

The Impact of the Global Financial Crisis on Indian Banks: Survival of the Fittest?

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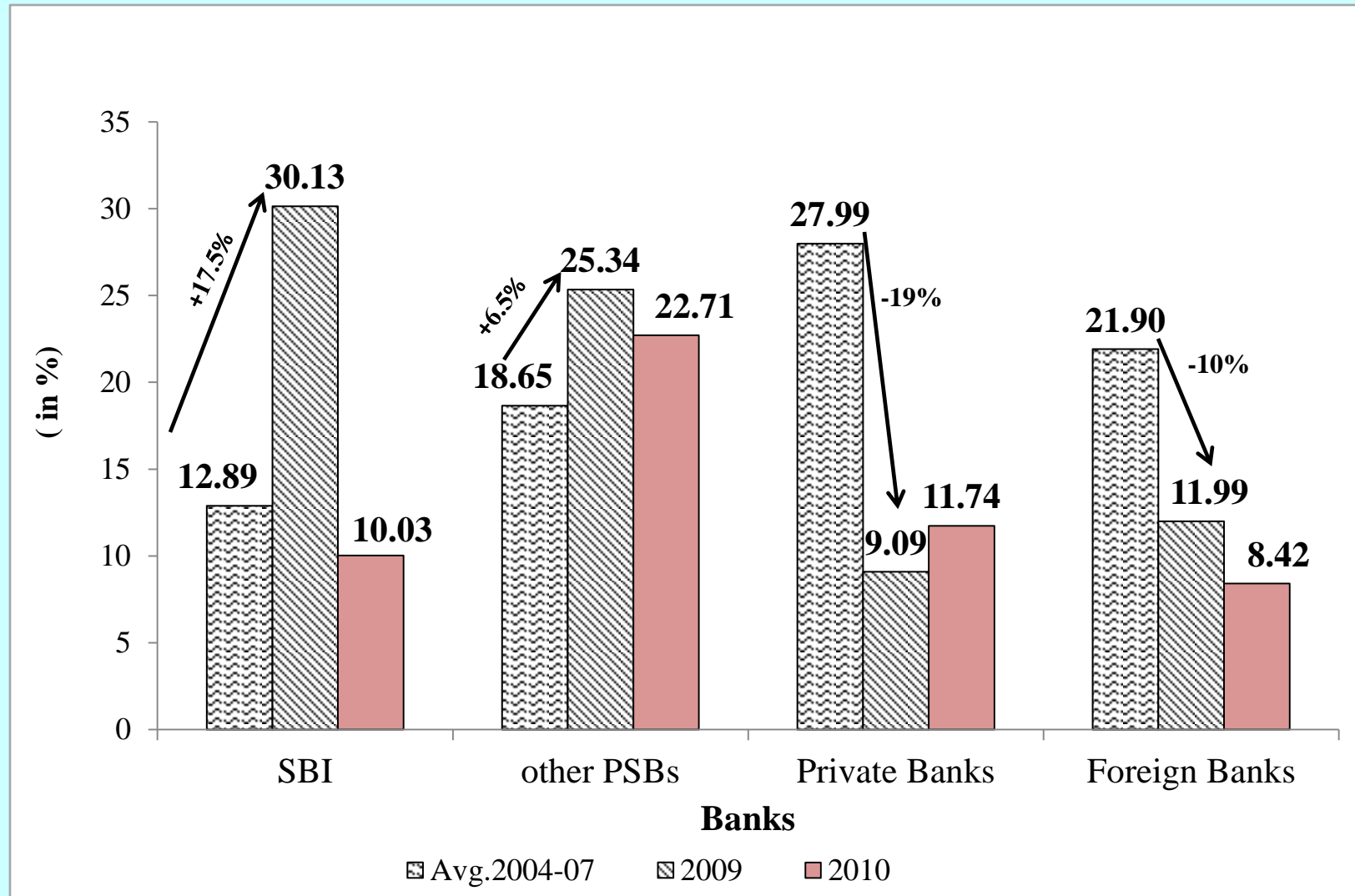
A Brief Background of the Banking Sector

