Bank Lending During the Financial Crisis of 2008

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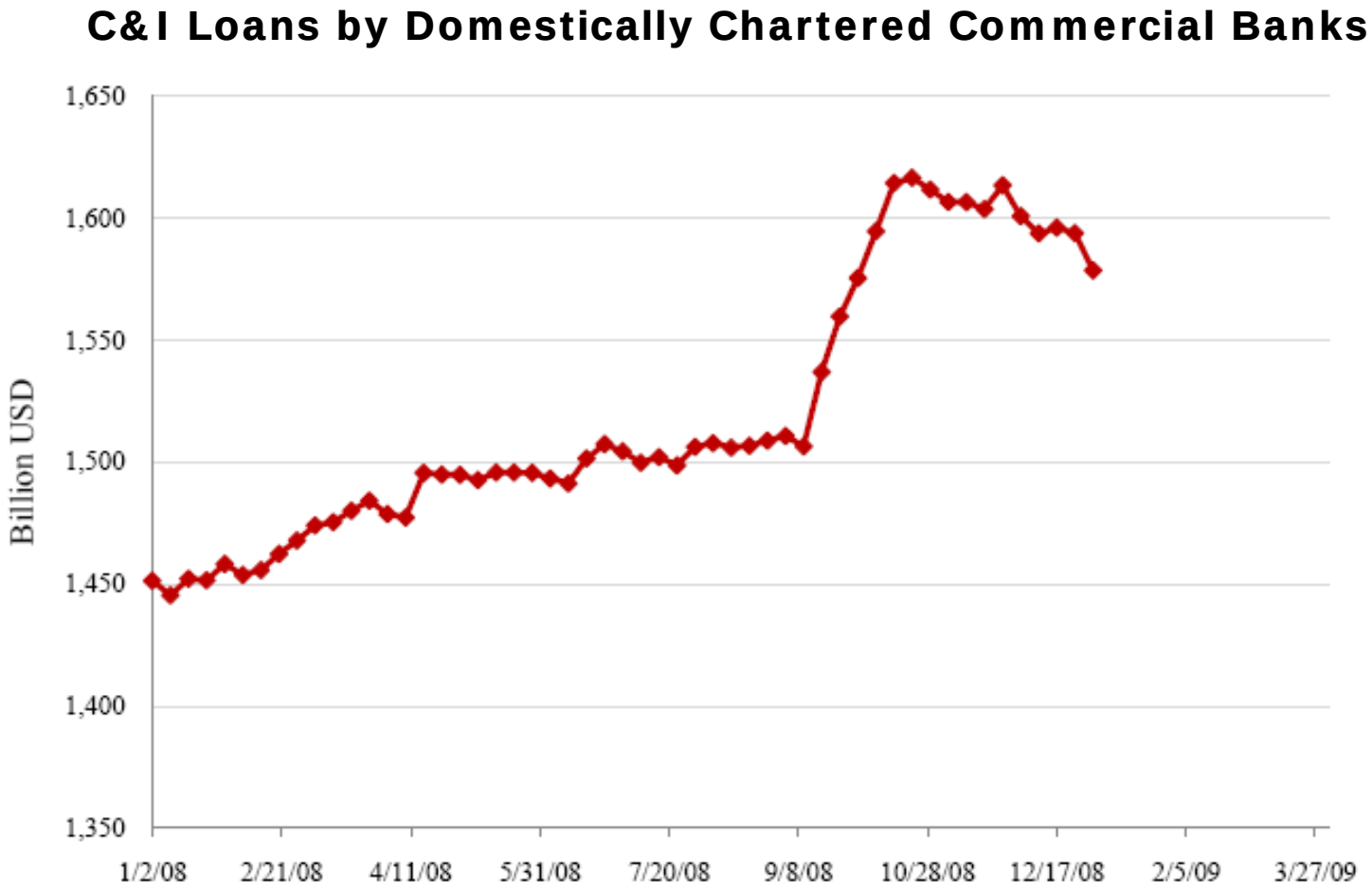
Goal

To understand the spill over of the crisis from financial sector to real sector through the lending channel

- Did bank lending fall?
- If so, was it a contraction in demand or supply?

Prior:



Source: Federal Reserve Board, Assets and Liabilities of Commercial Banks in the United States, (http://www.federalreserve.gov/releases/h8). Not seasonally adjusted, adjusted for mergers.

