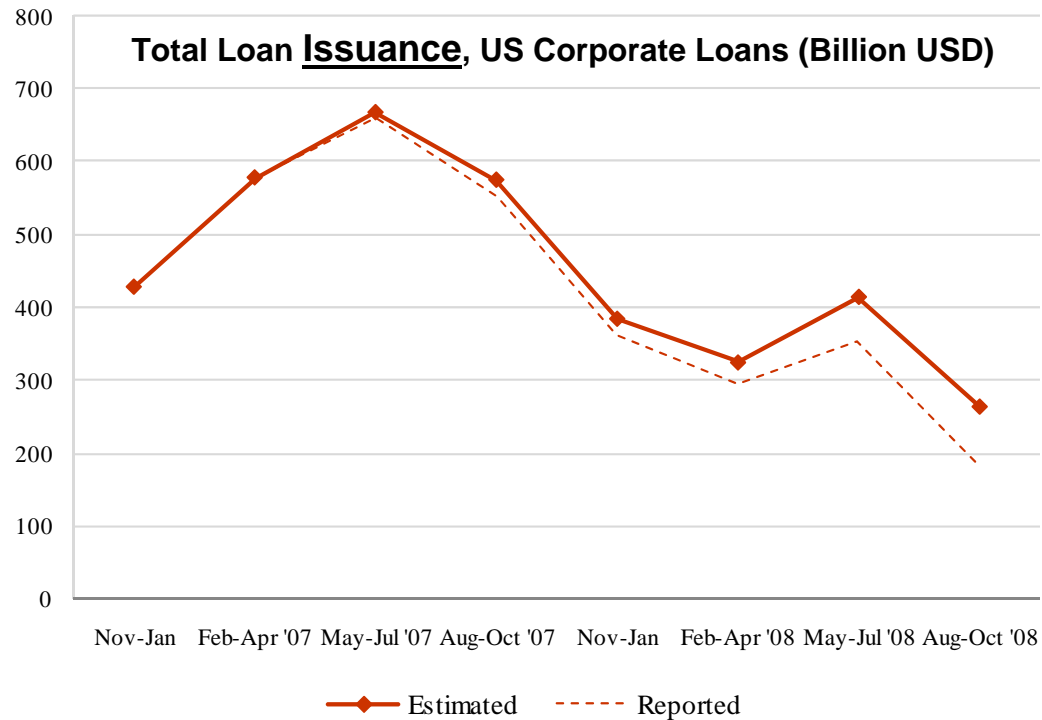
$$\textit{Adjusted} \Delta PV(CDS) = \Delta PV(CDS) - PV_0(CDS) \times \frac{\Delta PV^{GE}(CDS)}{PV_0^{GE}(CDS)}$$

