

Can Technology Undermine Macroprudential Regulation?

Evidence from Peer-to-Peer Credit in China

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This paper...

A study on P2P lending...

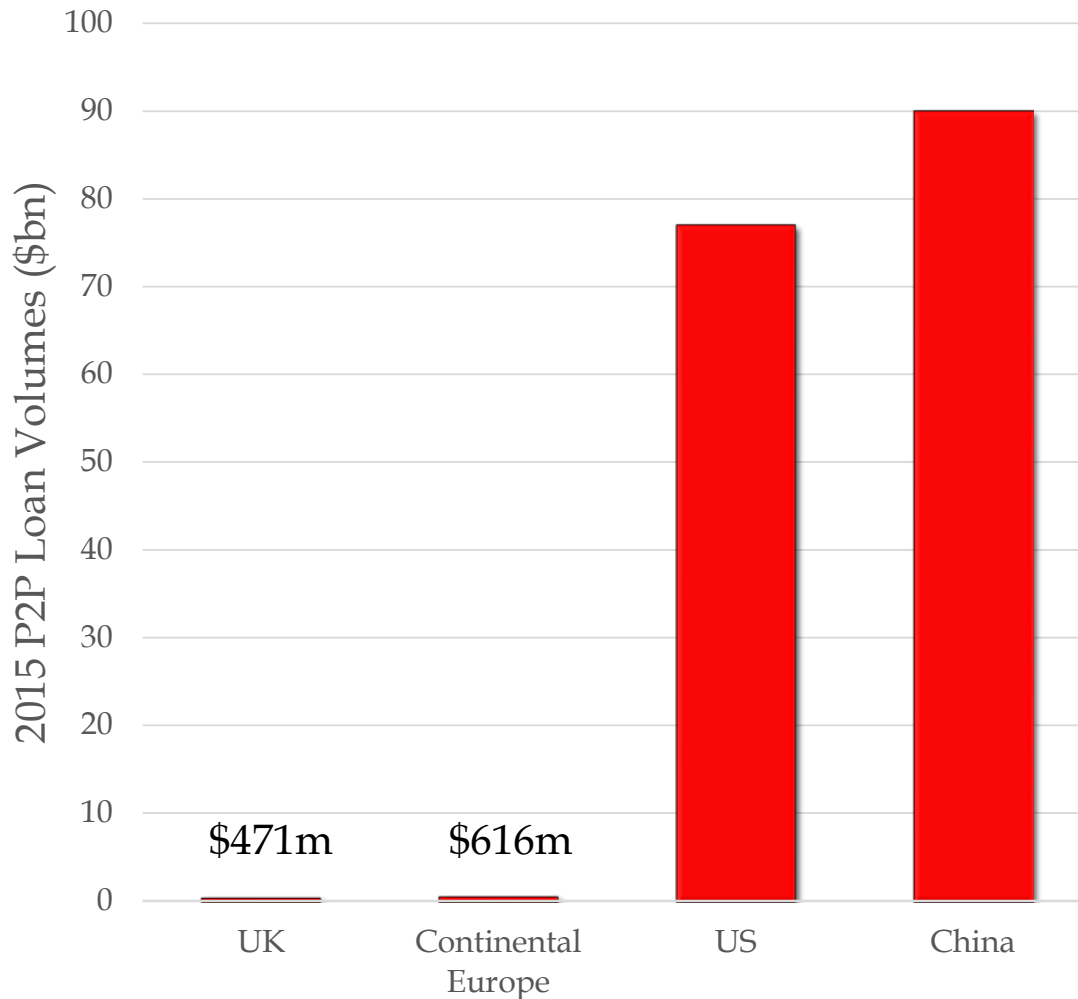
...its relationships with households leverage
... and regulation

- How far can it fuel households leverage?
- How much can it interfere with regulatory actions in the credit market?

