Government Guarantees and Bank Risk Taking Incentives

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Paris, November 2014

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  - what happens when interventions and guarantees are withdrawn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

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

Institutional Background

- Situation until 2001
  - Deposits and other liabilities of German Landesbanken guaranteed by the federal state in which Landesbank is domiciled.
  - Guarantees allow Landesbanken to receive financing at low costs at no charge
  - Complaints by private (foreign) banks following EU competition guidelines to abolish state-aid that does not comply with EU Treaty (Dec. 2000)

- "Brüsseler Konkordanz" on July 17, 2001
  - Agreement between EU Commission and German government
  - Guarantees to be abolished on July 19, 2005
  - Surprisingly quick agreement

Liabilities	State Guarantee
Existing before July 18, 2001	Yes
Issued between July 18, 2001 and July 18, 2005 and maturing at the latest on December 31, 2015	Yes (Grandfathering clause)
Issued after July 18, 2005 or during the transitional phase but maturing after December 31, 2015	No

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 Strategy: Set-up

- Difference-in-difference methodology

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

(AISD$_i$)

- **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

Data Source

- Loans
  - LPC data on syndicated loans for 1989 to 2008
  - to German firms
  - information about syndicate structure and features of loan contract matched with balance-sheet data from BvD Amadeus

- Bond issuance
  - Bloomberg
  - Senior Unsecured Debt Issuance of Landesbanken from 1998 to 2008

- Sample Overview

Syndicated Loans over Sample Period			
Year	Landesbank	Non-Landesbank	**All**
Until July 2001	70	164	234
After July 2001	342	1,031	1,373
Total	412	1,195	1,607