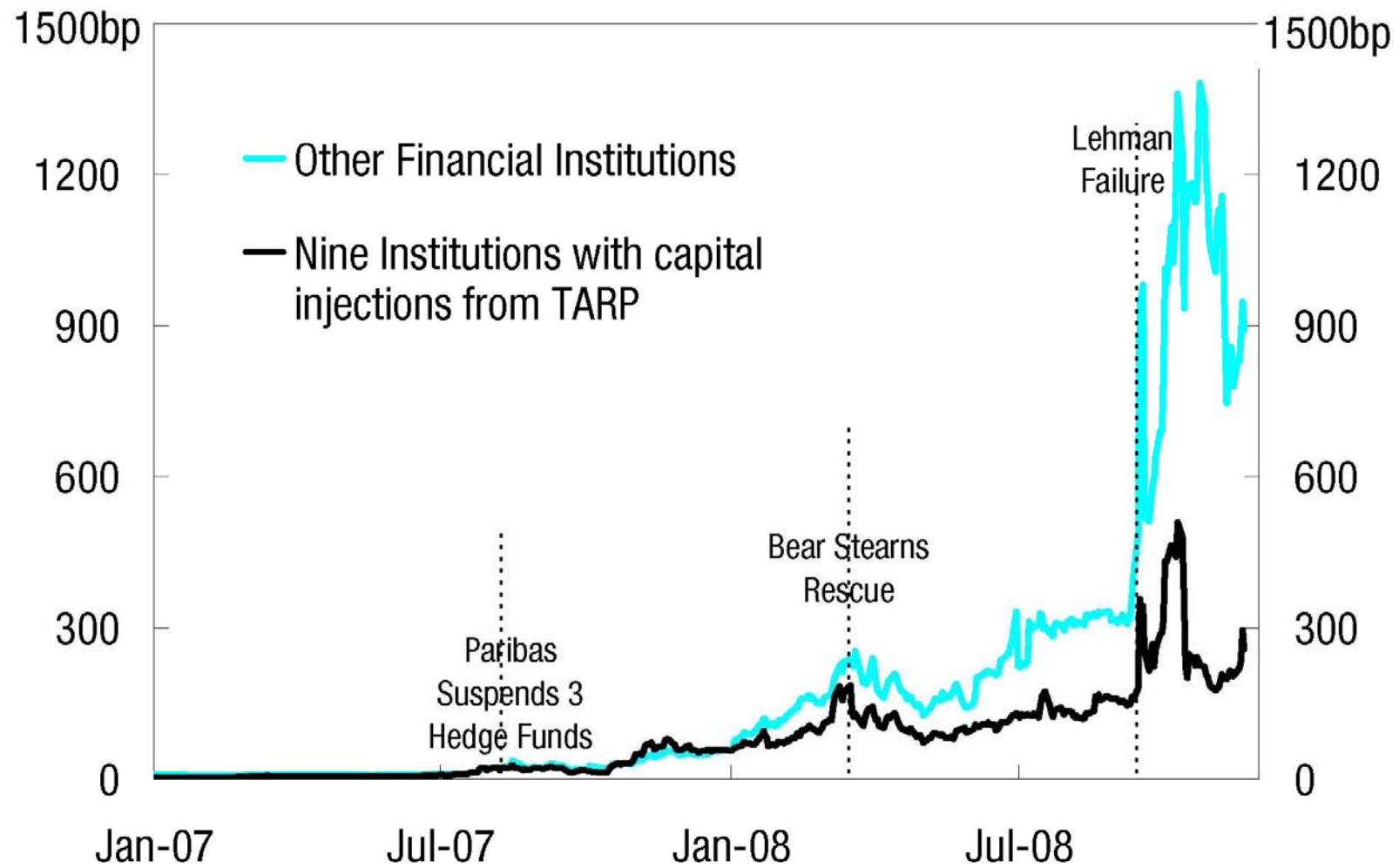
Increase in the Value of Debt

	Price of	Price of	Prob. of	Prob. of			LT	LT	Adj.	Adj.
	CDS	CDS	Default	Default	Raw	Adj.	Debt	Debt	Gain	Gain
	10/10/08	10/14/08	10/10/08	10/14/08	Dedline	Dedline	06/30/08	09/30/08	06/30/08	09/30/08
Citigroup	341.7	144.6	4.3%	1.8%	197.1	72.9	417.9	396.1	22.3	20.1
Bank of America	186.2	99.2	2.3%	1.2%	87.0	0.0	206.6	257.7	5.3	6.2
JP Morgan	162.5	88.0	2.0%	1.1%	74.5	0.0	277.5	277.5	5.5	5.3
Wachovia	267.5	109.2	3.3%	1.4%	158.3	34.1	171.5	183.8	6.9	7.1
Wells Fargo	186.7	89.8	2.3%	1.1%	96.9	0.0	103.9	103.9	2.5	2.4
Bank of NY Mellon							17.1	15.5		
StateStreet							4.1	4.1		
Goldman	540.0	201.7	6.8%	2.5%	338.3	214.1	208.0	202.0	18.0	16.9
Morgan Stanley	1300.9	427.1	16.3%	5.3%	873.8	749.6	210.7	202.3	32.5	30.3
Merrill Lynch	398.3	182.5	5.0%	2.3%	215.8	91.6	275.6	275.6	11.5	11.1
General Electric Capital	590.0	465.8	7.4%	5.8%	124.2					
Total							1,893	1,919	104.5	99.3