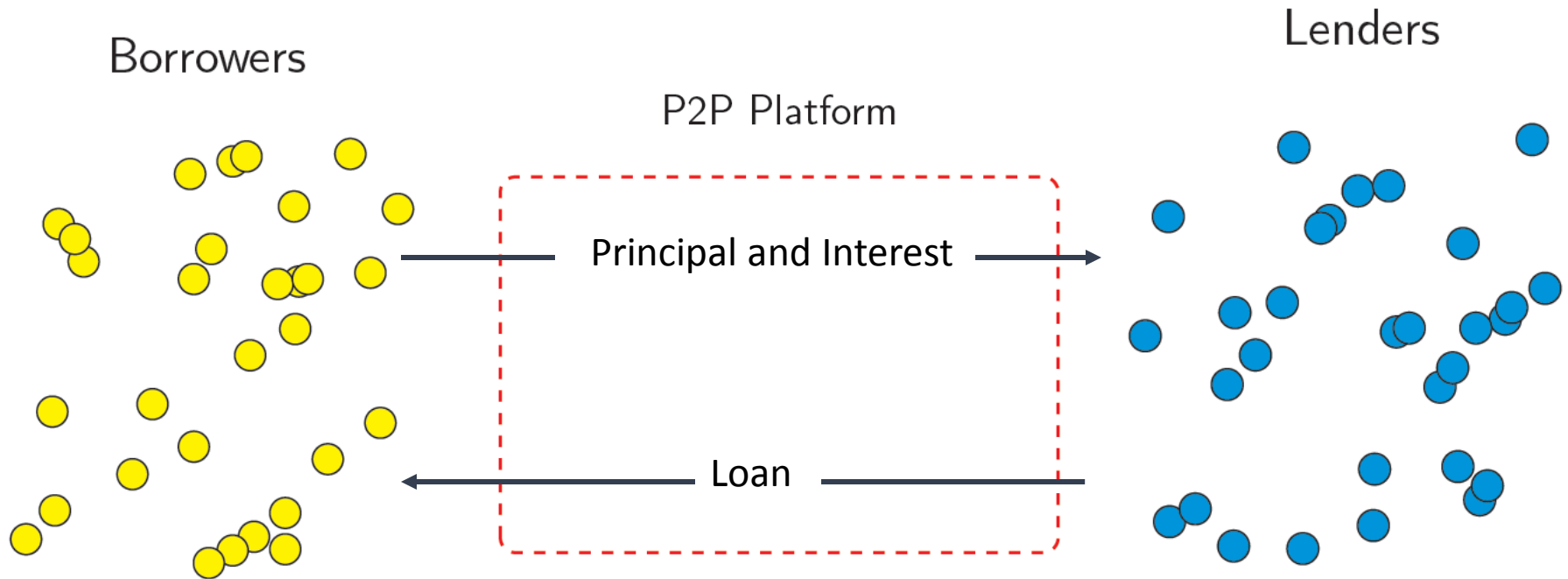
Motivations

- High Levels of Household Leverage predict falls in Consumption and GDP
- Credit supply restrictions have been at the core of policy efforts intended to limit household leverage
 - **Loan to Value Ratios**
- We see how credit supply restrictions interact with new lending technologies

Motivations



- P2P lending is a recent innovation in the financial industry
- Increasingly Rivaling Traditional Consumer Credit



Pros:

- ✓ Increase competition
- Relax Credit Constraints

Cons:

