



Government-Sponsored Wholesale Funding and the Industrial Organization of Bank Lending

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October 1, 2020





Motivation and Research Question

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My contribution: first to examine the effect through changing banks' market structure.





Empirical Setting: Federal Home Loan Banks (FHLB)

- A government-sponsored funding program: member banks access low-cost wholesale funding (mortgages as collaterals).
- Treatment: access to FHLB funding (advances)
- Key features:
 - FHLB advance rate close to treasury yield with comparable maturity.
 - FHLB gives the same rate to member institutions, regardless of size.
- Membership Lending: banks have to (1) file application (go through a screening process), (2) purchase FHLB shares to join FHLB.





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Identification Strategy: Multiple-Target Mergers

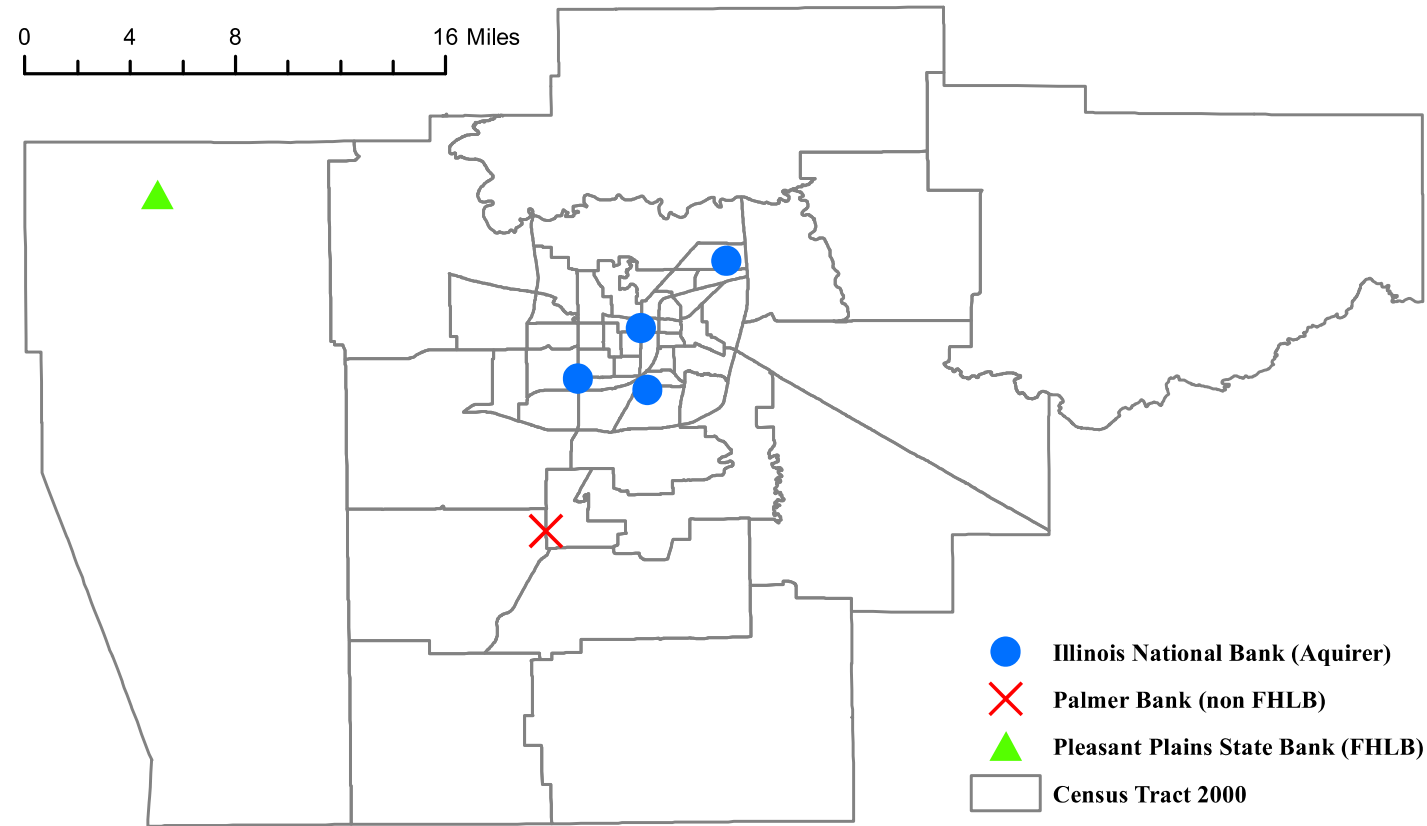
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- Thus, I consider **multiple-target mergers** that contain both FHLB and non-FHLB targets.
 - FHLB member targets serve as a natural control group for non-FHLB member targets.
- Final sample: period 1994-2016; 174 multiple-target mergers (504 target banks).