Data

- Reuters DealScan: Origination of large loans (primarily syndicated loans)

  Self reported data:

  -advertise

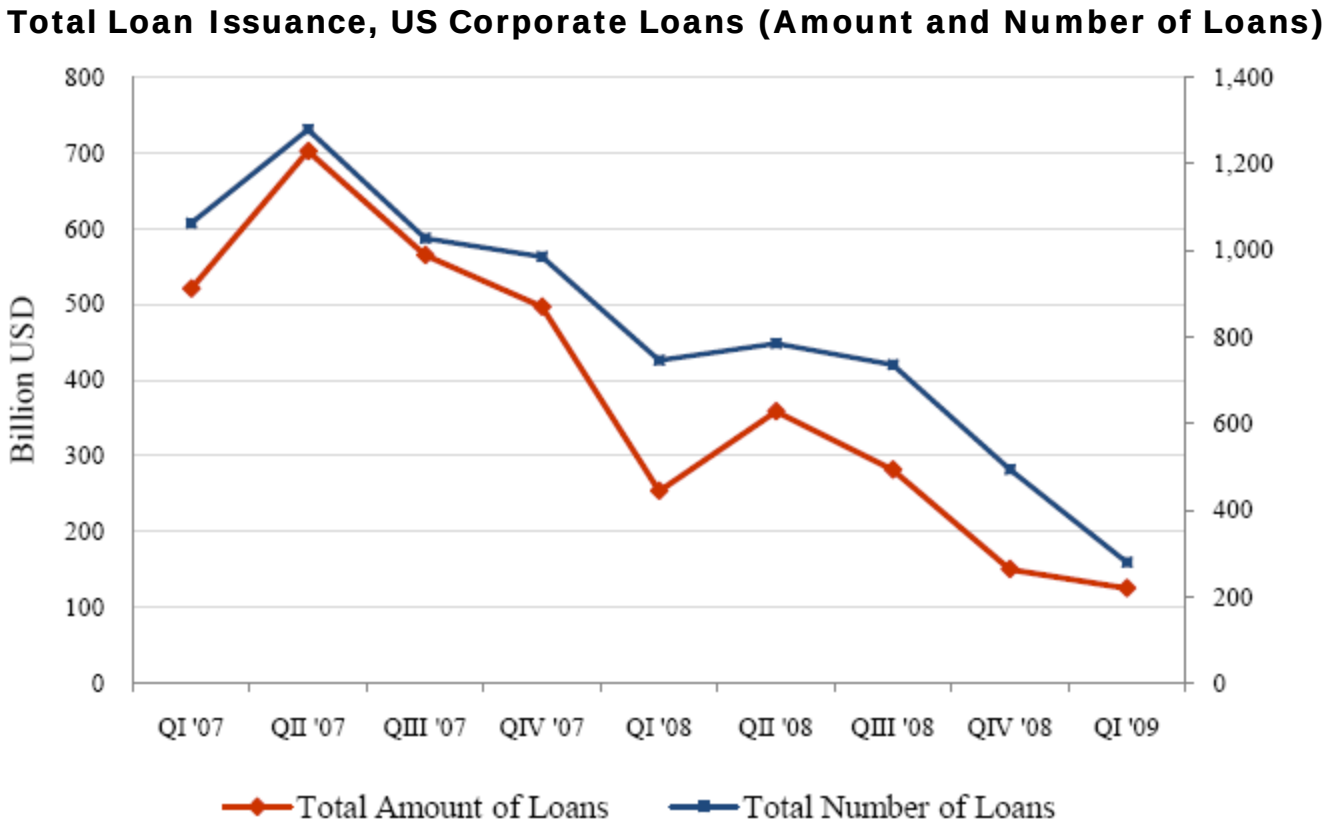
  -reflect market conditions

  -most importantly, receive league tables credit (published quarterly)