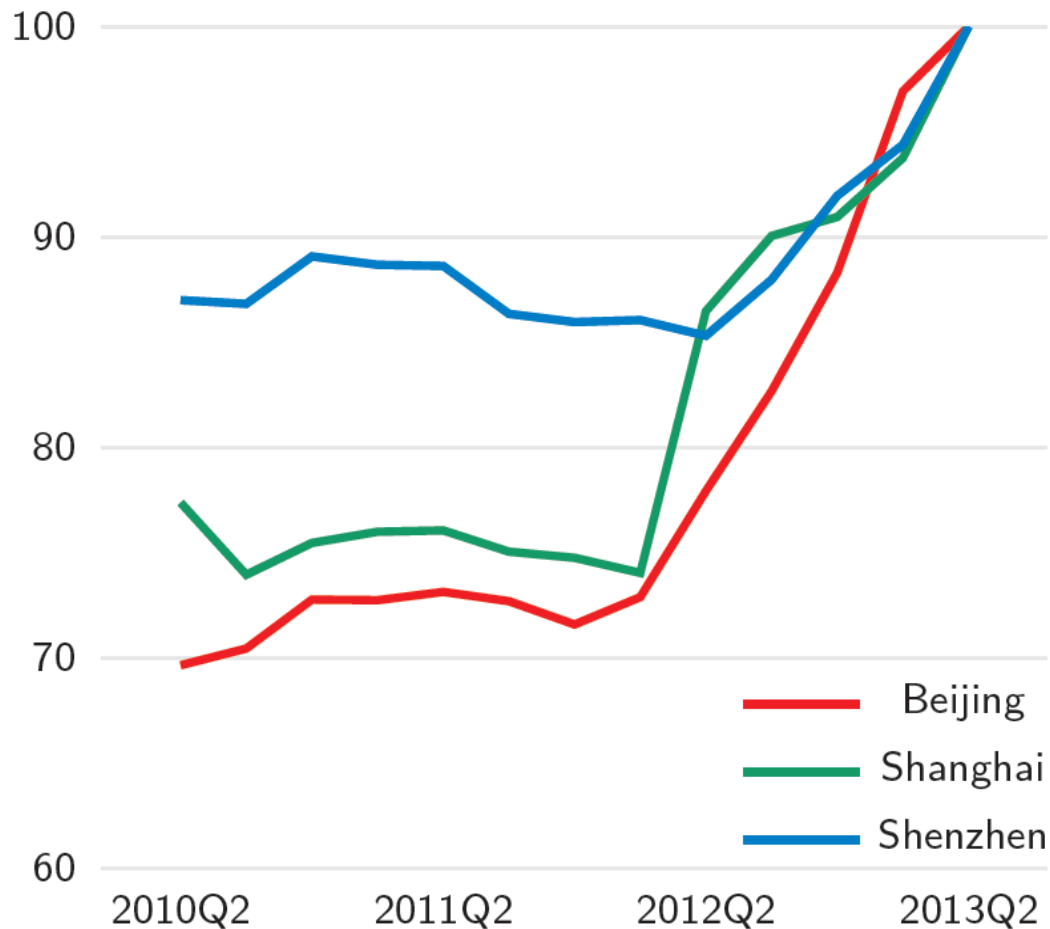
- ✗ Poorer Screening and Monitoring
- ✗ Vehicle for Regulatory Elusion

Preview of the Findings

- Use shock to P2P lending demand driven by regulation in the real estate market
- We find that:
 - P2P channel can generate large credit volumes. . .
 - and interfere with regulatory action in credit markets

Experiment: Credit Demand Shock

House price indexes (2013Q4 = 100)



- **November 2013:**

16.7% rise (from 60 to 70%)
in mortgage down-payment
requirements for second
homes:

- Beijing, Changsha, Guangzhou, Hangzhou, Nanjing, Nanchang, Shanghai, Shenyang, Shenzhen, Wuhan