- Been dominated by public sector banks (after nationalization of banks in 1969 and 1980)
- Liberalization in early 1990s: easier entry, market based allocation of credit, and interest rates
- Post liberalisation: entry of private banks, more competition, improvement in bank efficiency and profitability. In 2007, public banks at par with private banks (except perhaps in credit allocation)

Financial crisis of 2008

- Indian financial sector considered safe, sound and “lazy” and not expected to have a large impact of the crisis
- Main effects (Aziz, Patnaik and Shah) were felt on: stock market, exchange rate, and liquidity conditions
- deposit withdrawal (particularly from private banks) or rather “deposit reallocation”

Deposit Growth across Ownership Groups (weighted Averages)



First Set of Questions that we ask:

- Health vs Ownership: Was the reallocation of deposits a function of the health of individual banks or only of ownership?
- Reallocation to all Public Sector Banks (PSBs) or only to select public financial institutions?
- Explicit Guarantee or Implicit Guarantee: Did public sector banks attract depositors because they enjoyed an explicit government guarantee, or the implicit guarantee that the government would not allow the banks to fail?
- Credit growth during the crisis: Did public banks extend more credit to private sector

Second Set of Questions

- Performance after the crisis: How different kinds of banks fared during the recovery from the crisis?
- Ownership and lending during the crisis:
Is the comparative performance of different banks during the recovery phase attributable to ownership?
- Profitability and asset quality after the crisis: related to ownership?

Limitations and Omissions

- Country specific study: can't be generalized
- We focus mainly on domestic banks in this paper
- We use annual data (common in the literature), but higher frequency data would have perhaps allowed us to tell richer stories
- With two years of post crisis data, perhaps do not have the complete fallout of the crisis

Data

- Annual balance sheet data for FY 2004-2012 from the Reserve Bank of India:
2004-07 (pre crisis); 2008-2010 (crisis years); 2011-12 (post crisis years)
- We use the data for 44 private and public banks: 25 public sector banks, and 19 private banks

Methodology

- $Y_{it} = \text{Bank Fixed Effects}_i + \text{Dummies for FY years 2008, 2009, 2010} + \text{Dummies for FY years 2008, 2009, 2010} * \text{Dummy for Public Ownership of Banks} + \varepsilon_{it}$
- Y_{it} : Deposit growth, Lending growth, Return, Provisioning (as a proxy for asset quality)
- Coefficient of interest: interaction of crisis year dummies and dummy for public ownership of banks; difference in difference estimates
- FY 2004-07 pre crisis years; FY 2008-2010 crisis years; and FY 2011-12 post crisis (recovery period)

Methodology

Deposit growth_{it} = Bank Fixed Effects_i +
Dummies for Fiscal years 2008, 2009, 2010 +
Dummies for years 2008, 2009, 2010 * Dummy for Public
Ownership of Banks +
Bank Controls (Size_{it}, return on assets_{it}, asset quality,
funding structure, capital, liquidity) +
Dummies for years 2008, 2009, 2010 * Bank Controls size,
return on assets, ownership, asset quality) + Government
support to banks in t or t-1 + ε_{it}

Change in Bank Deposits- (Table 2)

	(1)	(2)
Dummy, Year 2008	1.47 [0.42]	1.47 [0.41]
Dummy, Year 2009	-7.00* [1.70]	-7.00* [1.69]
Dummy, Year 2010	-7.52* [1.86]	-7.52* [1.85]
Year 2008*Public banks, SBI	-0.89 [0.23]	
Year 2009*Public banks, SBI	5.07 [1.12]	
Year 2010*Public banks, SBI	4.23 [0.93]	
Year 2008*Public Banks		-1.21 [0.31]
Year 2009*Public Banks		4.25 [0.94]
Year 2010*Public Banks		4.38 [0.95]
Year 2008*State Bank of India		6.77* [1.90]
Year 2009*State Bank of India		24.89*** [5.99]
Year 2010*State Bank of India		0.7 [0.17]
R-squared	0.25	0.26
Observations	308	308

Results I

- Private banks experienced slower deposit growth during the crisis; the effect was sharpest in FY 2009 and FY 2010
- Public banks, did not experience a similar slowdown (or an acceleration) in deposit growth
- The State Bank of India experienced especially rapid growth in deposits.

