Government Guarantees and Bank Risk Taking Incentives

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Motivation (I)

- Governments and central banks have provided guarantees as well as liquidity and capital during the financial and sovereign debt crisis
  - Fear of a systemic meltdown
  - Reduction in credit supply despite government intervention (Ivashina and Scharfstein, 2010; Puri, Rocholl, and Steffen, 2010)
  - Decrease in corporate investment (Duchin, Ozbas, and Sensoy, 2010)

- Protection against more detrimental consequences, still negative externalities
  - Reduction in market discipline and lower funding costs (Flannery, 2010)
  - Substantial costs to taxpayers

- Far less clear
  - what happens when interventions and guarantees are withdrawn
  - whether and how banks subsequently change lending and risk taking (Gropp, Gründl, and Güttler, 2011)

Motivation (II)

- Existence of government guarantees significantly affects a bank's funding costs and thus its franchise value

- Kashyap, Stein, and Hanson (2010): *"... the most important ... competitive advantage that banks bring to bear ... is the ability to fund themselves cheaply. Thus if Bank A is forced to adopt a capital structure that raises its cost of funding relative to other intermediaries by only 20 basis points, it may lose most of its business."*

- Decrease in franchise value may increase the bank's incentives to gamble (Hellmann, Murdock, and Stiglitz, 2000)
  - Bank trades off rent from gambling and franchise value that it loses if gamble fails
  - Thus, the lower the franchise value, the higher the incentive to gamble
  - Banks that lose government guarantees may start gambling as a reaction to loss of their funding cost advantage

Laboratory

- Removal of government guarantees for German Landesbanken in July 2001
- Deposits and other liabilities of Landesbanken traditionally guaranteed by the federal state in which a Landesbank is domiciled → Landesbanken enjoyed lower financing costs than privately owned banks
- European Commission and German government agreed in July 2001 that guarantees for Landesbanken had to be abandoned
- Sudden and surprising decision increased expected refinancing cost for Landesbanken and thus led to a decrease in franchise value
- During a transition period of four years until 2005, Landesbanken were allowed to issue bonds that were still fully guaranteed.

Research Questions

- Do borrowers' risk profiles as well as lending terms - in particular interest rates - change after the removal of government guarantees?
- Is there a relation between a bank's likelihood to default and the subsequent change in lending behavior?
- Do we observe an excessive increase in bond issuances during the four-year transition period?
- Do Landesbanken with the highest expected decrease in franchise value issue more debt relative to other Landesbanken?

Preview of Results

1) Removal of guarantees results in substantial increase in risk taking
   - Before 2001: Landesbanken do not differ from other banks in lending behavior
   - After July 2001: Riskiness of borrowers at Landesbanken significantly higher than that at other banks
   - Higher riskiness not accompanied by simultaneous increase in interest rates

2) Results most pronounced for Landesbanken with highest decrease in franchise value

3) Four-year transition period affects issuance behavior by Landesbanken
   - Incentive to issue bonds before funding cost advantage disappears
   - Funding cost advantage even outweighs additional carry costs
   - Increase particularly strong for Landesbanken with highest expected loss

Empirical Strategy

- How is lending by Landesbanken affected by the event ("Brüsseler Konkordanz")?
  - Do Landesbanken lend to riskier customers?
  - Do Landesbanken charge lower spreads?

- Identification
  - Landesbanken are affected by the event, other banks are not.
  - We observe all loans made before and after the event.

- Measures to capture lending practice
  - The riskiness of a borrower is measured by the Z-Score as adapted by MacKie-Mason (1990).
  - The interest rate charged to each borrower is measured by the AISD.