Experiment: Credit Demand Shock



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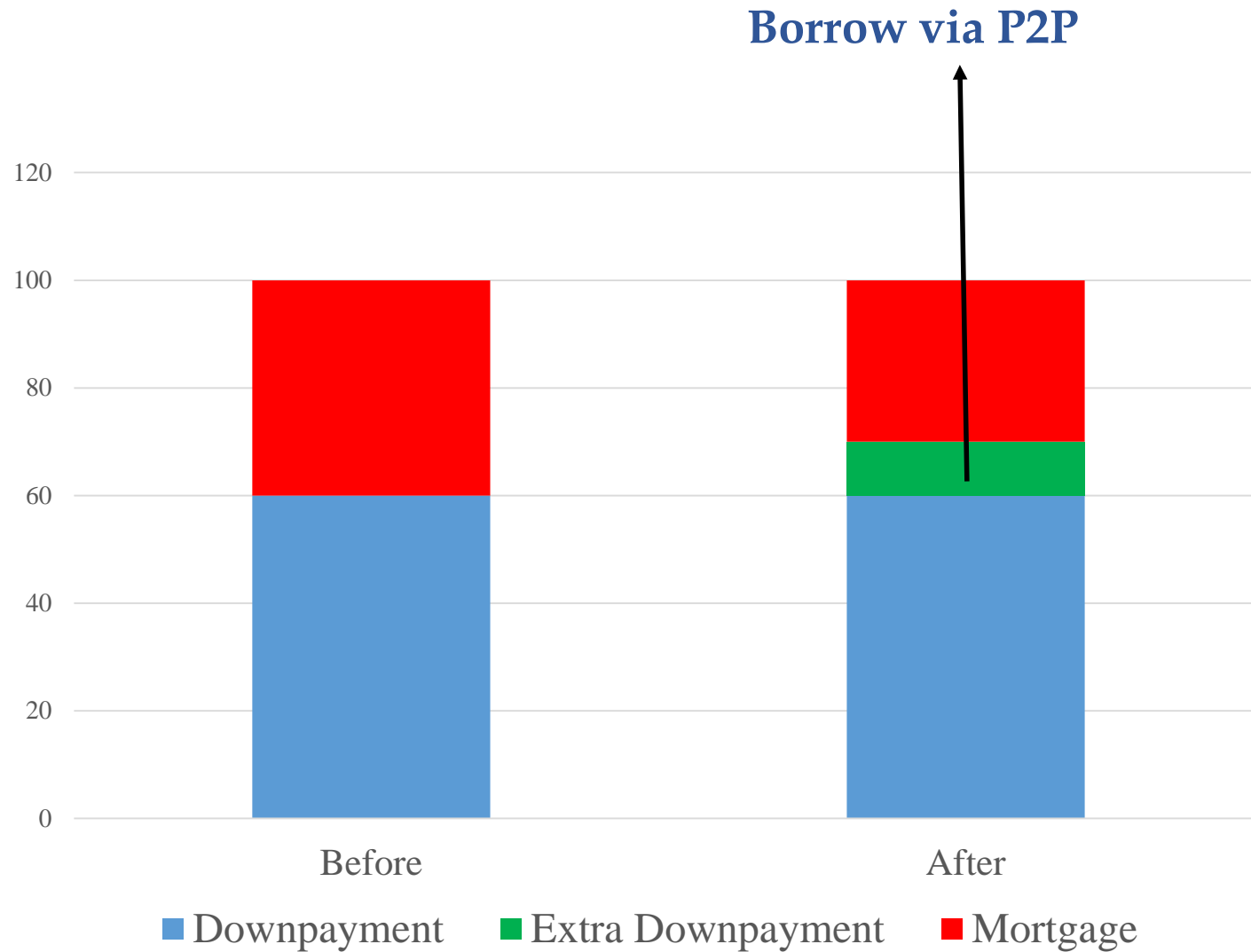
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Borrow via P2P to elude regulation

Go to P2P to obtain the required down-payment

Experiment: Credit Demand Shock



Experiment



- **Sept 2015-Feb 2016:**

32.4% drop (from 30 to 20%)
in mortgage down-payment
requirements for first homes

All Chinese cities except:
Beijing, Guanzhou, Sanya,
Shanghai, Shenzhen

Reduce P2P borrowing

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China steps up battle against runaway property prices

Banks ordered to clamp down on use of credit for mortgage downpayments

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apartment buildings in Shenzhen, which is among the jurisdictions that have launched a clampdown © Bloomberg

OCTOBER 1, 2017 by Xinning Liu in Beijing and Gabriel Wildau in Shanghai

Chinese banking regulators have told lenders to crack down on the use of consumer loans to finance home purchases, the latest effort to cool down the overheated property market and rein in financial risk.

散标列表

理财计算器

温馨提示：近期工作日固定发标时间在11:00、13:30、17:00，其余时间与周末随机发标。

380.48亿元

累计成交总金额

526,461笔

累计成交总笔数

372,965.12万元

累计为用户赚取

年利率	借款标题	期限	金额	进度	重置
10.20%	资金周转	36个月	122,500元	100%	还款中
9.60%	增购新车	36个月	106,200元	100%	还款中
10.20%	日常生活消费	36个月	132,500元	100%	还款中
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9.60%	资金周转	36个月	91,000元	100%	还款中
10.20%	资金周转	36个月	72,100元	100%	还款中
10.20%	资金周转	36个月	132,500元	100%	还款中

- Leading Platform with over 3 million accounts
- Founded in 2011
- In 2013, Cumulative Turnover since launch: \$3.7bn
- Ranking in top percentile of Chinese P2P lenders

We observe ALL lenders and borrowers transactions:

- 24,000,000 transactions
- involving about 700,000 borrowers

How do transactions take place?