Change in Bank Deposits, Including other Controls-(Table 3)

	(1)	(2)	(3)	(4)	(5)
Year 2008*State Bank of India	7.00**	5.11	6.92*	6.42*	4.36
	[2.02]	[1.32]	[1.94]	[1.86]	[1.46]
Year 2009*State Bank of India	25.14** *	24.30***	24.96***	24.59***	22.66***
	[5.92]	[5.70]	[5.96]	[6.22]	[6.44]
Year 2010*State Bank of India	0.84	0.97	0.76	-0.12	0.54
	[0.21]	[0.23]	[0.19]	[0.03]	[0.14]
Return on Assets, Lag	3.16**				
	[2.14]				
Current+Sav Deposits/Liabilities, Lag		0.64*			
		[1.97]			
Capital/Assets, Lag			0.35		
			[0.58]		
Provisioning/Assets, Lag				-2.91	
				[1.38]	
Size, Log Assets, Lag					-16.46***
					[3.25]
R-squared	0.28	0.29	0.27	0.28	0.31
Observations	308	308	308	308	308

Change in Bank Deposits across Ownership Groups- (Table 4)

	(1)	(2)	(3)	(4)	(5)
Year 2008*State Bank of India	26.91*	8.18**	2.82	8.81**	5.90*
	[1.93]	[2.53]	[0.73]	[2.23]	[1.77]
Year 2009*State Bank of India	45.19** *	25.87***	23.2***	24.3***	21.17***
	[2.97]	[6.67]	[7.25]	[5.26]	[6.79]
Year 2010*State Bank of India	30.72** *	1.13	5.75	2.82	-1.76
	[2.91]	[0.27]	[1.36]	[0.57]	[0.55]
Bank Characteristic included	Bank Size	Return on Assets	Retail Funding	Capital/ Assets	Provisioning/ Assets
Bank Characteristic	20.24** *	8.62***	-1.29***	-0.89*	-5.73*
	[3.93]	[4.10]	[4.10]	[1.89]	[1.96]
Characteristic* 2008	-4.88	3	0.41	2.36***	2.59
	[1.53]	[0.65]	[1.11]	[2.75]	[0.46]
Characteristic* 2009	-5.42	6.02**	0.01	-0.61	-10.05**
	[1.58]	[2.05]	[0.04]	[0.25]	[2.44]
Characteristic* 2010	-7.65***	-1.29	-0.37	2.57	-8.44
	[3.06]	[0.42]	[1.19]	[1.62]	[1.63]

Result II

- Depositors discriminated in favor of banks that were: healthier and had more stable funding
- The reallocation of deposits toward the SBI, in particular, cannot be explained by these factors alone or by explicit capital injections by the government.
- Depositors perhaps confident for other reasons that their deposits were safer with the SBI-implicit guarantee of the liabilities of the country's largest public bank dominated other considerations?

Credit Growth, Returns and Capital during Crisis -Table 5

	(1)	(2)	(3)	(4)
	Assets Growth	Credit Growth	Return	Capital/Assets
Year 2008	3.19 [1.14]	-3.56 [0.67]	0.21 [1.59]	0.08 [0.46]
Year 2009	-7.14** [2.17]	-9.49 [1.67]	0.18 [1.57]	0.03 [0.25]
Year 2010	-5.88* [1.72]	-10.05* [1.80]	0.02 [0.21]	-0.02 [0.14]
Year 2008*Public Banks	-1.98 [0.59]	0.27 [0.04]	-0.23 [1.61]	-0.60* [2.01]
Year 2009*Public Banks	3.02 [0.82]	-3.03 [0.47]	-0.22 [1.55]	-0.64** [2.20]
Year 2010*Public Banks	2.22 [0.56]	-7.5 [1.19]	-0.04 [0.33]	-0.71** [2.22]
Year 2008*State Bank of India	8.10*** [2.88]	1.69 [0.32]	-0.16 [1.21]	-0.1 [0.60]
Year 2009*State Bank of India	20.53*** [6.24]	0.68 [0.12]	-0.12 [1.04]	-0.08 [0.58]
Year 2010*State Bank of India	-0.73 [0.21]	-7.95 [1.43]	-0.04 [0.32]	-0.03 [0.29]
R-squared	0.28	0.27	0.56	0.63
Observations	308	308	308	308

Results III

- Credit growth does not differ much across banks
- Credit growth of the SBI is not unusually large during the crisis
- Return on assets does not differ much across ownership groups.