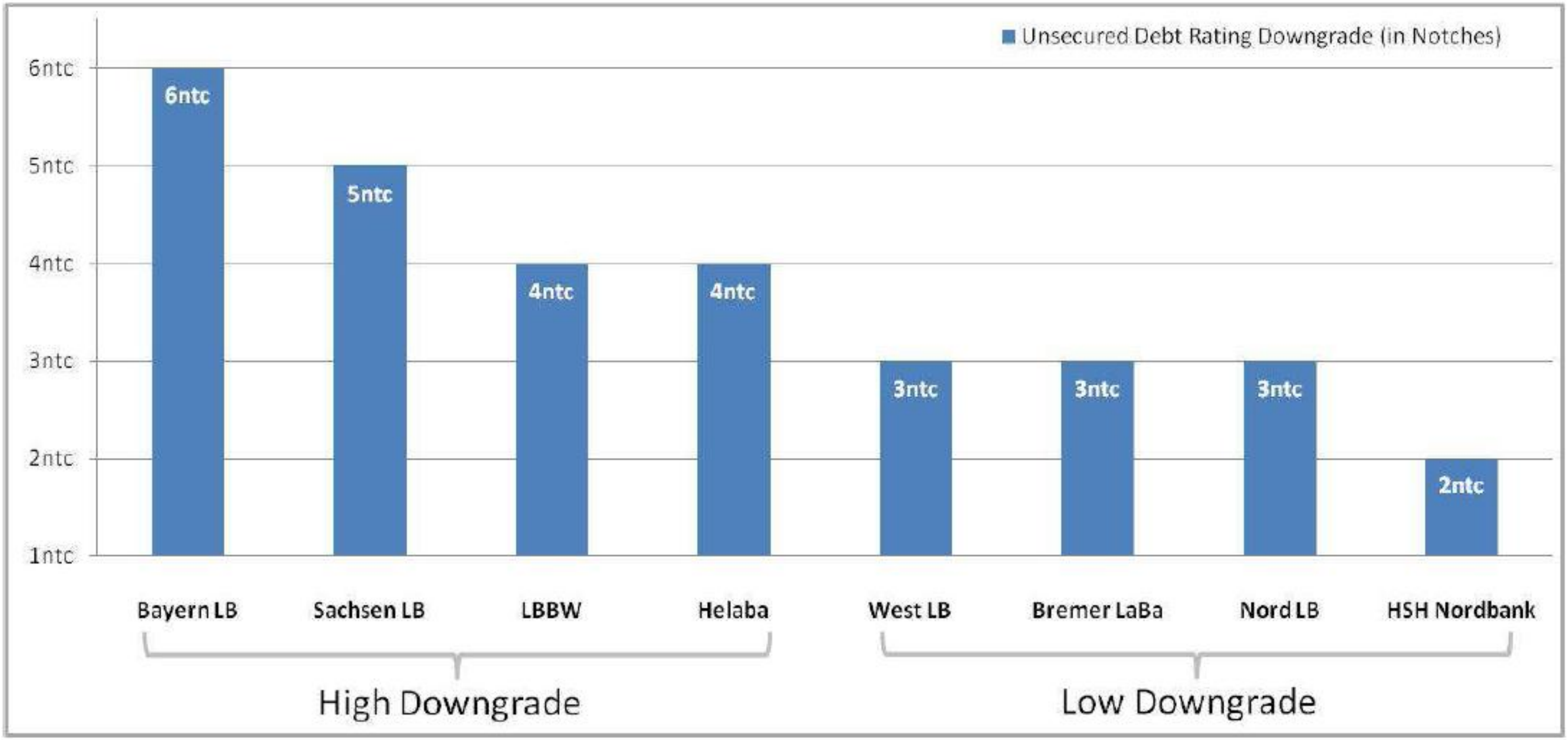
Landesbanken: Bivariate Results

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)**

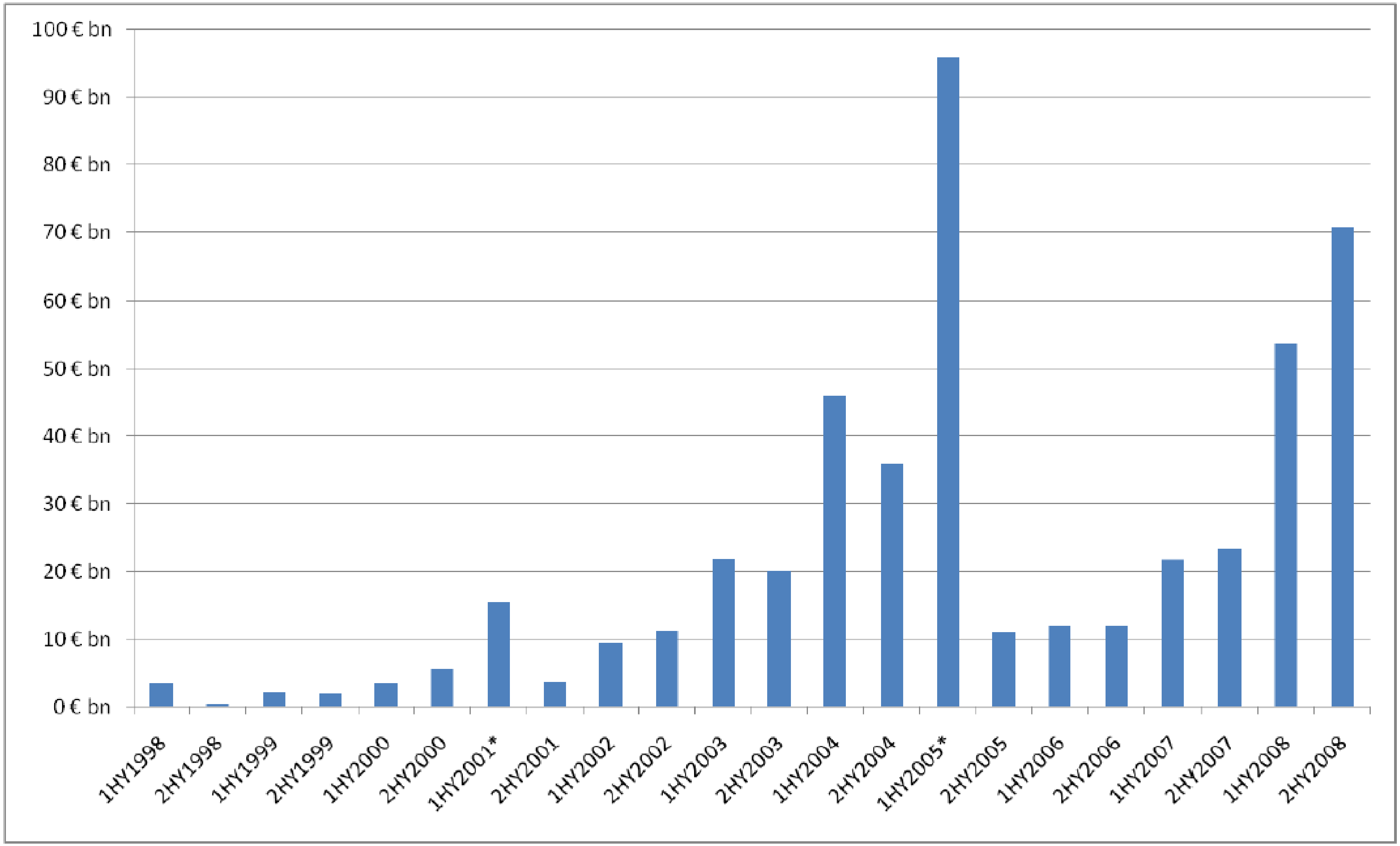
The Effect of the Transition Period (July 2001 – July 2005)

- 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...*”