- Borrower fills out an application
- Borrower receives a credit score based on the information provided
- Borrower decides the amount, interest rate and maturity of the loan
- Lender observes the borrower's offer and decides whether to bid
- Loans are “guaranteed” by the platform

	Mean	St. dev.	Min	Median	Max	N
<i>A. Loan characteristics</i>						
Loan amount (RMB)	59,674	53,816	3,000	52,900	3,000,000	107,502
Interest rate (%)	12.49	1.01	7.00	12.60	24.40	107,502
Interest rate spread (%)	7.78	1.07	2.89	7.84	19.81	107,502
Duration (months)	27.06	9.78	1	24	36	107,502
On-site verification (Y/N)	0.77	0.42	0	1	1	107,457
Borrower credit score	171.82	29.71	0	180	181	107,339
Loan Delinquent (0/1)	0.04	0.21	0	0	1	107,502
Proportion of Months Delinquent (%)	1.96	11.35	0.00	0.00	100	107,502
Default (0/1)	0.02	0.14	0	0	1	78,289
<i>B. Borrower characteristics</i>						
Income (RMB)	11,334	13,254	0	5,000	50,000	107,494
Age	37.74	36.00	8.41	23	56	107,502
College degree (0/1)	0.52	0.50	0	1	1	107,498
Male (0/1)	0.64	0.48	0	1	1	107,502
House owner status (0/1/2)	0.86	0.91	0	1	2	107,502

Loan to Annual Income: 44% - US: 20% (Balyuk, 2016)

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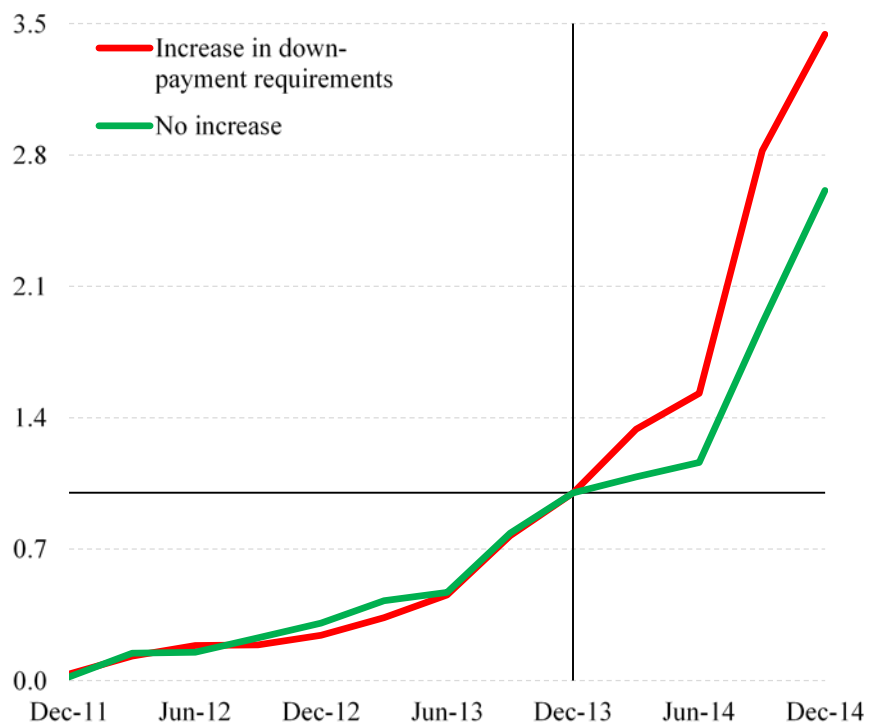
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Default Rate: 2.0% - US: 2.5% (Morse, 2016)