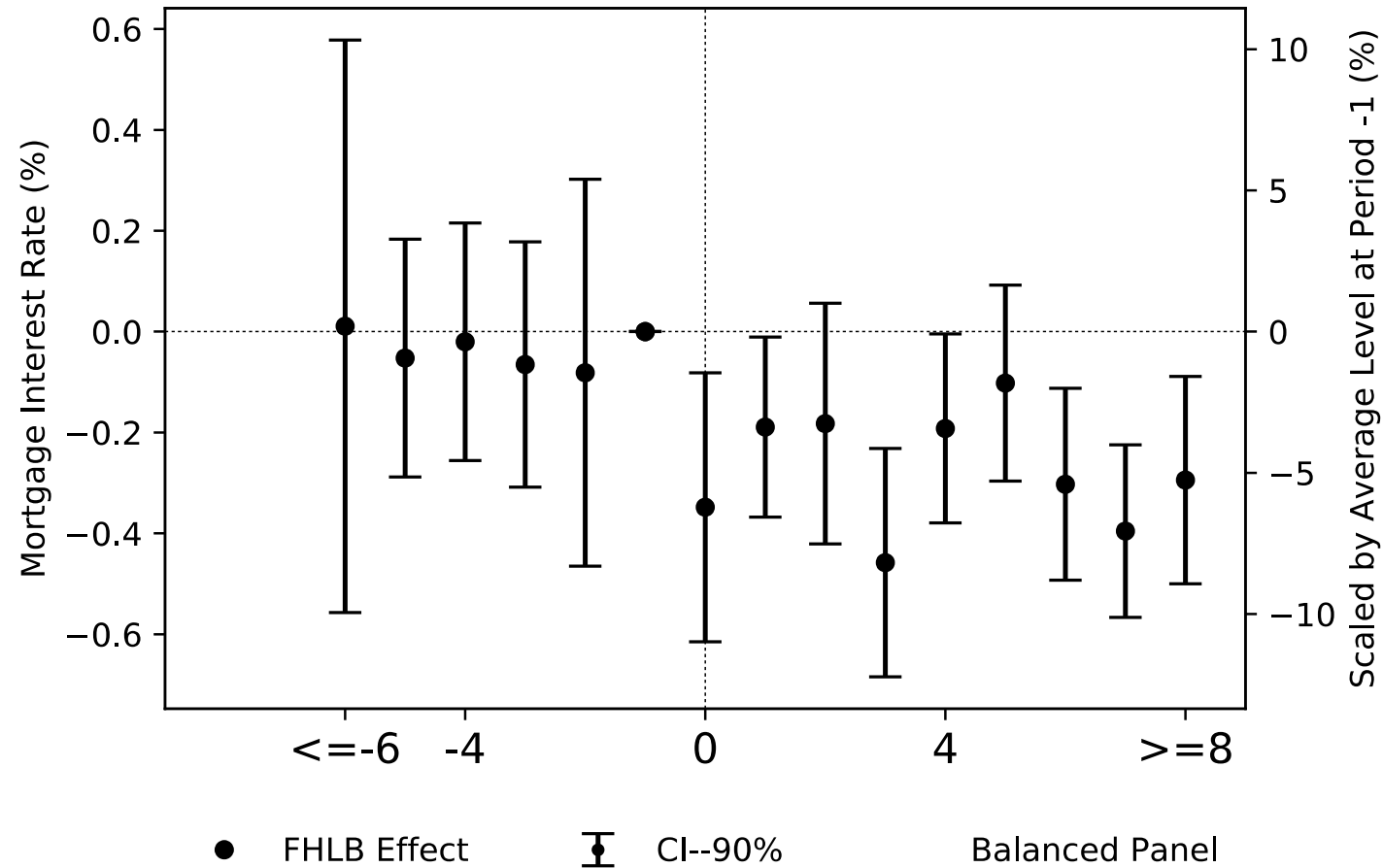
Multiple-Target Merger Example

Fig 1: Illinois National Bank M&A in Sangamon County (2003)