Empirical Specification

- Difference-in-difference methodology

$$\underset{(AISD_i)}{Z\text{-}Score_i} = \beta_0 + \beta_1 Landesbank_i + \beta_2 After.July.2001_i + \beta_3 (Landesbank * After.July.2001)_i + \sum_{k=1}^{n} \beta_{Lk} (Loan.Characteristics_i) + \sum_{k=1}^{n} \beta_{Bk} (Borrower.Characteristics_i) + \varepsilon_i$$

- **Landesbank:** dummy variable = 1 if at least one Landesbank is among the lead arrangers of the loan

- **After.July.2001**: dummy variable = 1 if the loan is granted after the removal of state guarantees on July 18, 2001

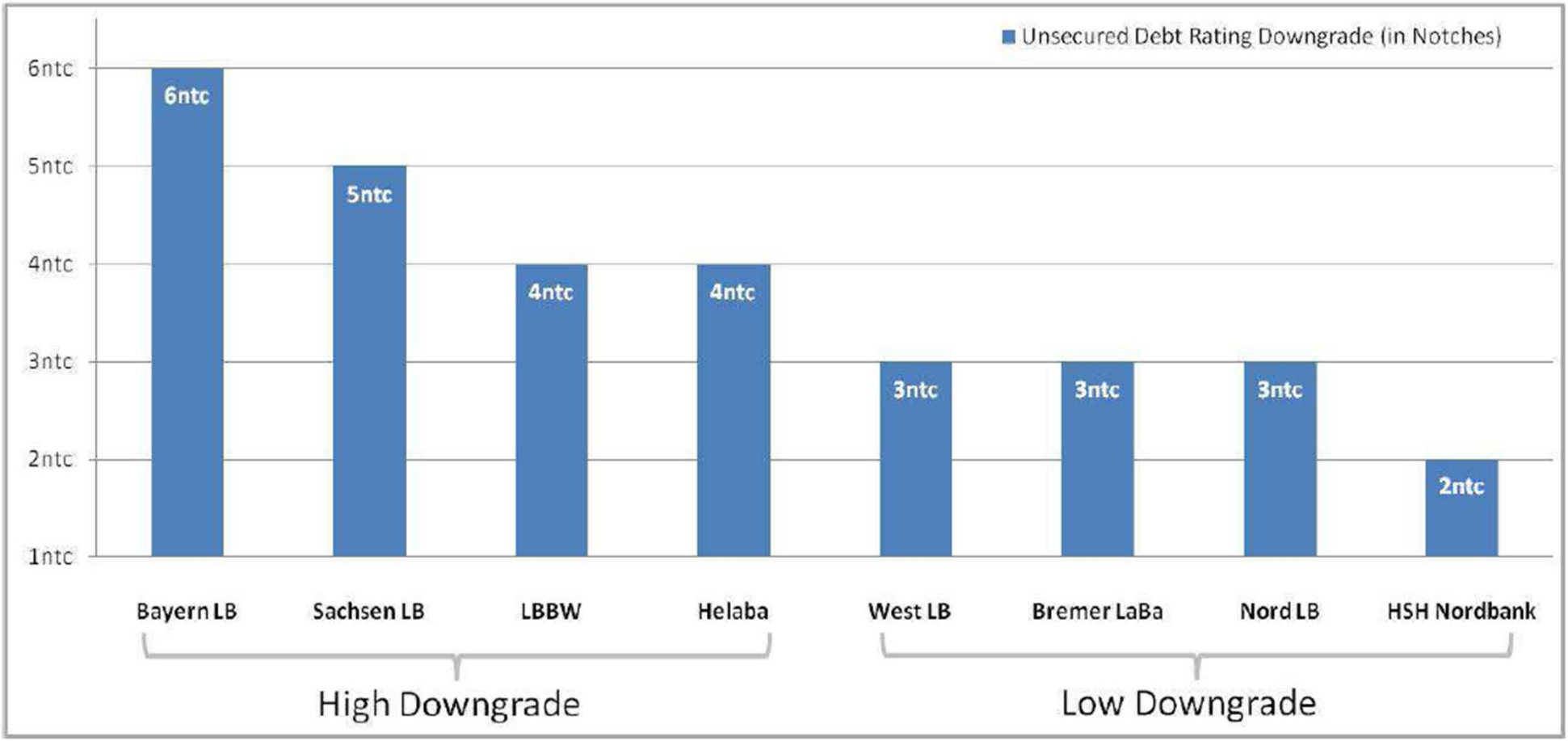
Landesbanken: Bivariate Results

How did Landesbanken – relative to other banks – react in terms of borrower risk and interest rates to removal of state guarantees?