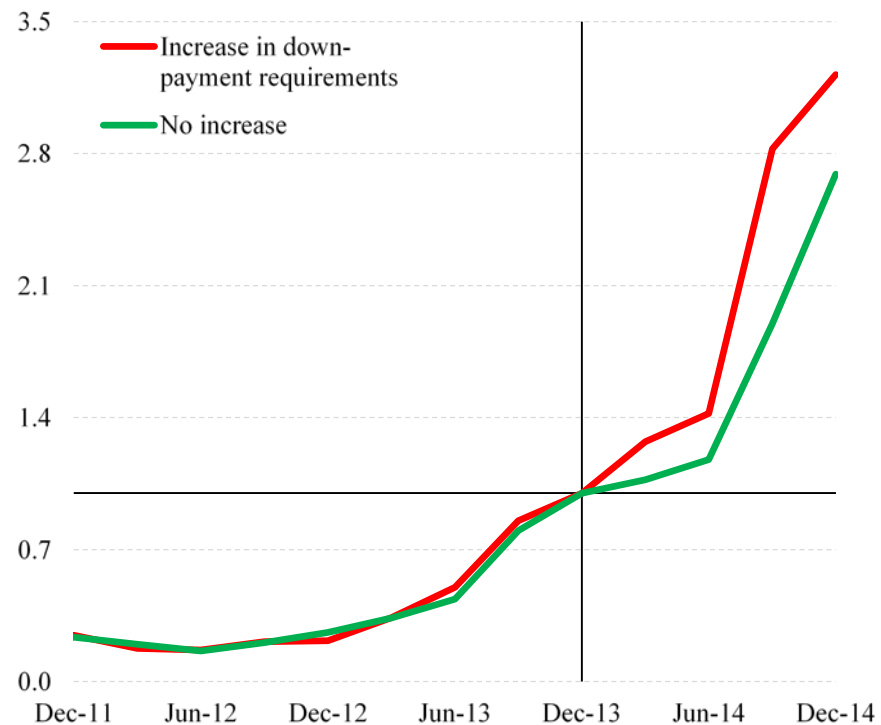
2013 Experiment – Questions:

- Do P2P lenders supply the extra credit?
- Do they adjust loan prices and/or duration?
- Do they increase screening?
- Are new P2P borrowers riskier?

A. RMB volumes



B. Number of loans



Economic Effects

- Increase in P2P borrowing: **30%** annual...
- ...which corresponds to about 10%-35% of the increase in down-payment requirement
 - Stronger Effect for Home Owners
 - Stronger Effect for cities with Higher Expected House Prices
- Likely to be a lower bound if borrowers access more P2P platforms

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Yes

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- Do P2P lenders supply the extra credit?

Yes

- Do they adjust loan prices and/or duration?

No

- Do they increase screening?

- Are new P2P borrowers riskier?

Screening/ Borrower Characteristics

- Credit Rating given by the platform
 - **We observe no changes in Credit Ratings**

- Onsite Verification: The platform directly verifies the information provided by the borrower
 - **We observe little change in the frequency of Onsite Verification**

2013 Experiment – Questions:

- Do P2P lenders supply the extra credit?

Yes

- Do they adjust loan prices and/or duration?

No

- Do they increase screening?

No

- Are new P2P borrowers riskier?

Ex-Post Performance

- Delinquencies
 - **Delayed Repayments increase of about 50%**
- Defaults
 - **Defaults on the platform increase of 40%**
 - **Results driven by new borrowers in cities that changed down-payment requirements**

2013 Experiment – Questions:

- Do P2P lenders supply the extra credit? **Yes**
- Do they adjust loan prices and/or duration? **No**
- Do they increase screening? **No**
- Are new P2P borrowers riskier? **Yes**

2015 Experiment



- Sept 2015-Feb 2016:

32.4% drop (from 30 to 20%)
in mortgage down-payment
requirements for first homes

All Chinese cities except:
Beijing, Guanzhou, Sanya,
Shanghai, Shenzhen

We find:

- A reduction of amount lent via P2P of about 30%
- Loan conditions basically unaltered
- Slight decline in defaults