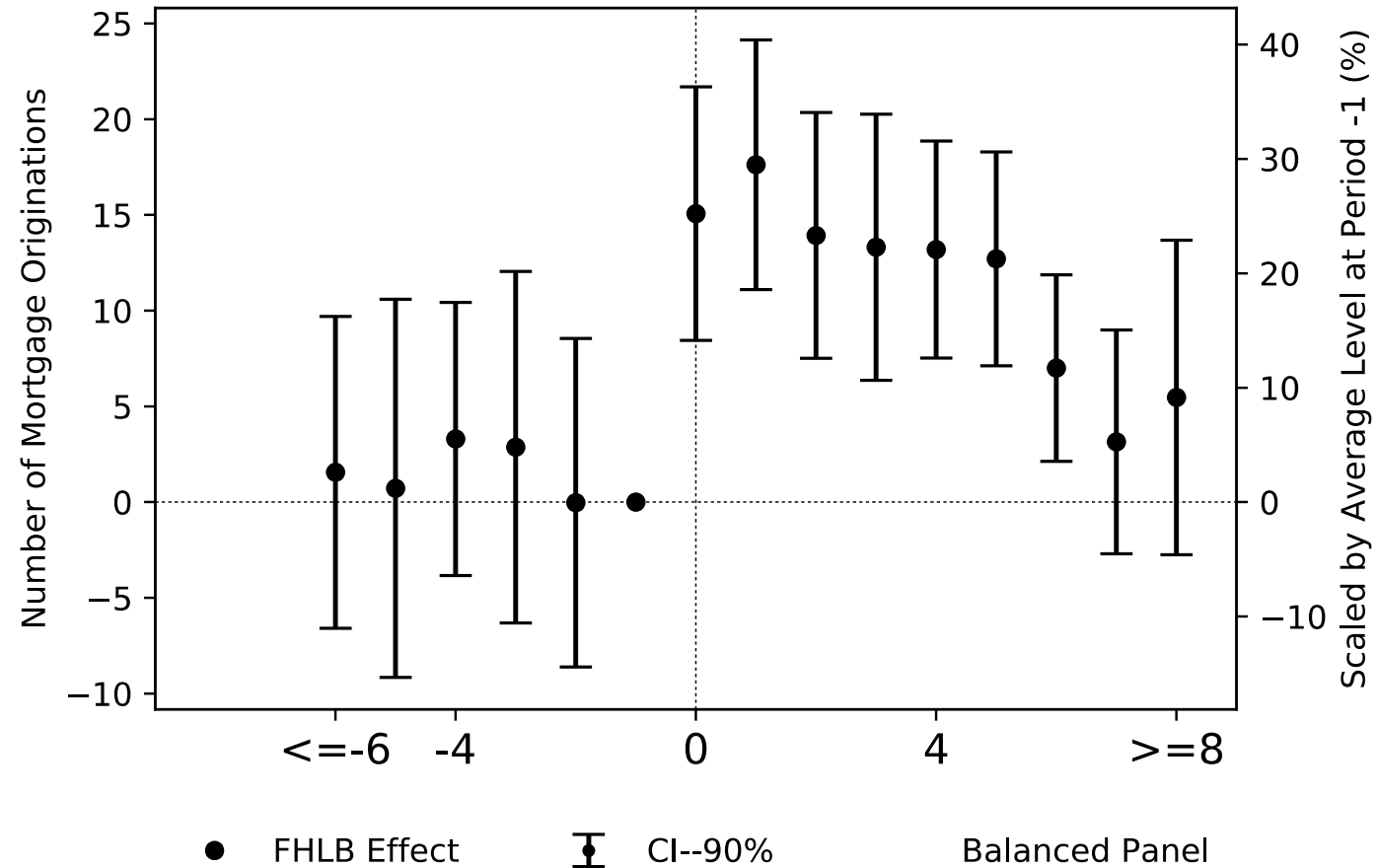


Bank Effect #1: FHLB Funding Reduces Mortgage Rate by 18 bps



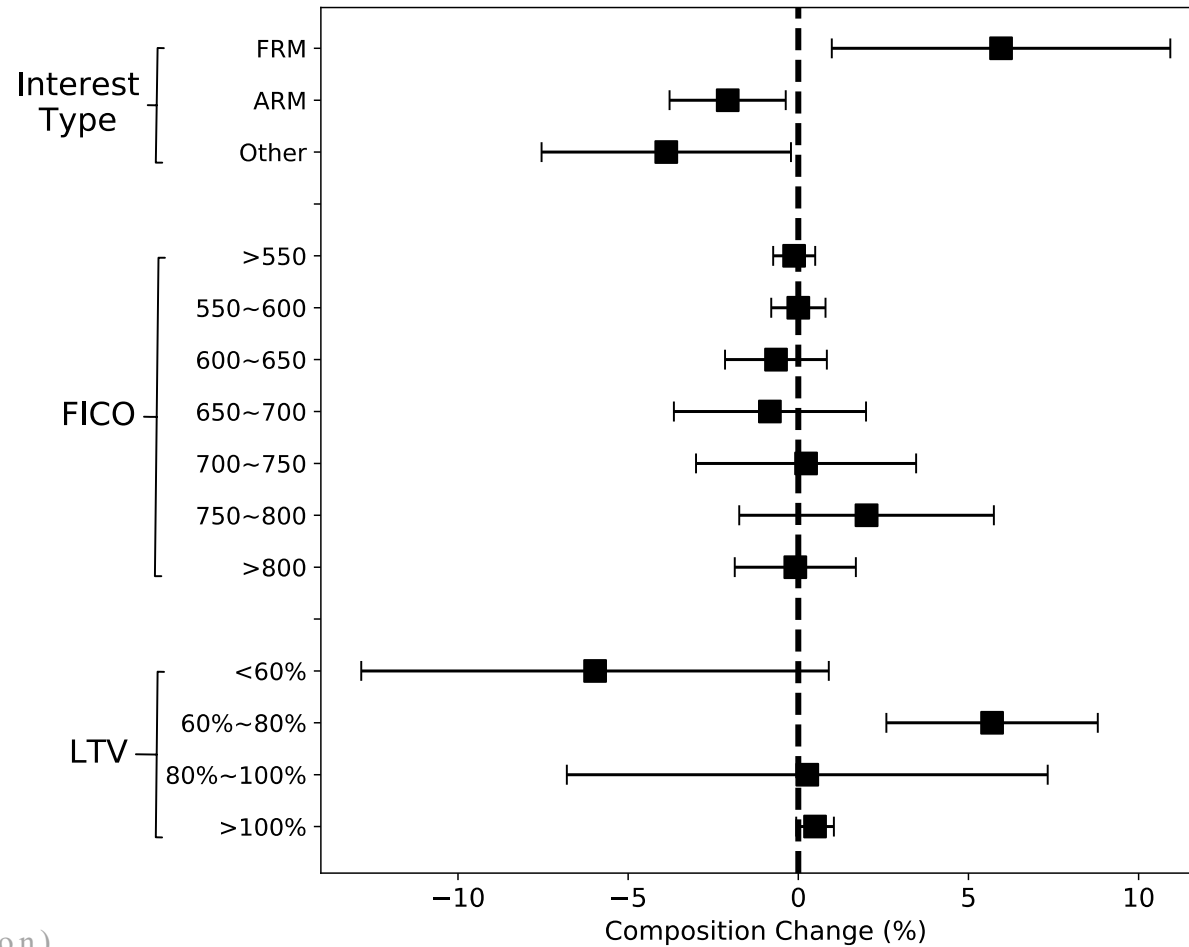


Bank Effect #2: FHLB Funding Increases Mortgage Lending by 16.3%





Bank Effect #3: FHLB Banks Shift to Fixed Rate Mortgages





Bank Effect #4: Smaller Banks React More Strongly to FHLB Access

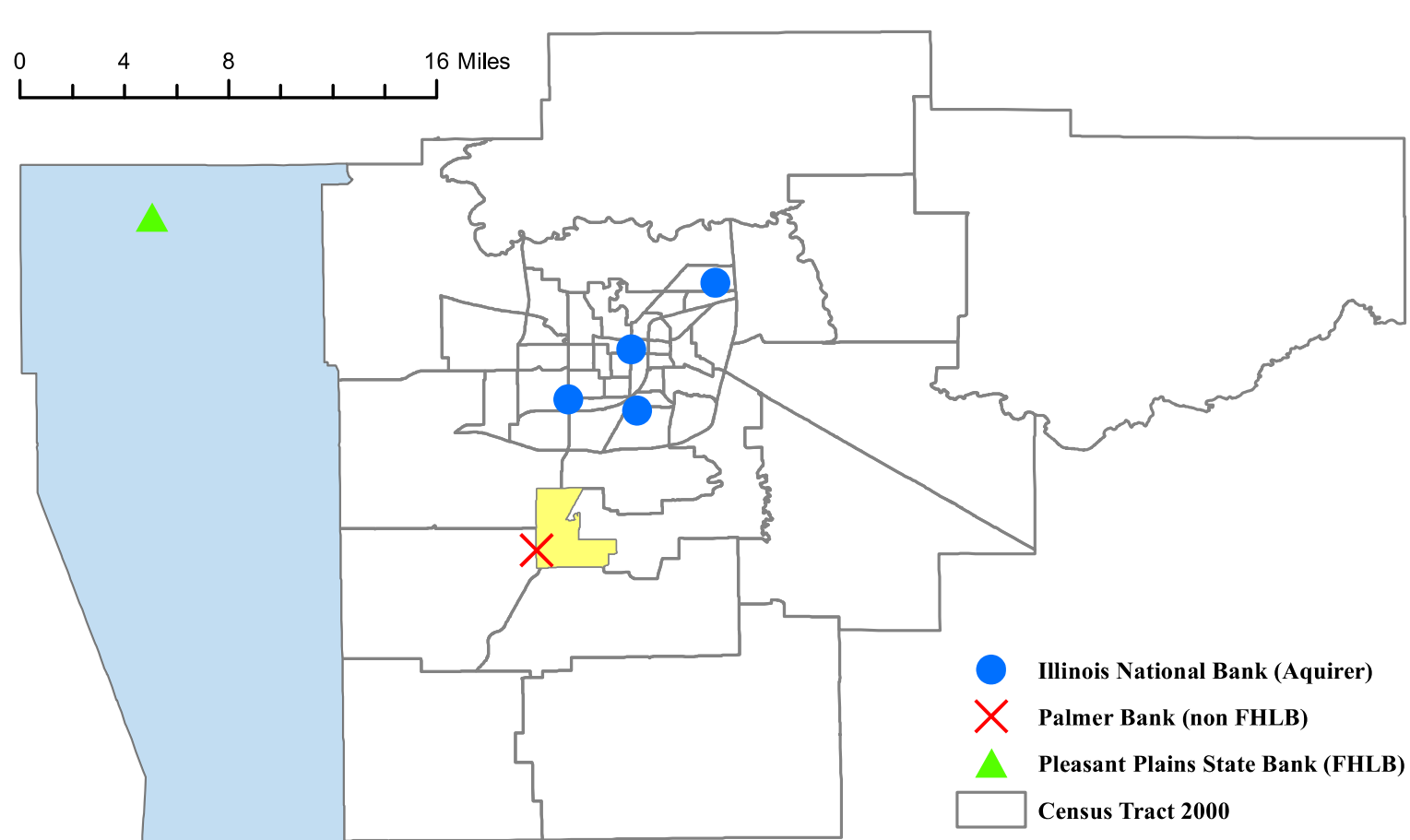
Table 3: FHLB Effect on Banks of Different Sizes

	Mortgage Lending		Mortgage Interest Rate (%)	