- Data through December 31, 2008
- US companies

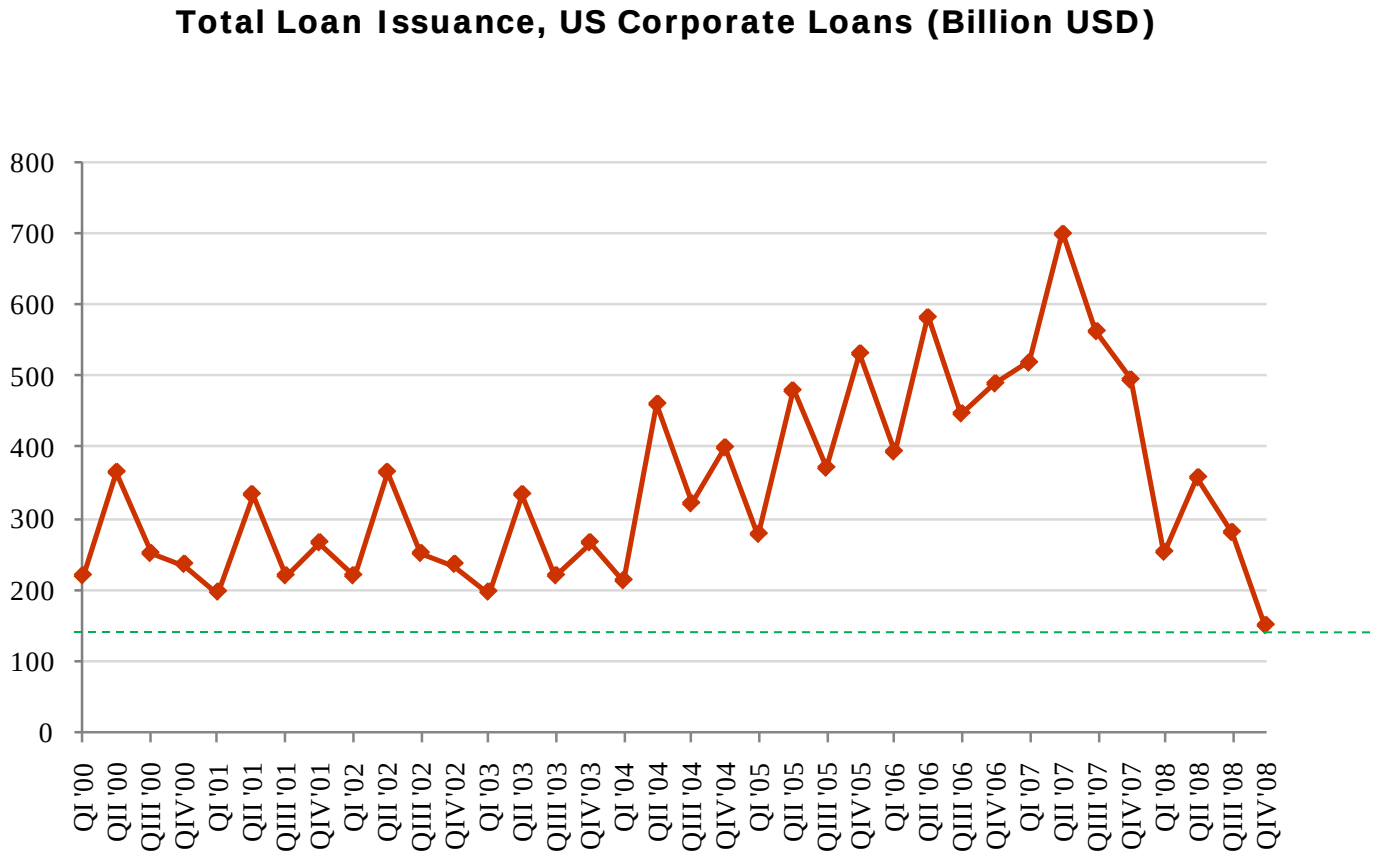
- Primarily US banks but also includes domestic affiliates of foreign banks
  - From Aug ’08 to Oct ’08, top three US banks Citi, JPM, BAC originated 62% of the loans to the US companies, followed by Morgan Stanley with 4% of the loan origination

Basic Facts: Bank Lending Falls



- New lending in 2008 was significantly below new lending in 2007, even before the peak period of the financial crisis
- The decline in new loans accelerated during the financial crisis, falling by 47% in dollar volume and 33% in number of issues in 4th quarter of 2008 relative to the previous quarter (79% and 61% with respect to the peak)

Basic Facts: Bank Lending Falls



→ Look at the loan issuance across three categories:

- Restructuring loans (M&A, LBOs, and stock repurchases) vs. Real investment loans (working capital or general corporate purposes)

- Non-investment grade vs. investment grade loans

- Term loans vs. revolving lines

Is drop in lending a supply shock or demand shock?