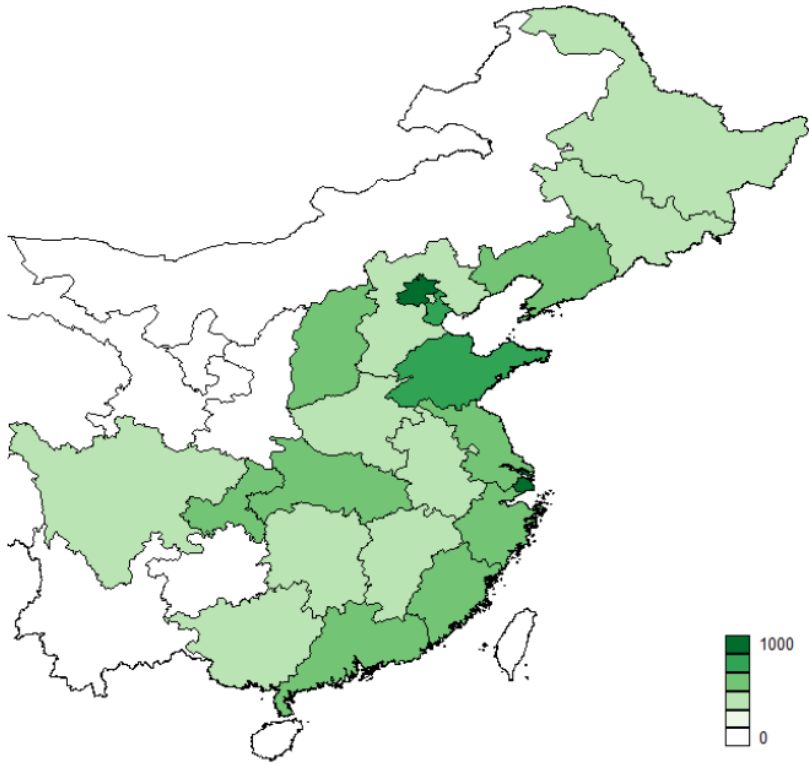
Policy Implications

- Our findings: LTV caps prone to circumvention via P2P

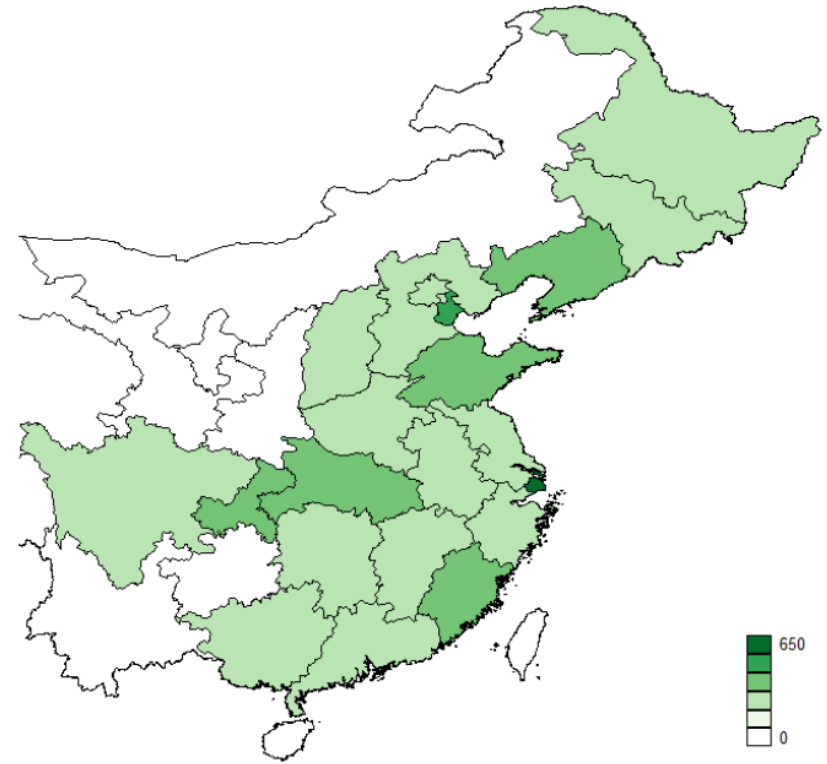
Solution not trivial:

- Broaden scope, e.g. to debt-to-income ratios:
 - Monitor entire debt of the borrower
 - Intrusive policy that prevents consumption smoothing
- Regulate P2P like banks:
 - Erode the flexibility that makes P2P viable