Analyzing the post-crisis period

- $Y_{i, 2011, 2012} = Y_{i, \text{avg in 2009, 2010}} + Y_{i, \text{avg in 2005-07}} + \text{Dummy for Public Banks} + \text{Other Controls (size, returns, provisions, capital injection)}, \text{avg in 2009, 2010} + \varepsilon_{it}$ (3)

Deposit Growth and Credit Growth in 2011,2012 (Table 6)

	(1)	(2)	(3)	(4)	(5)
Dependent Variable	Deposits Growth			Credit Growth	
Dummy for all other PSB	-4.15*	-4.00*	-4.43*	-3.82	-4.27
	[1.79]	[1.68]	[1.79]	[1.29]	[1.29]
Dummy for the SBI	-7.25*	-8.15	-8.89	-11.45***	-11.56***
	[1.80]	[1.50]	[1.64]	[3.87]	[3.80]
Avg. Change in Deposits in 2005-07	-0.03	0.01	-0.01		
	[0.22]	[0.04]	[0.12]		
Avg. Change in Deposits in 2009-10		0.29	0.23		
		[0.83]	[1.13]		
Capital Injection in 2009, 2010		-5.54**	-5.73***		
		[2.54]	[2.79]		
Avg. Size in 2009, 2010		0.01	0.13		
		[0.01]	[0.10]		
Avg. Return in 2009, 2010		-0.88			
		[0.21]			
Avg. Provision in 2009, 2010			-1.80		
			[0.61]		
Credit Growth (2005-07)				-0.12	-0.09
				[0.60]	[0.49]
Credit Growth (2009-10)					0.12
					[0.52]
Observations	82	82	82	82	82
R-squared	0.052	0.135	0.137	0.048	0.059