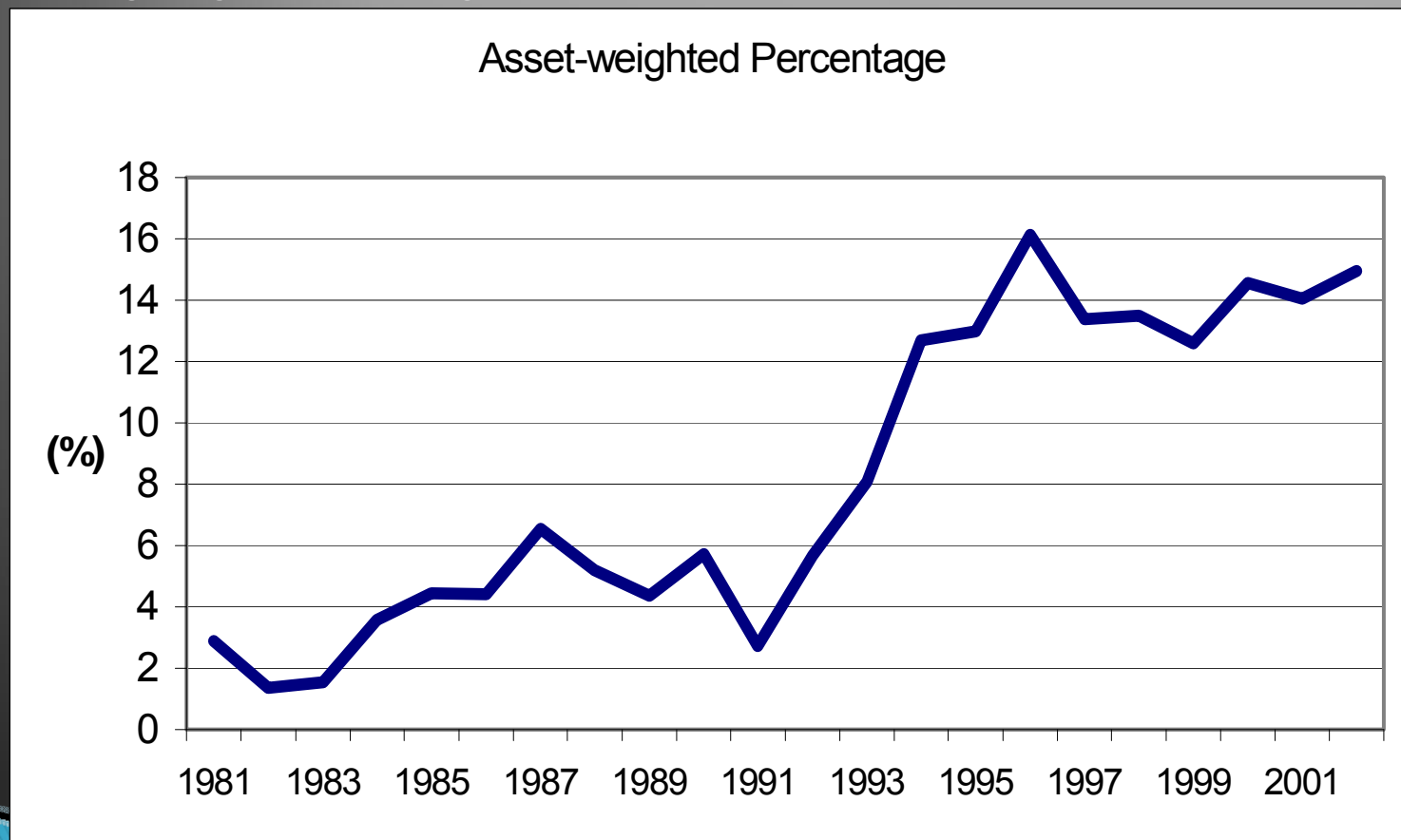
Credit Crunch?