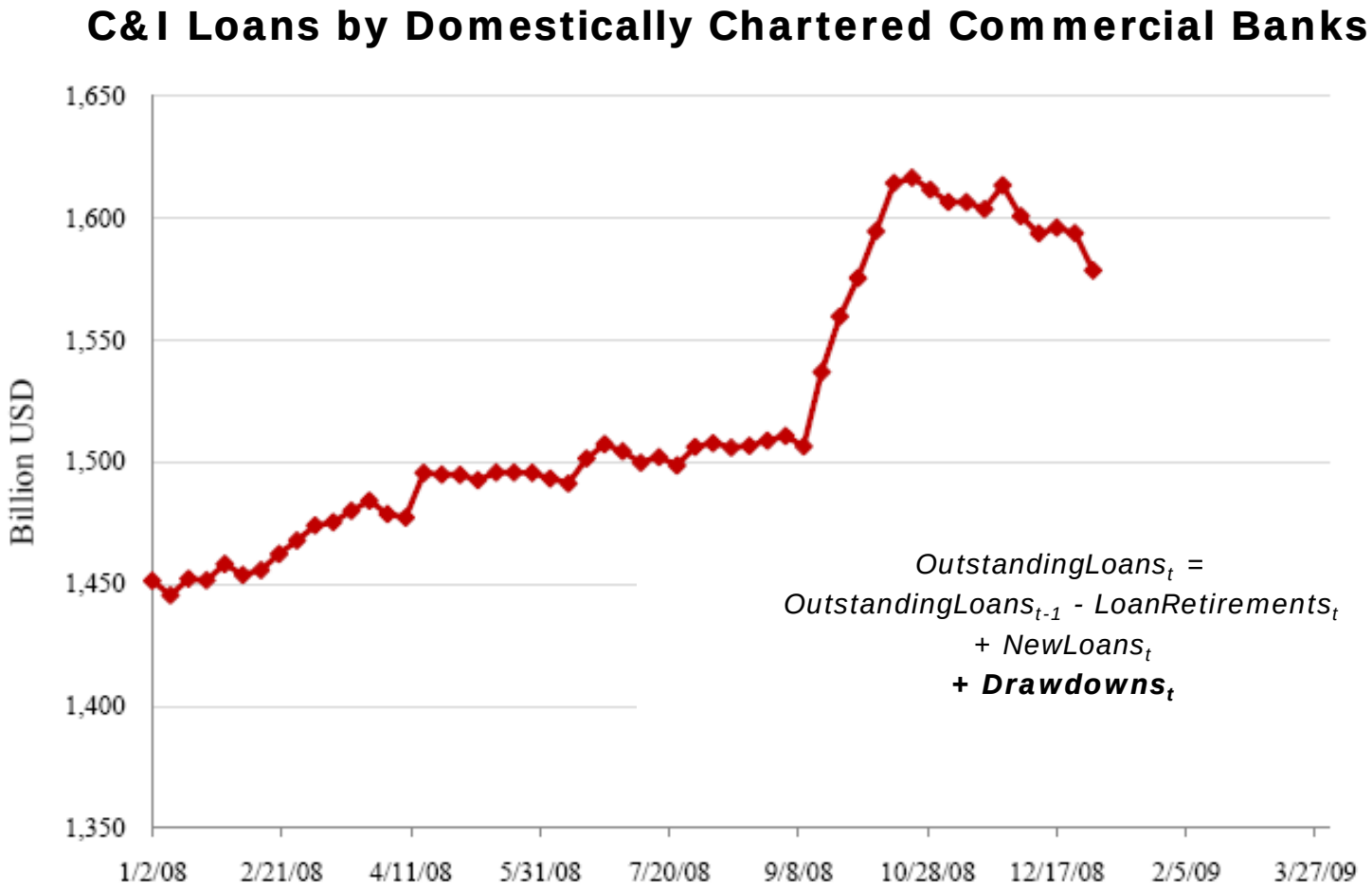
Supply effect if bank characteristics affect lending