Z-Score	All	Landesbank	Non-Landesbank	Difference
Before July 2001	-0.184	-0.103	-0.219	0.116
	(0.05)	(0.09)	(0.06)	(0.11)
	[234]	[70]	[164]	
After July 2001	-0.338	-0.632	-0.241	-0.391***
	(0.03)	(0.06)	(0.04)	(0.07)
	[1,373]	[342]	[1,031]	
Difference		0.529***	0.023	**-0.506*** **
		(0.11)	(0.07)	**(0.12)**
AISD	All	Landesbank	Non-Landesbank	Difference
Before July 2001	114.3	116.8	113.3	-3.5
	(6.2)	(10.2)	(7.8)	(12.8)
	[234]	[70]	[164]	
After July 2001	155.6	115.8	168.8	53.0***
	(4.7)	(6.7)	(5.8)	(8.8)
	[1,373]	[342]	[1,031]	
Difference		1.0	-55.5***	**-56.5*** **
		(12.2)	(9.7)	**(15.5)**

Which Banks have the Highest Expected Increase in Funding Costs?

- Expected rating downgrade after July 2005



Banks with Highest Expected Rating Downgrade are More Likely to Gamble

Z-Score	All	High Downgrade	Low Downgrade	Difference
Before July 2001	-0.103	-0.081	-0.129	0.048
	(0.09)	(0.12)	(0.14)	(0.19)
	[70]	[37]	[33]	
After July 2001	-0.632	-0.763	-0.422	-0.341***
	(0.06)	(0.07)	(0.11)	(0.13)
	[342]	[210]	[132]	
Difference		0.682***	0.294*	**-0.389****
		(0.14)	(0.17)	**(0.20)**
AISD	All	High Downgrade	Low Downgrade	Difference
Before July 2001	116.8	122.6	110.4	12.2
	(10.2)	(14.5)	(14.4)	(20.4)
	[70]	[37]	[33]	
After July 2001	115.8	101.2	139.0	-37.8***
	(6.7)	(8.5)	(10.4)	(13.5)
	[342]	[210]	[132]	
Difference		21.4	28.7	**-50.0****
		(16.8)	(17.8)	**(24.3)**