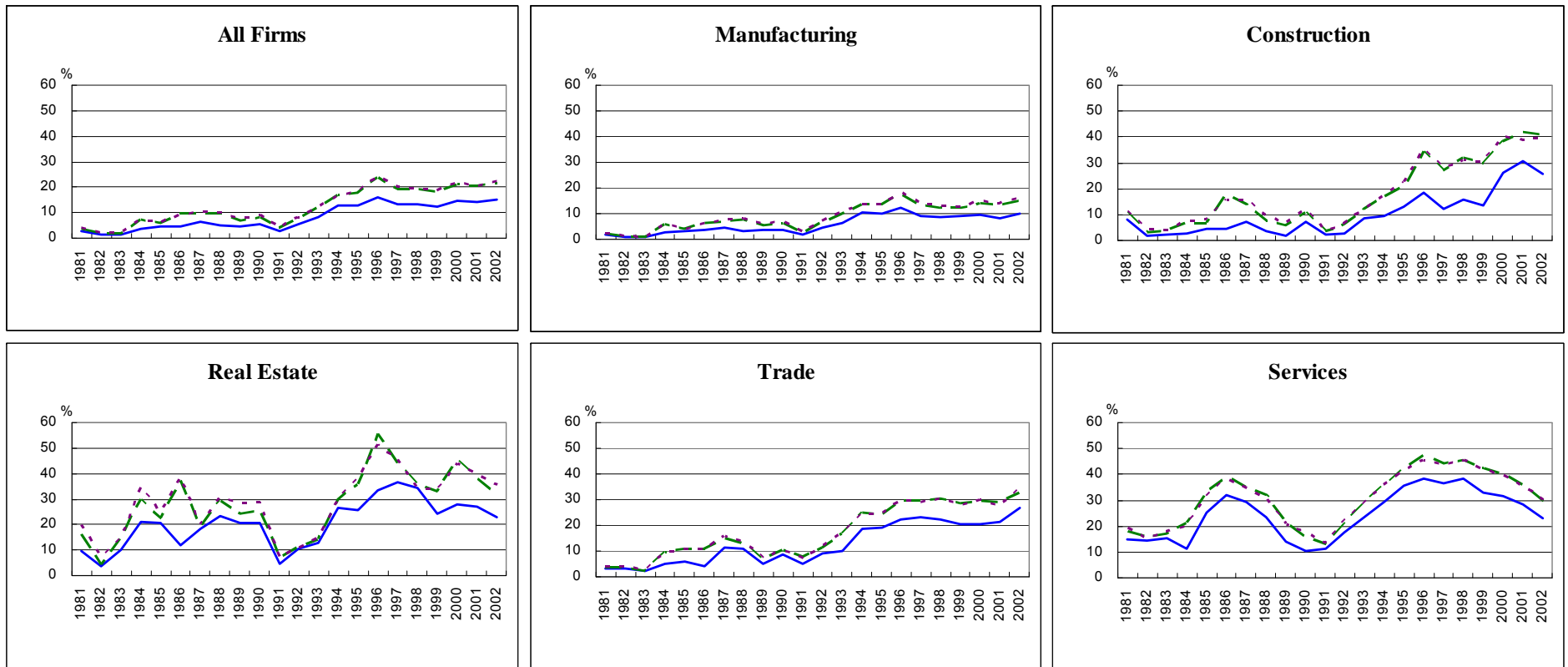


Zombies \equiv Firms getting subsidized credit

The sample is listed firms in manufacturing, construction, real estate, retail and wholesale (other than the nine largest general trading companies), and services