- Effect of deposit base on lending
  - Banks that are more reliant on short-term debt have difficulty rolling over debt and will have to cut lending more
  - Thus, banks with strong deposit base will cut lending less

    Caveat: insured deposits

- Effect of revolving line exposure on lending
  - Banks with large exposure to revolving lines will cut new lending more

Prior:



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Borrowers draw down their credit facilities

Date drawn	Company	Credit rating (QIV'08)	Amount drawn ($MM)	Maturity	Spread (Drawn)
08/25/2008	Delta Air Lines	BB-/Ba2	1,000	2012	L+200
Sep-2008	Marriott	BBB+/Baa2	908	2012	L+35
09/15/2008	FairPoint Communications	BB+/Ba3	200	2014	L+275
09/16/2008	International Lease Finance	AA-/A1	6,500	2011	L+25
09/19/2008	Michaels Stores	B	120	2011	L+150
09/22/2008	General Motors	B-/Caa3	3,400	2011	L+205
09/26/2008	Goodyear Rubber & Tire Co.	BB+/ Baa3	600	2013	L+125
09/26/2008	AMR Corp	B-	255	2013	L+425
09/30/2008	Duke Energy	A-/ Baa2	1,000	2012	L+40
09/30/2008	Gannett Co.	BBB-/Ba2	1,200	2012	L+25
Oct-2008	Six Flags	B/B2	244	2013	L+250
Oct-2008	Saks	B+/B2	80.6	2011	L+100
Oct-2008	Monster Worldwide		247	2012	L+30
10/01/2008	GameStop	BB+/Ba1	150	2012	L+100
10/02/2008	Dana Corp	BB+/Ba3	200	2013	L+200
10/02/2008	Calpine	B+/B2	725	2014	L+288
10/02/2008	YRC Worldwide	--	325	2012	--
10/09/2008	CMS Energy	BB+/ Baa3	420	2012	L+100
10/10/2008	American Electric Power	BBB/ Baa2	2,000	2012	L+45
10/15/2008	Lear Corp	BB/B1	400	2012	L+200
10/16/2008	Southwest Airlines	BBB+/ Baa1	400	2010	L+75
10/16/2008	Chesapeake Energy	BB/Ba2	460	2012	L+100
10/16/2008	Ebay	--	1,000	2012	L+24
10/16/2008	Parker Drilling	B+/B2	48	2012	L+250
10/20/2008	Tribune Co.	B/Caa1	250	2013	L+300
10/23/2008	FreeScale Semiconductor	BB/B-	460	2012	L+200
10/24/2008	Energy Future (ex-TXU)	B+/B1	570	2013	L+350
10/24/2008	Idearc	BBB-/ Ba3	249	2011	L+150
10/30/2008	Accuride Corp.	B+/B2	79	2010	L+350
11/13/2008	Genworth Financial	A/A2	930	2012	L+20
11/20/2008	Allied World Assurance	--	250	2012	L+35
11/23/2008	Computer Sciences	A-/Baa1	1,500	2012	L+25
11/25/2008	NXP Semiconductors	B	400	2012	L+275
11/28/2008	CNA Financial	BBB/Baa3	250	2012	L+55

34 firms, nearly $27 billion just in this sample (i.e., 26% of the jump)

Borrowers draw down their credit facilities for precautionary reasons

“ Drawing down these funds is a prudent liquidity measure. Ensuring access to our liquidity to the fullest extent possible at a time of ambiguity in the capital markets is in the best interest of our customers, suppliers, shareholders, and employees.”

Dana Corp. explaining $200 mm drawdown.

“ In light of the uncertain market environment, we have made this proactive financial decision to increase our liquidity and cash position and to bridge our access to the debt capital markets.”

Duke Energy explaining $1 bn drawdown.

“ The Company believes that these actions were necessary to preserve its availability to capital due to Lehman Brothers’ level of participation in the Company’s debt facilities and the uncertainty surrounding both that firm and the financial markets in general.”

FairPoint Communications explaining $200 mm drawdown.