FHLB	9.76***		-0.181**	
	(2.84)		(0.076)	
<i>relative to baseline</i>	16.3%		-3.2%	
FHLB×Regional		9.20**		-0.164**
		(3.72)		(0.079)
<i>relative to baseline</i>		15.2%		-2.7%
FHLB×Community		11.78***		-0.292***
		(4.23)		(0.095)
<i>relative to baseline</i>		20.7%		-4.3%
Event-Year FE	✓	✓	✓	✓
Event-Branch FE	✓	✓	✓	✓
County-Year FE	✓	✓	✓	✓
Obs.	62,260	62,260	56,099	56,099



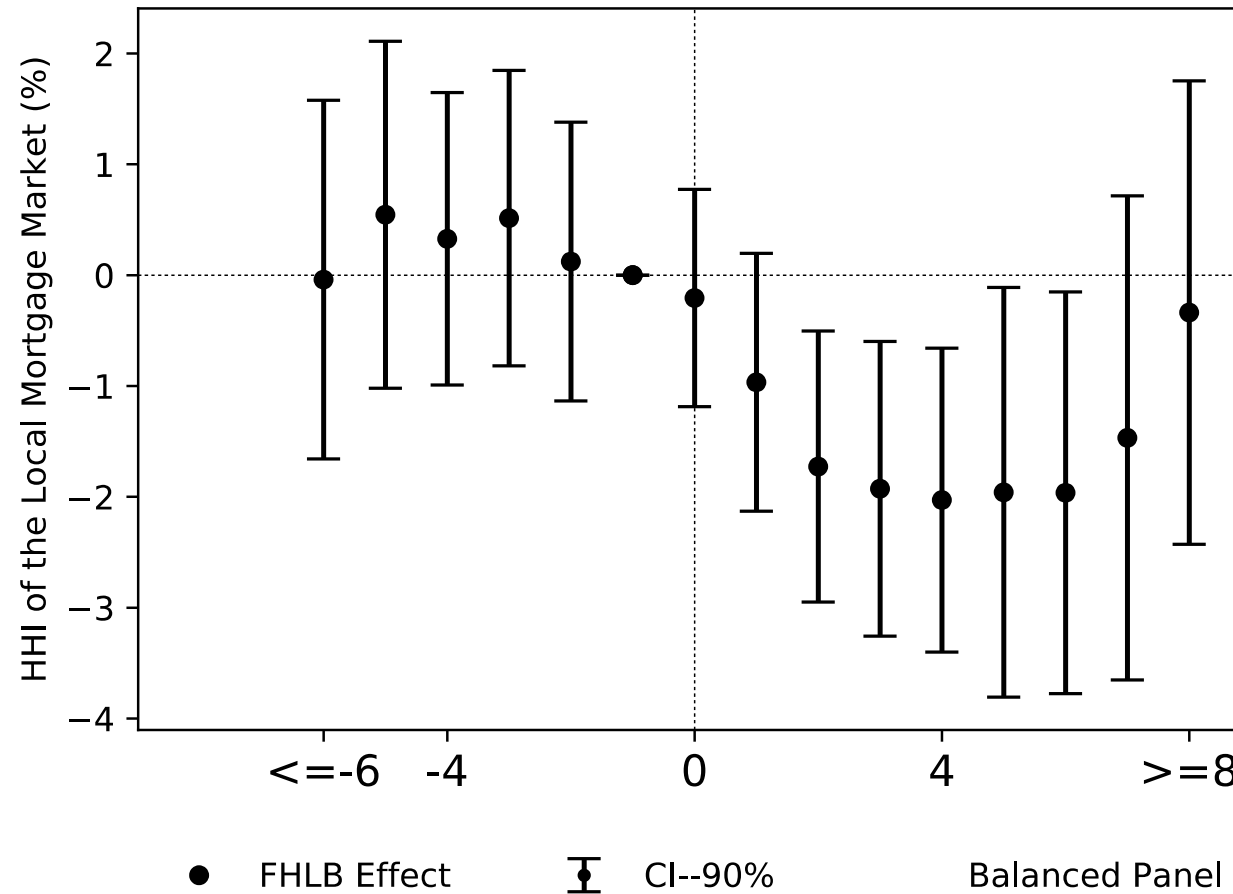


Spillover Effect to Local Market (Census Tract)