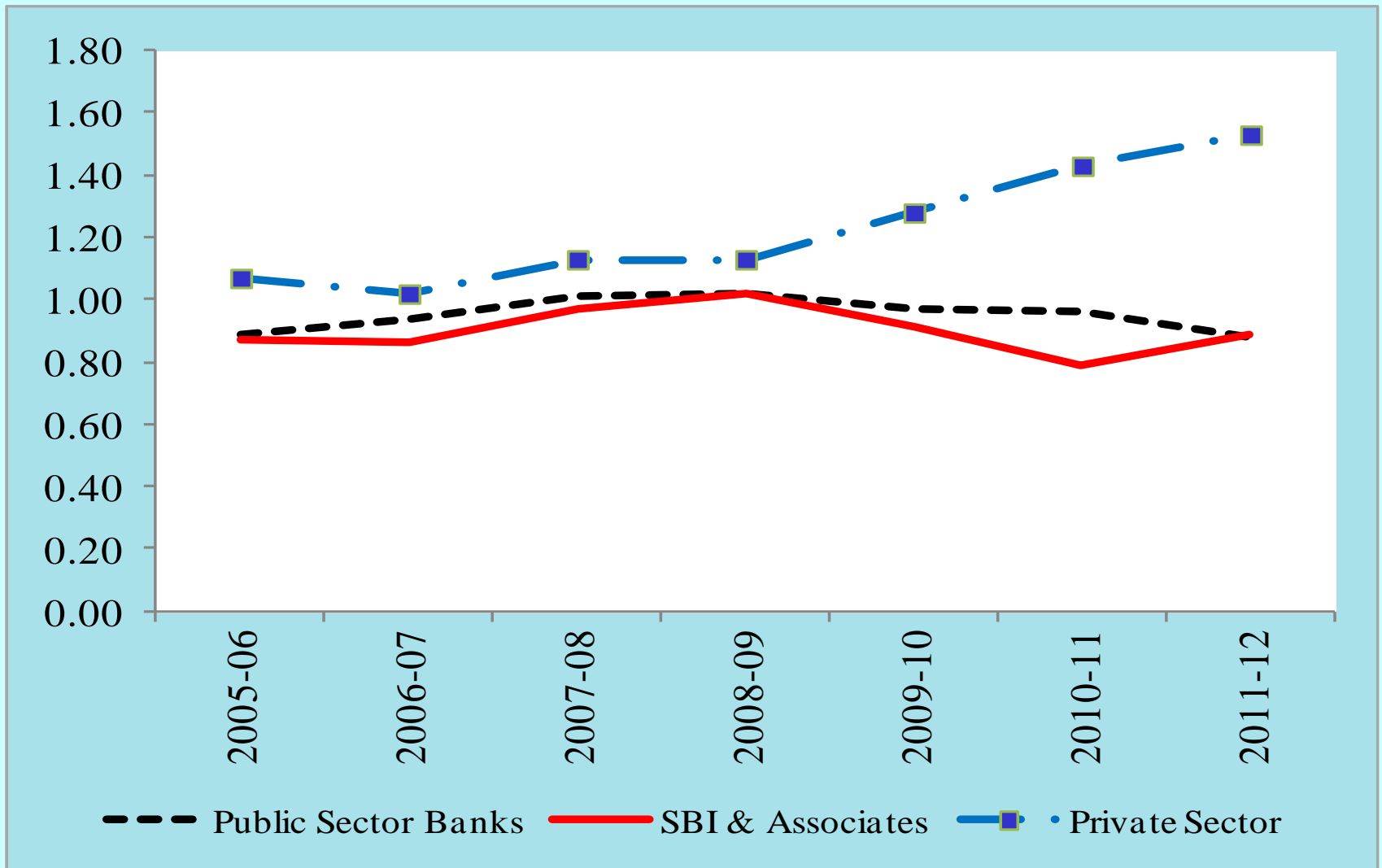
Return on Assets and Provisioning in 2011,2012 (Table7)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Return on Assets			Provisions			
Dummy for all other PSB	-.22*** [3.22]	-.29*** [5.31]	-.21*** [2.66]	0.23*** [3.93]	0.12 [1.44]	0.13* [1.75]	0.24*** [4.31]
Dummy for the SBI	-.30*** [3.10]	-.56*** [3.97]	-.41*** [2.89]	0.70*** [10.80]	0.45** [2.62]	0.46*** [2.94]	0.72*** [11.51]
Avg. Return on Assets in 2005-07	0.12 [0.76]	0.12 [0.78]	0.02 [0.17]				
Avg. Return on Assets, in 2009-10	0.42** [2.44]	0.34* [1.83]	0.56*** [4.00]				
Capital Injection in 2009, 2010		-0.21** [2.59]	-0.14 [1.47]		-0.04 [0.43]	-0.03 [0.36]	
Avg. Size in 2009-10		0.07* [1.79]	0.03 [1.15]		0.06 [1.48]	0.06 [1.62]	
Credit Growth in 2009-10			-0.01** [1.99]			0.00 [1.19]	0.00 [1.12]
Avg. Provisioning in 2005-7					-0.13 [1.18]	-0.13 [1.21]	-0.23* [1.92]
Avg. Provisioning in 2009, 2010					0.31** [2.15]	0.38*** [2.86]	0.45*** [3.96]
Observations	81	81	81	81	81	81	81
R-squared	0.455	0.498	0.586	0.330	0.357	0.380	0.351