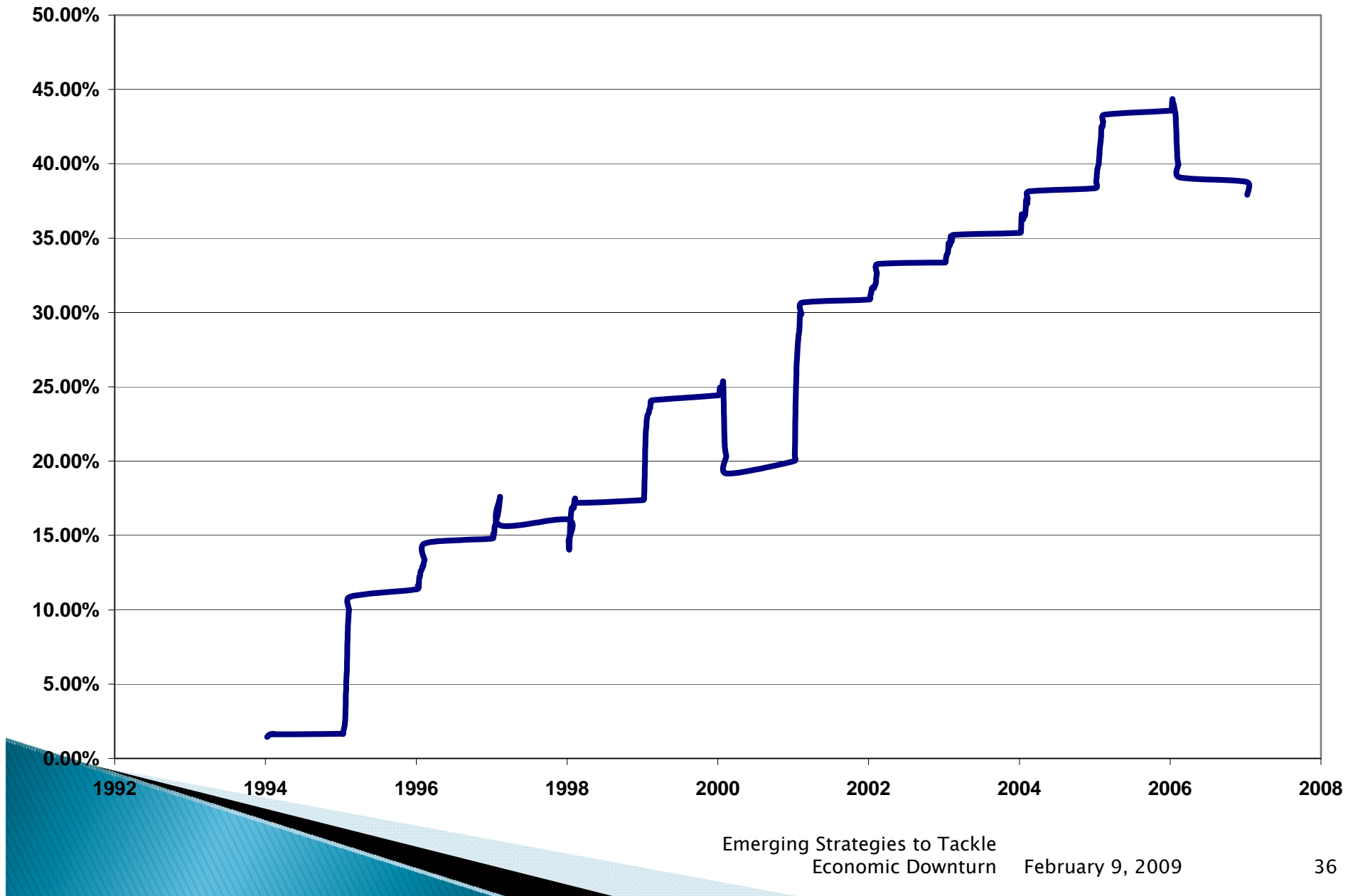


Cross-industry incidence of zombies

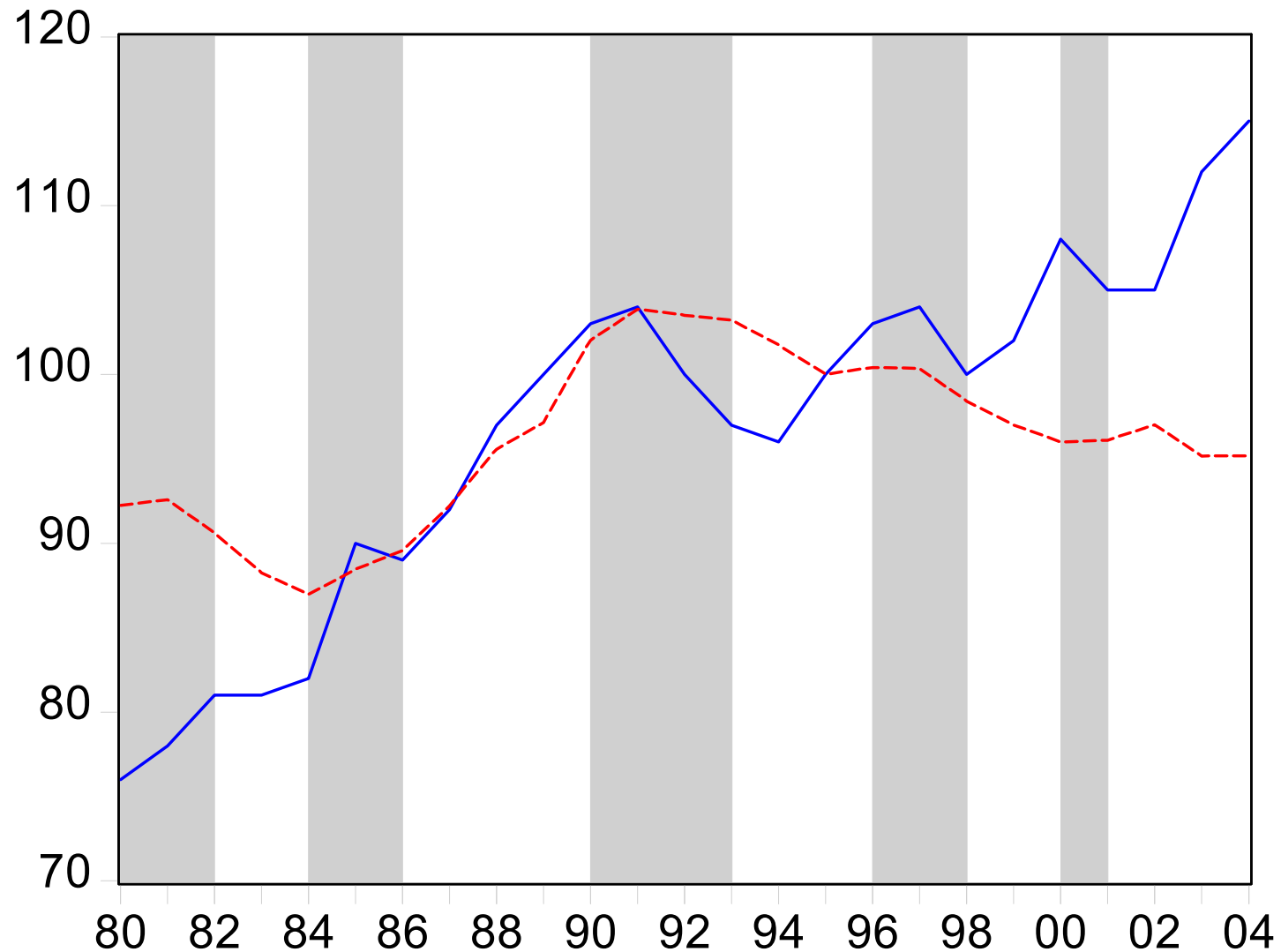


- Crisp
- - Fuzzy with $(d1, d2) = (0, 50bp)$
- · · Fuzzy with $(d1, d2) = (-25bp, 75bp)$

Percent of Japanese Bank Loans Less than 1.5%



Total Factor Productivity by Industry: 1980-2002 (1995=100)



— MANUFACTURING - - - NONMANUFACTURING

Emerging Strategies to Tackle

Economic Downturn February 9, 2009