Spillover #1-1: Market Competition Improves (HHI decreases by 1.5 ppts)





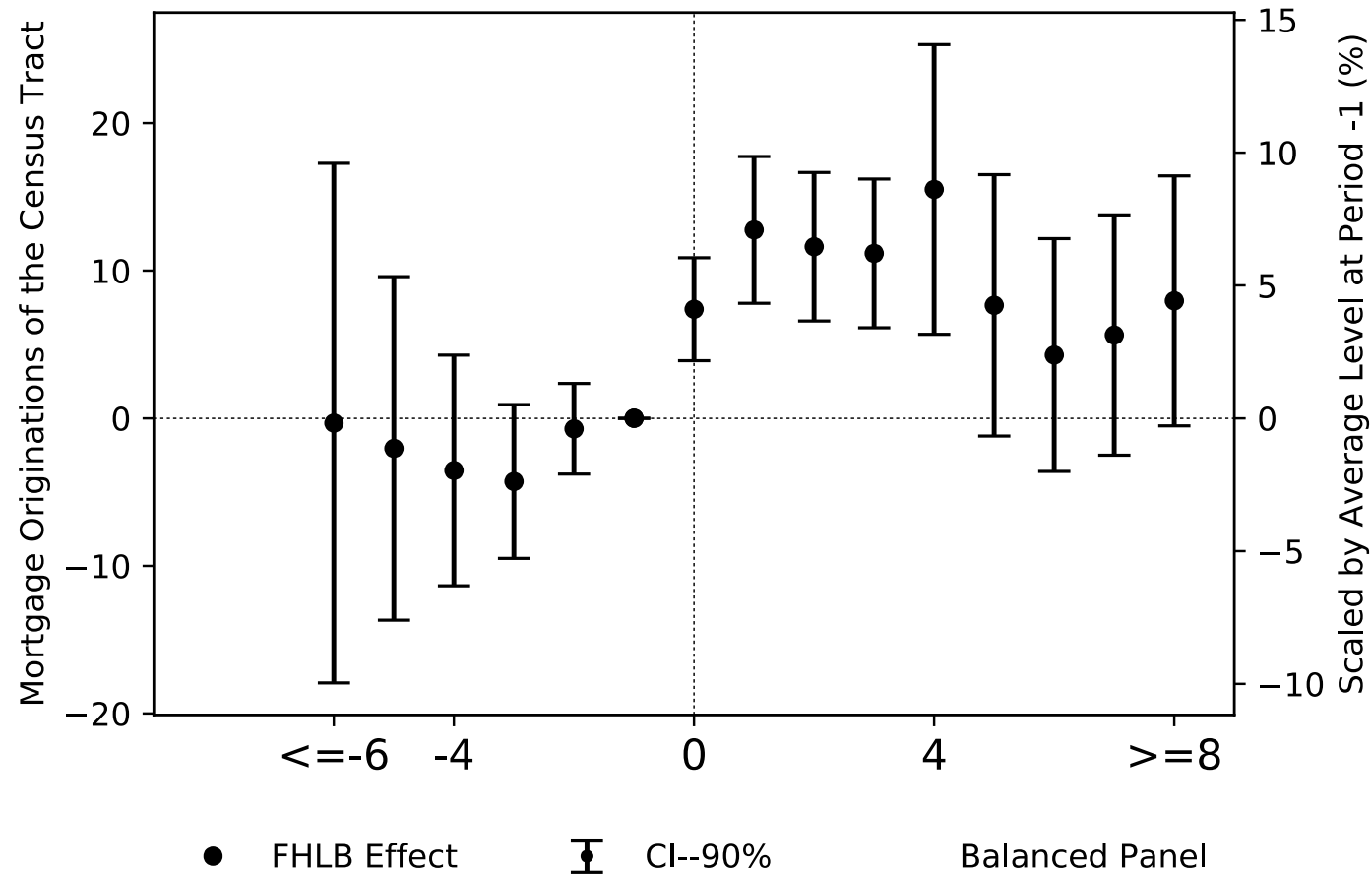
Spillover #1-2: Interest Rates Fall (by 8 bps) with More Competition

Table 4: FHLB Effect on Market Interest Rates

Dependent Variable	Local Market	Treated Bank	Other Lenders	Other Lenders (National Banks)	Other Lenders (Small and Non-Banks)
	(1)	(2)	(3)	(4)	(5)
<i>FHLB</i>	-0.083** (0.037)	-0.181** (0.076)	-0.074* (0.042)	-0.031 (0.052)	-0.093* (0.049)
Event-Year FE	✓	✓	✓	✓	✓
Event-Branch FE	✓	✓	✓	✓	✓
County-Year FE	✓	✓	✓	✓	✓
Cluster	Event	Event	Event	Event	Event
Obs.	152,658	56,099	96,329	29,830	66,499