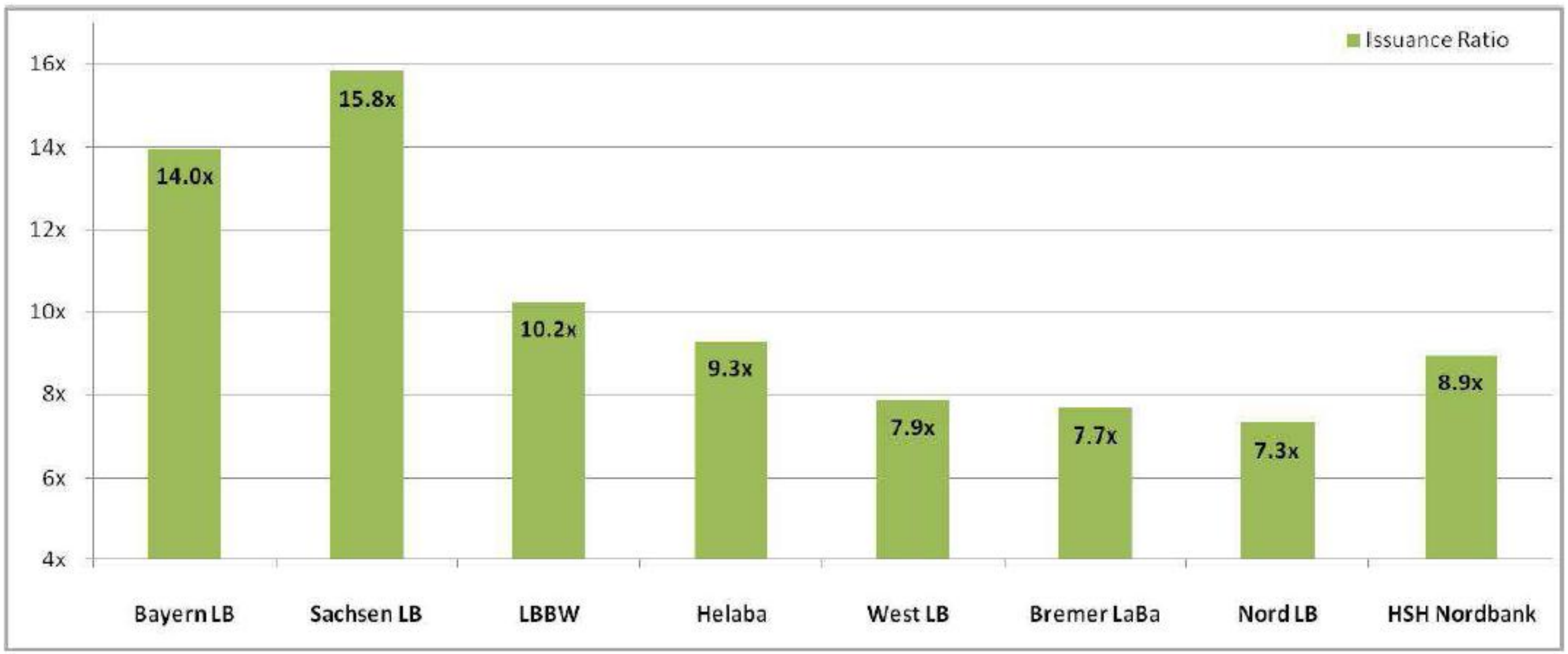
Bond Issuance Behavior (I)



* Issuance till July 18, 2005 (2001)

Bond Issuance Behavior (II)

- Landesbanken expecting the largest decrease in franchise value increased bond issue volumes b/w 2001-05 the most.
- Ratios of bond issuance in the transition period (2HY2001-1HY2005) to issuance behavior two years (2HY1999-1HY2001) prior to the start of the transition period



Risk Taking with Grandfathered Debt

- 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)
  - As of July 2007, Ormond Quay invested about 11.4 billion USD almost exclusively in asset backed securities (ABS) and 79% of it in residential and commercial mortgages. These assets were almost entirely refinanced with short term ABCP which usually have a maturity of 30 days or less. 30bps of asset value is equity.
  - Sachsen LB provided an explicit guarantee for all ABCP
  - Moody's assigns highest rating because of grandfathered state guarantee of Sachsen LB
  - Landesbanken were able to have higher exposures to conduits relative to other banks that did not have access to this state guarantee

Discussion and Robustness Tests

- We analyze the ex-post performance of loans extended by Landesbanken after July 2001 relative to before and relative to loans extended by Non-Landesbanken.
  - The ex-post performance of loans extended by Landesbanken after July 2001 is worse.
- As loans are also syndicated, we analyze the loan share retained by Landesbanken after July 2001 relative to before.
  - Landesbanken increase the share of the loans extended to, on average, riskier borrower after July 2001.
- We analyze that change in lending behavior is not driven by an increase in liquidity on the balance sheets of the banks using liquidity proxies as additional control variables in our regressions.

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?