Renrendai Penetration

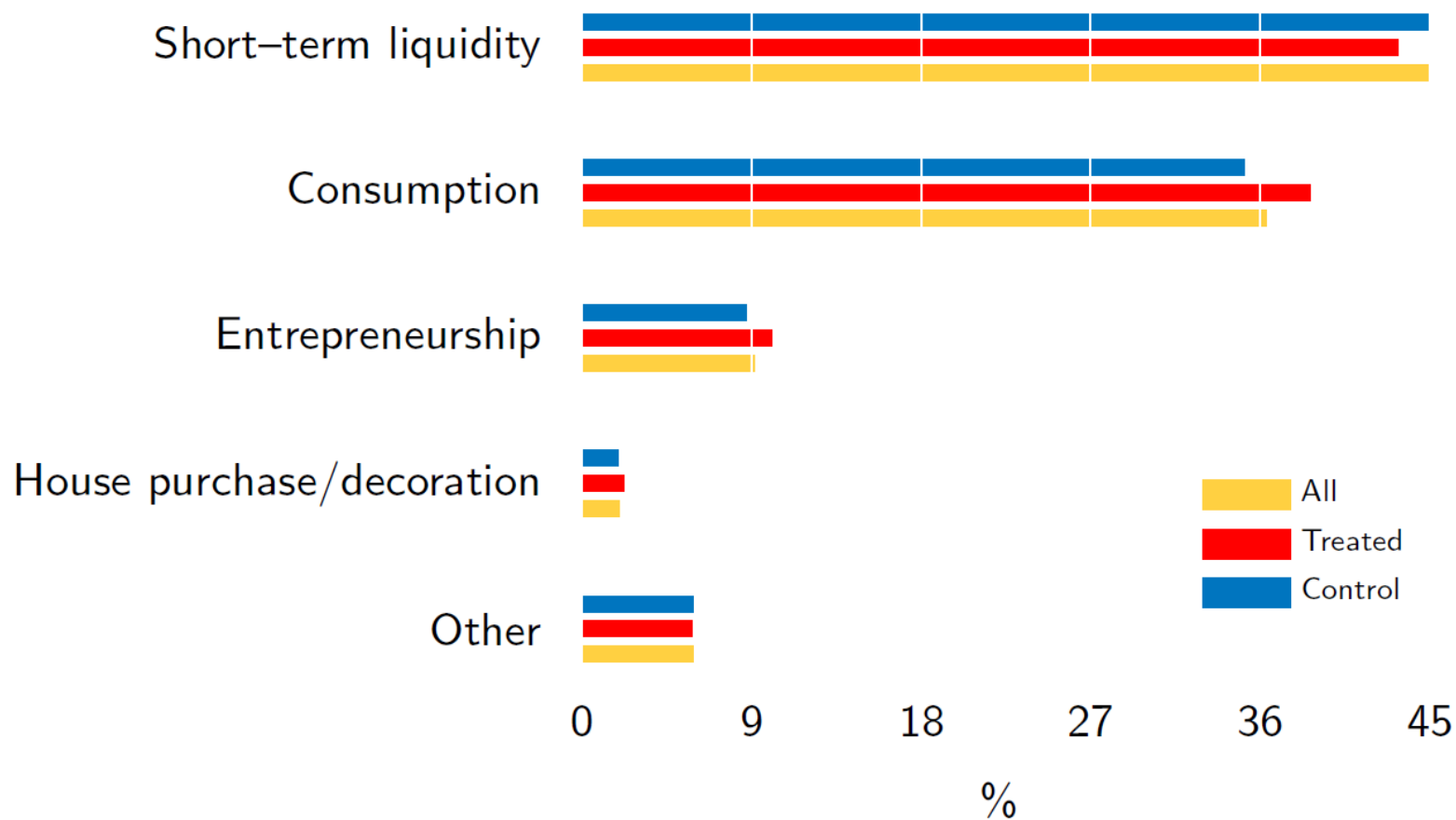


Applications per 100 inhabitants (Rmb)



Loans per 100 inhabitants (Rmb)

Purpose of the Loans



<i>C. Lender characteristics</i>	Mean	St. dev.	Min	Median	Max	N
Portfolio size (RMB)	387,978	485,871	4,689	289,434	4,215,150	107,502
Portfolio size (nr. loans)	234.53	156.08	4.00	199.99	1,975	107,502
Uplan lending (% of RMB)	67.18	31.26	0	86.02	100	107,502
Uplan lending (% of loans made)	71.94	30.49	0	91.20	100	107,502
Portfolio concentration (HHI)	0.007	0.019	0	0.001	1	107,502
Experience (months since first loan)	6.86	4.31	0	5.80	37	107,502
Number of lenders per loan	44.87	55.06	1	30	1,841	107,457