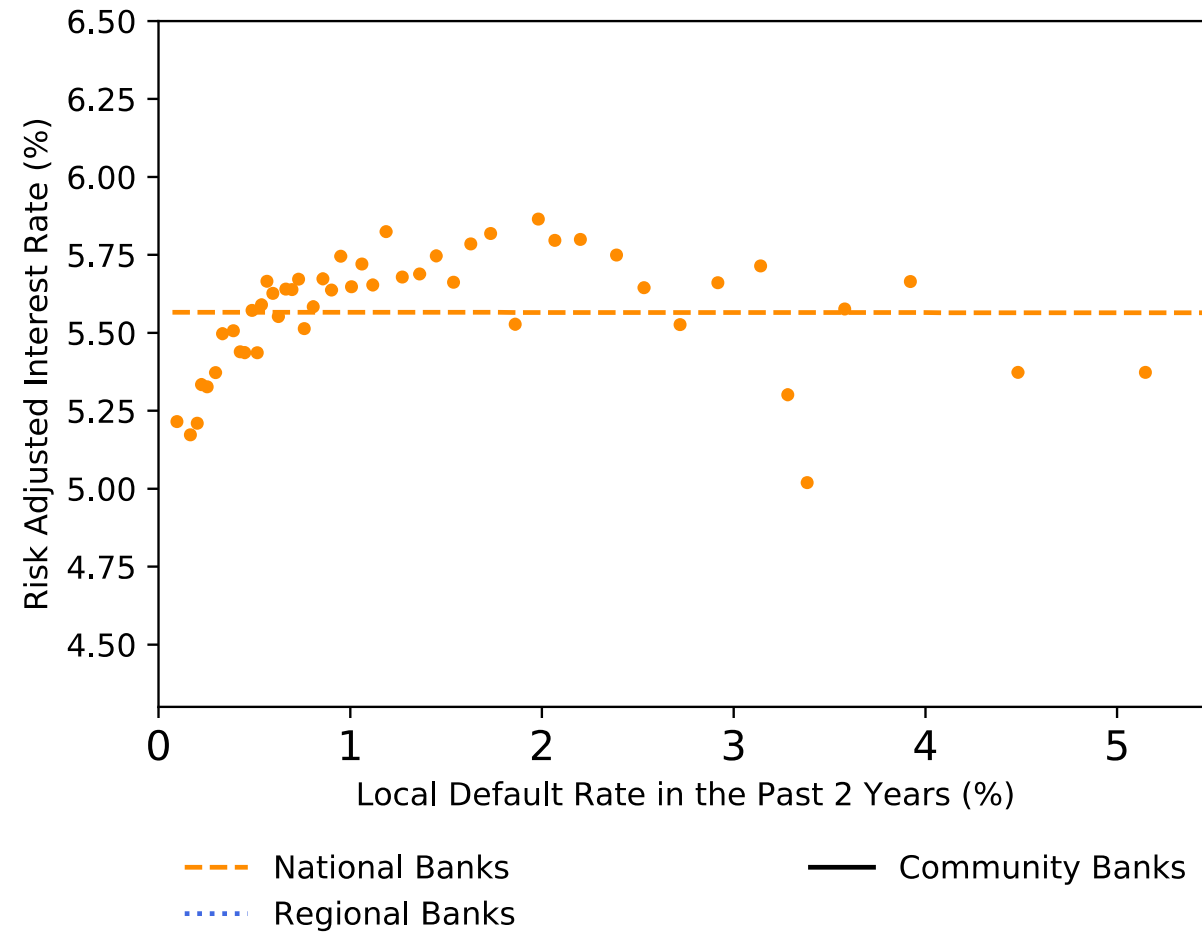


Spillover #1-3: Market Mortgage Lending Increases (by 5%)