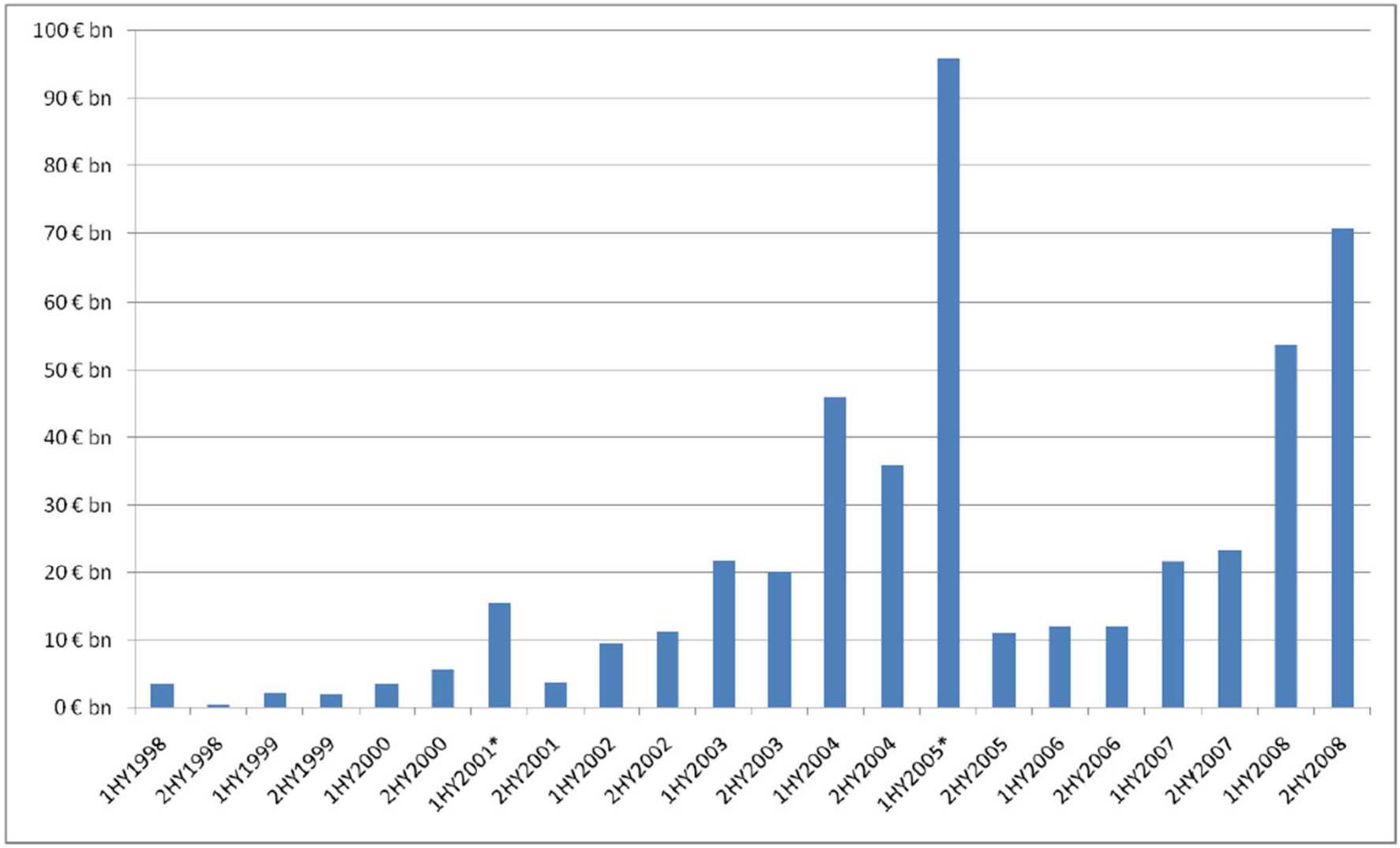
The Effect of the Transition Period (July 2001 – July 2005)

- Exit strategy negotiated between EU and Germany involved not an ad-hoc removal of all guarantees that did not comply with EU law but a 5 year transition period (grandfathered debt)

- Landesbanken have incentive to issue substantial amounts of bonds before their funding cost advantage disappears

- Funding cost advantage even outweighs the additional carry costs from keeping excess liquidity
  - Special report by Fitch (2006): ”*Fitch estimates the additional expense from holding excess liquidity to be between around 0.5% and 8% of published net income... However, at most banks this cost is more than compensated for by having to issue less unguaranteed (and more expensive) long-term bonds...*”

Bond Issuance Behavior



* Issuance till July 18, 2005 (2001)

Liquidity Used by Landesbanken to Gamble

- Landesbanken expecting the largest decrease in franchise value increased bond issue volumes b/w 2001-05 the most.
  - E.g. Sachsen LB increased bond issuance volume by the factor 15.8 during 2001-2005 relative to 2 year period before
  - Correlation between bond issuance increase and expected rating downgrade is 0.89.

- Landesbanken invested substantial amounts in off-balance-sheet conduits
  - Majority of these exposures can be attributed to Sachsen LB (25 billion Euros), West LB (34 billion Euros) and Bayern LB (16 billion Euros)
  - Example: Ormond Quay (Sachsen LB), almost entirely financed by debt, highest rating by Moody‘s because of liquidity backstop by Sachsen LB

Conclusion

Results

- Landesbanken do not differ from other banks lending to German firms in their lending practices before the removal of the state guarantee.
- However, they give loans to significantly riskier customers and at significantly lower rates afterwards.
- The change in lending practices is most pronounced for those banks facing highest decrease in franchise value.

Questions for future research

- How shall governments communicate their exit strategy and what is an optimal transition period?
- How can banking supervision and bank governance mitigate the increased risk taking incentives of banks?