title

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Freddie Mac Presentation

Motivation with listings

something on the left

- listing by order
  - different starts

- in the second page

something on the right

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something on the left

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something on the right

Roadmap

figure and subfigure

This frame shows how array figures.

add tables

	Bank			Credit union		
	Proportion	S.D.	N	Proportion	S.D.	N
Panel A: Loan portfolio						
commercial	0.274	0.150	62669	0.040	0.069	29066
real estate	0.330	0.214	62669	0.481	0.193	29066
consumer	0.051	0.078	62669	0.460	0.186	29066
agricultural	0.069	0.126	62669	0.002	0.023	29066
Panel B: Mortgage Purpose						
purchase	0.443	0.206	62513	0.213	0.194	28923
home improvement	0.098	0.131	62513	0.246	0.265	28923
refinance	0.414	0.201	62513	0.522	0.252	28923

Roadmap

Introduction	Background	**Model**	Data	Empirical Strategy & Results	Conclusions & next steps
o	oo			ooo	

Conceptual Framework, with beautiful underbrace

A financial institution optimizes:

$$\max_{L^H, L^N} \ \lambda \underbrace{B(L^H, L^N, s)}_{\text{consumer utility}} + (1 - \lambda) \underbrace{\pi(L^H, L^N, s)}_{\text{profit}}$$

$$\text{subject to} \quad \underbrace{L = D + E}_{\text{balance sheet constraint}} \quad , \quad \underbrace{L = L^H + L^N}_{\text{Loans of high and low risk}}$$

▶ $s \in [0, 1]$: state of economy. $s = 0$: economy recession

▶ $B(L^H, L^N, s) = \underbrace{U(L)}_{\text{loan availability}} - \underbrace{P(L^H, s)V(L^H, s)}_{\text{disutility when default}}$

▶ $\pi(L^H, L^N) = \underbrace{[1 - P(L^H, s)]R^H(s)L^H + R^N L^N}_{\text{loan revenue}} - \underbrace{R^D D - \Phi(L)}_{\text{deposit and issuance cost}}$

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Roadmap

Data

Roadmap

Regressions on subprime lending

The baseline specification:

$$Y_{i,t} = \underbrace{\beta_1[Bank_i \times \mathbb{1}\{t \leq 2009\}]}_{\text{Null hypothesis: } \beta_1 = 0} + \beta_2 bank_i + X'_{i,2004}\gamma + \delta_t + \theta_s + \epsilon_{i,t}$$

► $Y_{i,t}$: share of mortgages that are subprime.
  - All mortgage originations.
  - "Homogeneous" mortgage originations: conventional, conforming, 1-4 families, first lien, owner-occupied.

► $Bank_i$: bank dummy; $\mathbb{1}\{t \leq 2009\}$: dummy of credit expansion period.

► $X'_{i,2004}$: Covariates in year 2004 (robust to 1-year lags).

► δ_t and θ_s: year and state fixed effects.

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tables with columns showing up sequentially

	Subprime Share (%)		Subprime Share (%)	
	All	Homogeneous	All	Homogeneous
bank $\times$ $\mathbb{1}\{Year <= 2009\}$	7.216***	5.456***	7.837***	5.064***
	(0.439)	(0.593)	(0.441)	(0.579)
bank	7.756***	8.727***		
	(0.998)	(1.247)		
Institution Characteristics	$\times$	$\times$		
Borrower Characteristics	$\times$	$\times$	$\times$	$\times$
State Controls	$\times$	$\times$	$\times$	$\times$
State FE	$\times$	$\times$		
Institutional FE			$\times$	$\times$
Year FE	$\times$	$\times$	$\times$	$\times$
N	71228	63821	70962	63475
R^2	0.241	0.306	0.588	0.617
Outcome mean	12.912	18.124	12.916	18.127

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Robustness checks: using hyperlinks

Results are robust to alternative methods, samples, and dependent variables.

► Matched sample (by propensity score) (▸ Results using matched sample)

Roadmap

Conclusions

Thank You!

Comments and suggestions
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