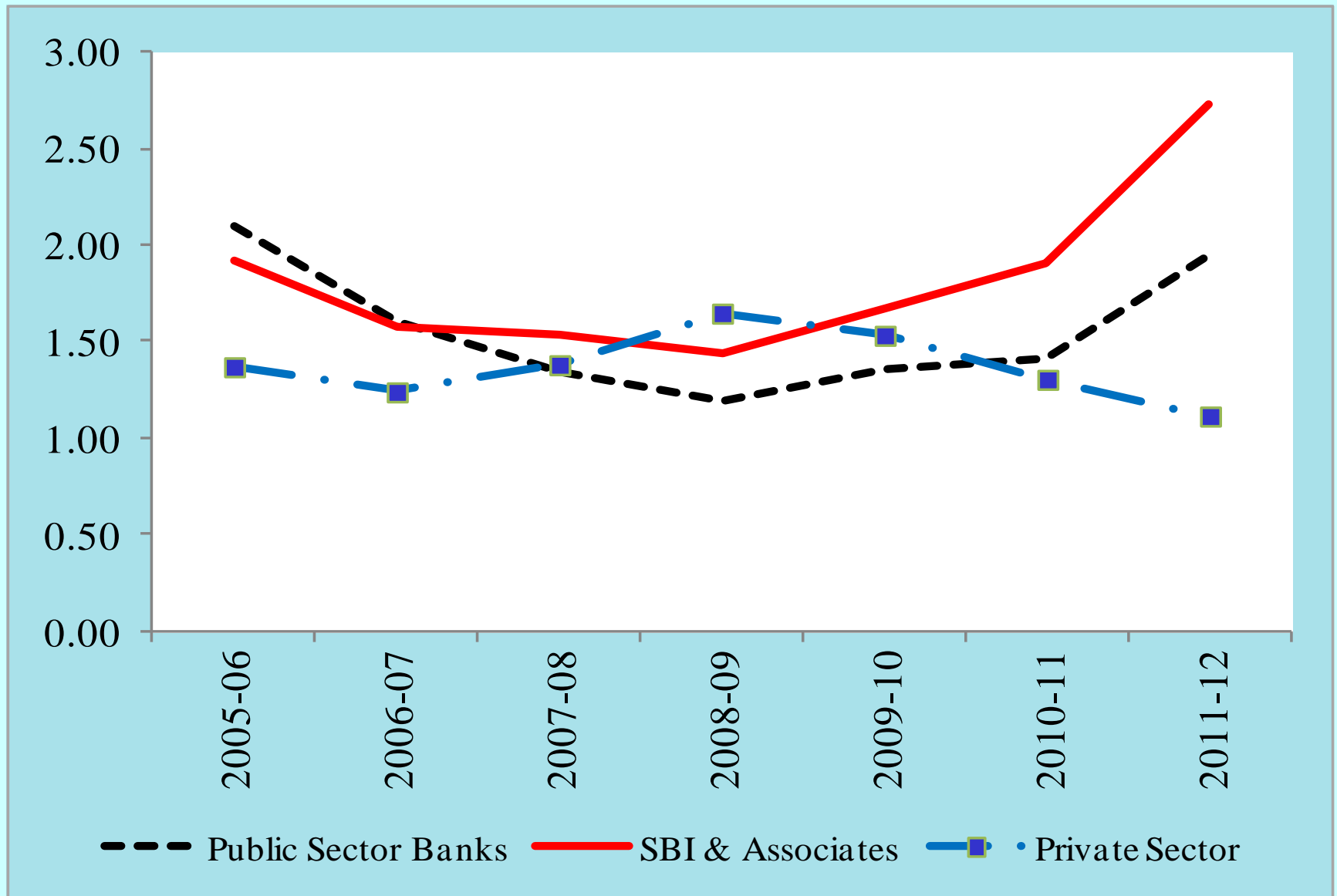
Results IV (Post crisis)

- Post crisis public sector banks and the SBI in particular experienced slower deposit growth (after controlling for the growth in preceding years)
- PSBs and SBI had slower credit growth
- PSB and SBI had lower returns and higher provisioning