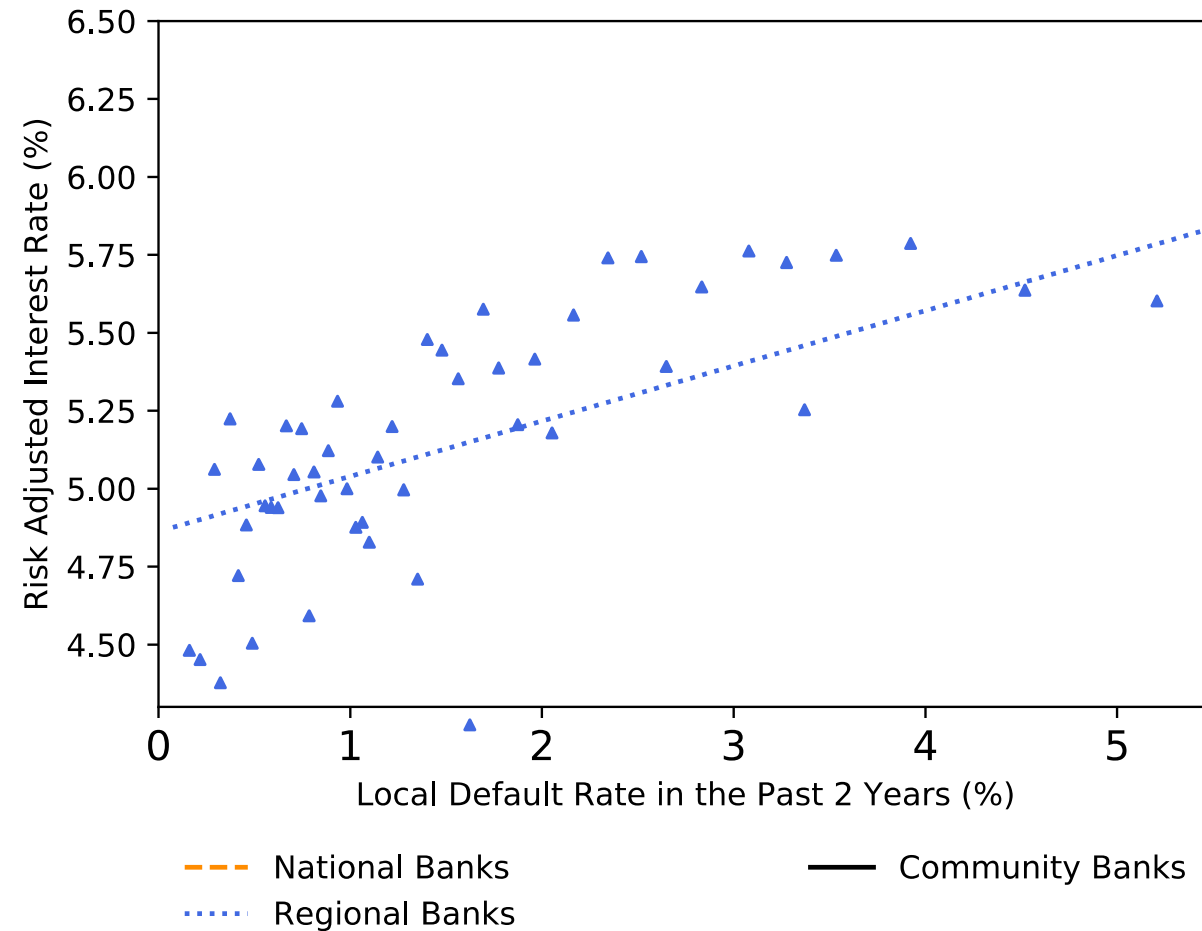


Spillover #2-1: Community Banks More Responsive to Local Shocks



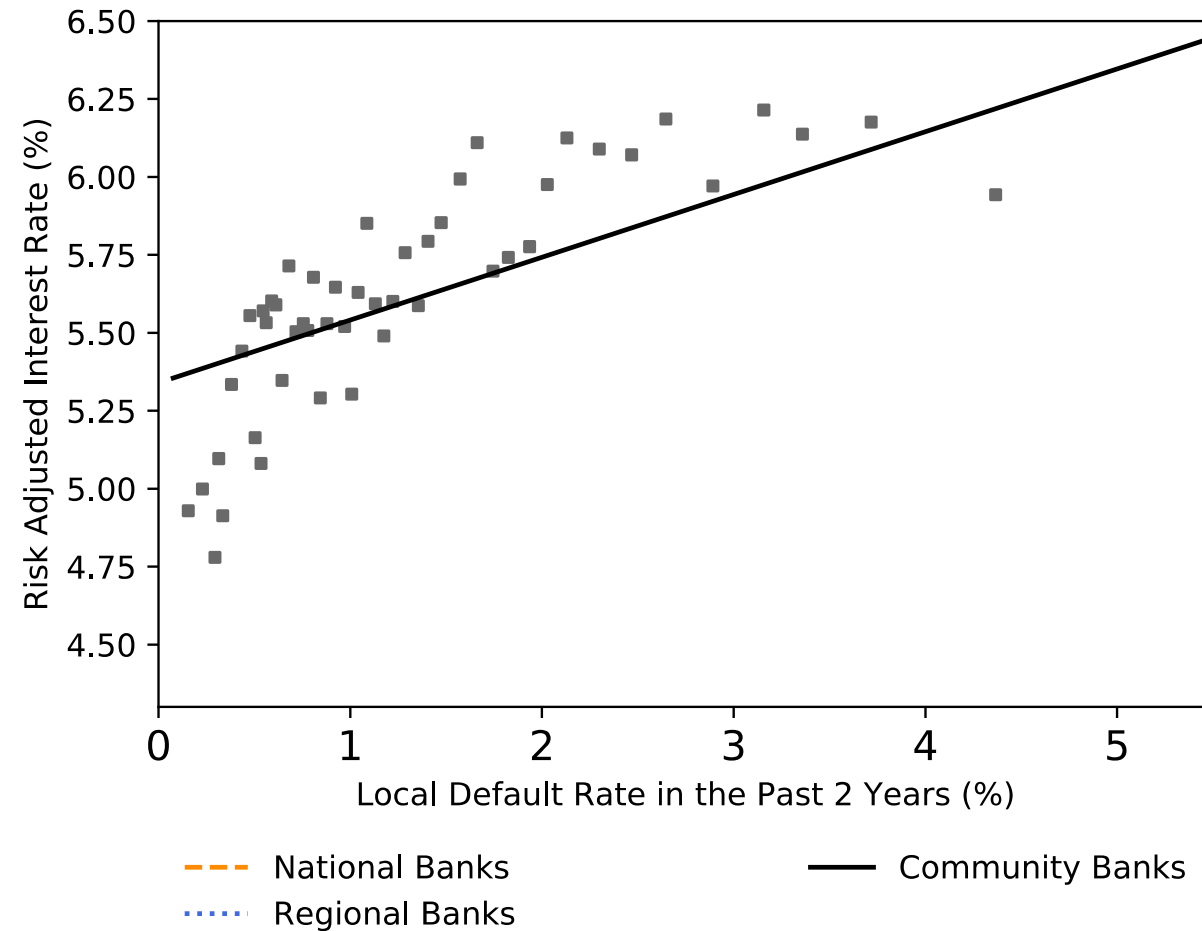


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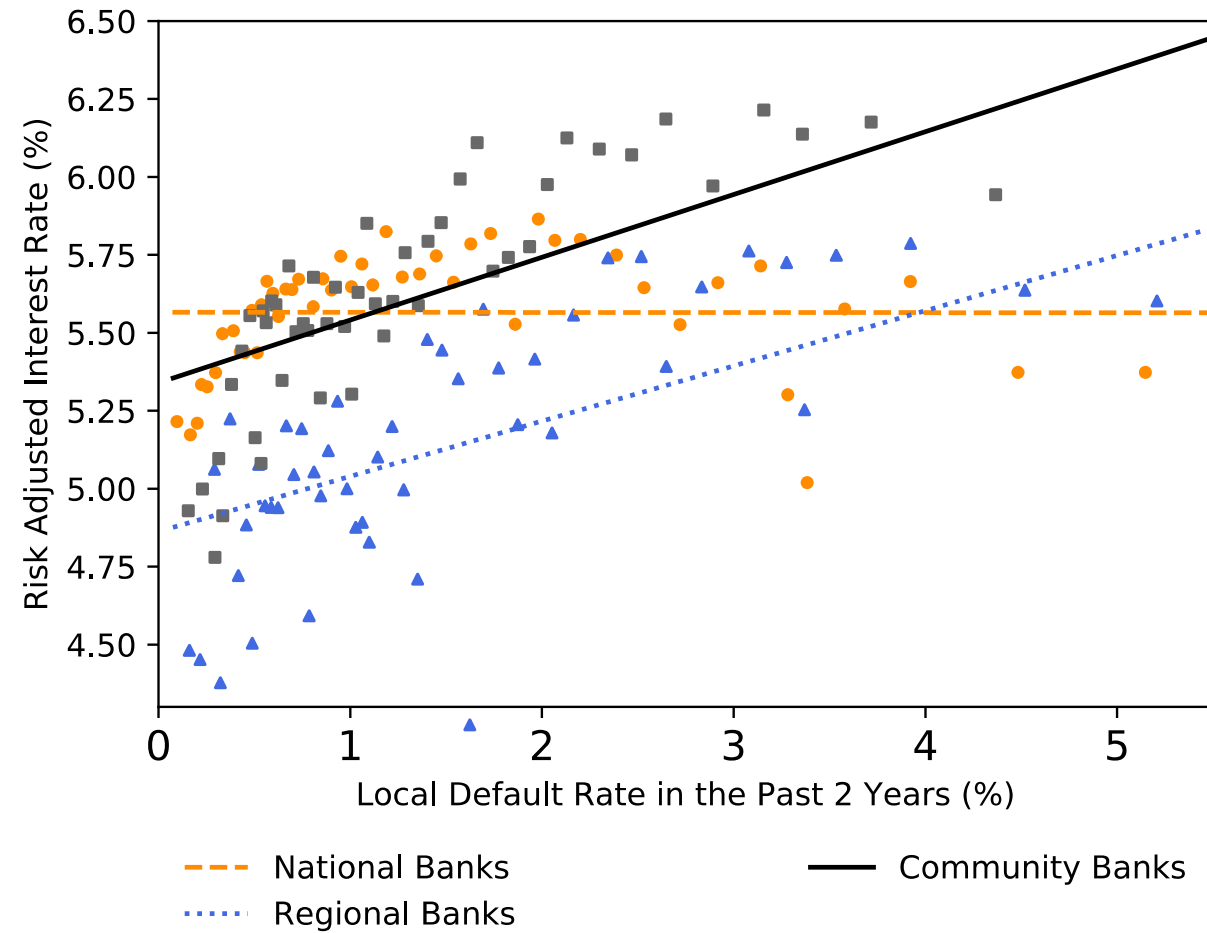


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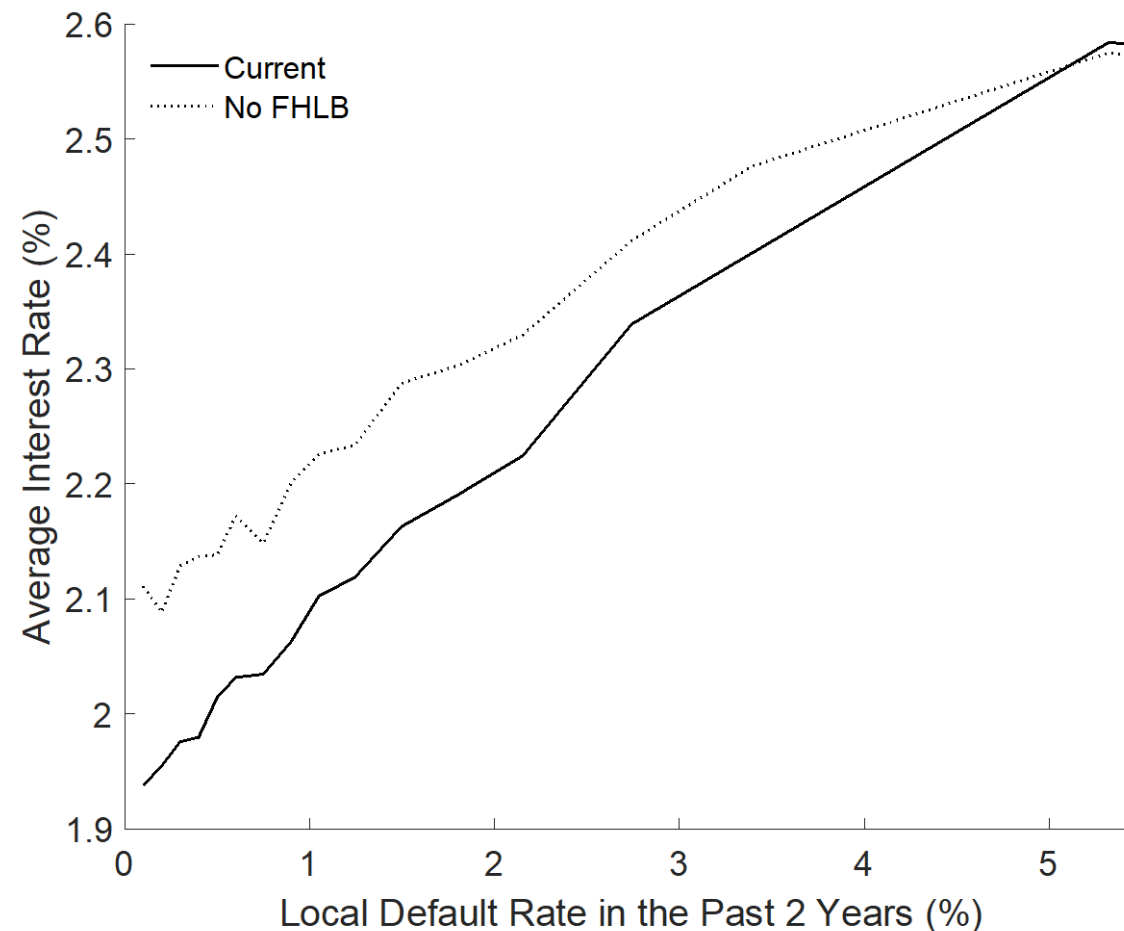




Spillover #2-2: FHLB Improves Mortgage Pricing Efficiency

➤ Structural Model Implies:

- With FHLB, nation-wide mortgage rates are more responsive to local economic conditions.
- Aggregate default drops by 1bp.





Takeaways

Government-sponsored wholesale funding facility (FHLB)

- passes cheaper funding to the borrowers (↓ 8 bps);
- increases market competition, thus improves the cost reduction pass-through (↓3 bps, ↑\$50 Billion).





Thank You!