Source: SEC filings

Lehman exposure

Example: Tribune Co. 750 $MM revolving line

Tribune needs/draws 300 $MM

JPM **(375 $MM)**	150 $MM
Lehman (375 $MM)	150 $MM

Lehman exposure

Example: Tribune Co. 750 $MM revolving line

Tribune needs/draws 300 $MM

JPM **(375 $MM)**	150 $MM
Lehman (375 $MM)	150 $MM

With Lehman out of the picture:

Tribune needs/draws 300 $MM

JPM **(375 $MM)**	300 $MM
Lehman	

Empirical Approach

Define three windows:

Pre-Crisis: August 2006 – July 2007

Crisis I: August 2007 – July 2008

Crisis II: August 2008 –December 2008

Dependent variable:

%Δ Total number of loans =

[Mean(#loans per month)$_{\text{Crisis II}}$ / Mean(#loans per month)$_{\text{Base}}$ – 1]

where base = Pre-Crisis or Crisis I

%Δ Total volume of loans per month (defined analogously)

Regression:

%Δ Total number of loans on lagged Deposits/Assets +

Results

All loans	%Δ Total number of loans	%Δ Total number of loans (lead bank)	%Δ Total amount of loans (lead bank)
		Crisis II vs. Pre-Crisis	
Deposits/Assets	0.28**	0.77***	0.74*
	[0.11]	[0.28]	[0.41]
%Revolving lines with Lehman	-0.93***	-1.28**	-0.38
	[0.30]	[0.53]	[1.11]
Constant	-0.66***	-0.69***	-0.81***
	[0.05]	[0.11]	[0.19]
Observations	37	37	37
R-squared	0.26	0.23	0.13
		Crisis II vs. Crisis I	
Deposits/Assets	0.01	0.42*	-0.08
	[0.10]	[0.24]	[0.23]
%Revolving lines with Lehman	-1.31**	-1.58**	-2.21***
	[0.50]	[0.60]	[0.67]
Constant	-0.39***	-0.44***	-0.32**
	[0.06]	[0.13]	[0.16]
Observations	37	37	37
R-squared	0.26	0.27	0.17

Economic magnitude: banks with revolving line exposure to Lehman one standard deviation above the mean (12%) cut lending by 44%, while banks with Lehman exposure one standard deviation below the mean (0%) cut lending by only 25%

Robustness: Revolving lines vs. term loans

All loans	%Δ Total number of loans	%Δ Total number of loans (lead bank)	%Δ Total amount of loans (lead bank)
		Crisis II vs. Pre-Crisis	
Deposits/Assets	0.28**	0.77***	0.74*
	[0.11]	[0.28]	[0.41]
%Revolving lines with Lehman	-0.93***	-1.28**	-0.38
	[0.30]	[0.53]	[1.11]
%Term loans with Lehman	-0.29	-0.29	-0.58
	[0.37]	[0.47]	[0.67]
Observations	37	37	37
R-squared	0.26	0.23	0.13
		Crisis II vs. Crisis I	
Deposits/Assets	0.01	0.42*	-0.08
	[0.10]	[0.24]	[0.23]
%Revolving lines with Lehman	-1.31**	-1.58**	-2.21***
	[0.50]	[0.60]	[0.67]
%Term loans with Lehman	-0.28	-0.29	-0.29
	[0.23]	[0.37]	[0.47]
Observations	37	37	37
R-squared	0.26	0.27	0.17

Results

Real investment loans	%Δ Total number of loans	%Δ Total number of loans (lead bank)	%Δ Total amount of loans (lead bank)
		Crisis II vs. Pre-Crisis	
Deposits/Assets	0.29	1.30**	0.86**
	[0.19]	[0.48]	[0.38]
%Revolving lines with Lehman	-1.17**	-0.73	-0.46
	[0.50]	[1.09]	[1.08]
Constant	-0.54***	-0.68***	-0.66***
	[0.10]	[0.20]	[0.19]
Observations	37	37	37
R-squared	0.22	0.12	0.05
		Crisis II vs. Crisis I	
Deposits/Assets	0.01	0.49	-0.06
	[0.18]	[0.46]	[0.33]
%Revolving lines with Lehman	-1.61**	-1.44	-0.99
	[0.66]	[1.25]	[1.28]
Constant	-0.25**	-0.25	-0.34*
	[0.11]	[0.25]	[0.20]
Observations	37	37	37
R-squared	0.21	0.09	0.02

Implications

- Measurement issues: It is unambiguous that there was a contraction in the new loan issuance
- Financial crisis had an adverse effect on supply of credit at the bank level starting in 2007:Q3