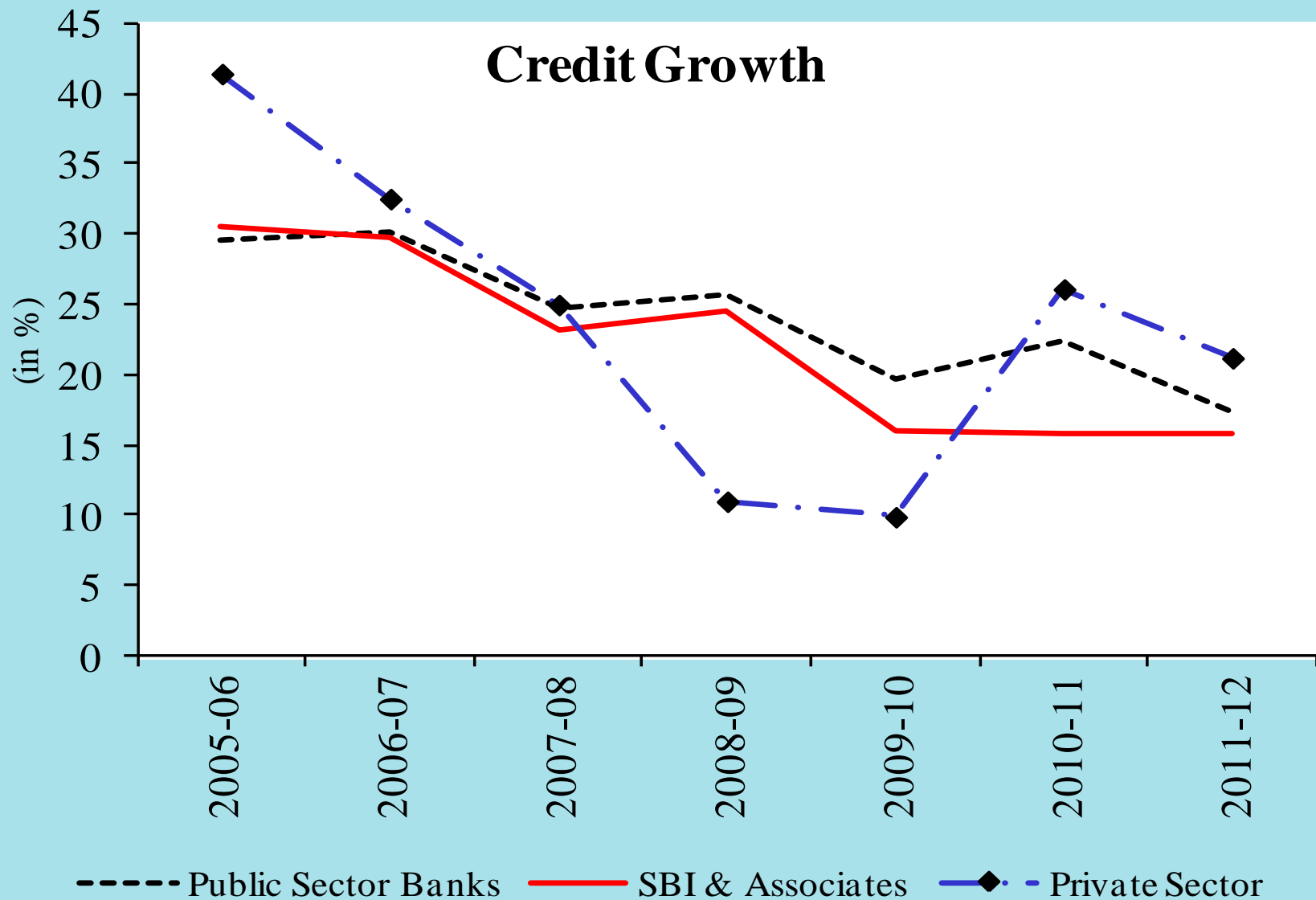
Return on Assets- Figure 5



Non Performing Loans/Assets- Figure 6



Credit Growth- Figure 7



Foreign Banks

- Deposit growth of foreign banks slows down to the same extent as for private banks (even if numerically large, not statistically different from that of the private banks)
- Could extend out work along many dimensions (along the lines of Claessens et.al (various years) and Detragiache and Gupta): Does the effect on foreign banks depend on their regional orientation, health of parent banks etc.

Literature

Ownership and effects of the crisis:

- Public vs private (Bertay, Demirgüç-Kunt and Huizinga (2012), Feler and Coleman (2012))
- Domestic vs foreign (Claessens et al (various years), Detragiache and Gupta (2006))
- Acharya, Agarwal and Kulkarni (2012) on India

Main results:

- Public banks increased lending during the crisis, partly because of the support and policies
- Foreign banks retracted the most, magnitude depended on other factors as well
- Public sector firms outperformed private sector firms despite having greater systemic risk during the crisis

Summary of Results

- Deposit reallocation to the SBI
- Cannot be explained by balance sheet variables
- Plausible factor: expectation of an implicit guarantee
- PSBs or the SBI do not necessarily perform better in the recovery period following the crisis

Thank You!