

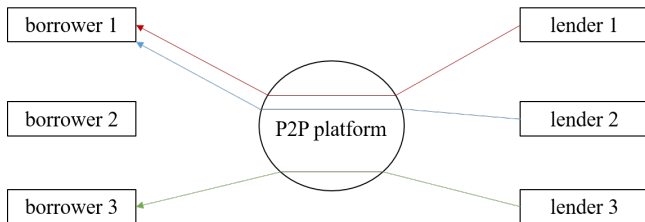


Why did the Peer-to-peer Lending Market Fail in China?

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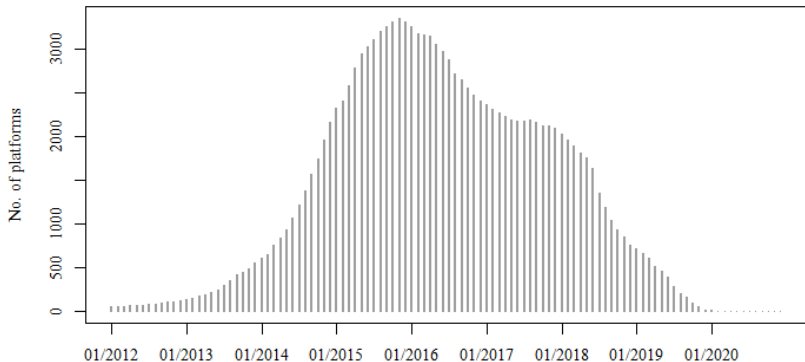
Introduction

- Peer-to-peer (P2P) lending via online platforms
 - ▶ Platforms use information technology to match lenders and borrowers and facilitate online transactions.
 - ▶ an important Fintech innovation in retail banking
 - ▶ advantage in providing small-sized loans
 - ▶ e.g., Zopa, Prosper, LendingClub, PPDai



Introduction

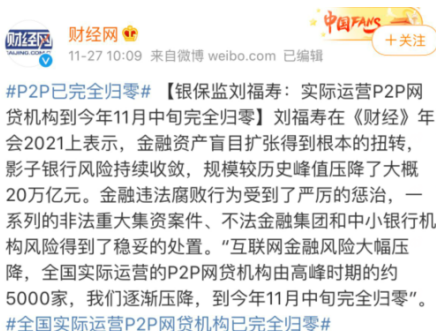
- From 2007 to 2020, China's P2P lending market experienced a drastic boom and bust.



Sources: WDJJ (www.wdzj.com)

Introduction

- Number of Active P2P Platforms returned to zero in November 2020

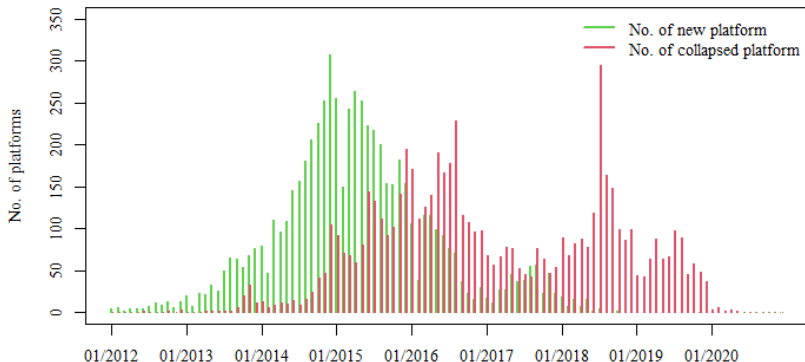


Introduction

- This paper
 - ▶ review the history of China's P2P lending market.
 - ▶ theoretical explanation for why the P2P lending market completely failed in China (but not in the US and some other developed countries).
- Phenomenon in China
 - ▶ Almost all P2P platforms offered **principal guarantees** terms.
 - ▶ A large proportion of P2P platforms commit **fraud**.
 - ▶ Number of platforms and the market size are large.
- Analysis
 - ▶ Platforms' incentive of offering principal guarantees and committing fraud
 - ▶ How the incentive varies with **platform competition**.
 - ▶ How the incentive varies with **investor naivety**.
 - ▶ Policy implications

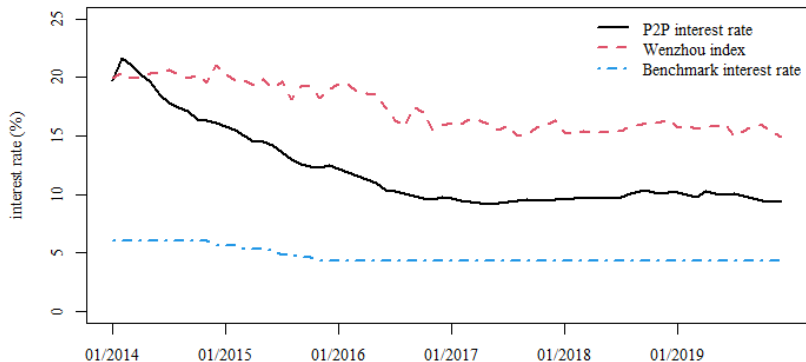
Boom and Bust

- Number of New P2P Platforms increases rapidly since 2012
 - ① relatively underdeveloped financial industry with serious credit rationing problems in traditional banking
 - ② lack of mature credit score system
 - ③ limited options for investment
 - ④ development of infrastructure for online financial transaction
 - ⑤ nearly no regulation before 2015



Boom and Bust

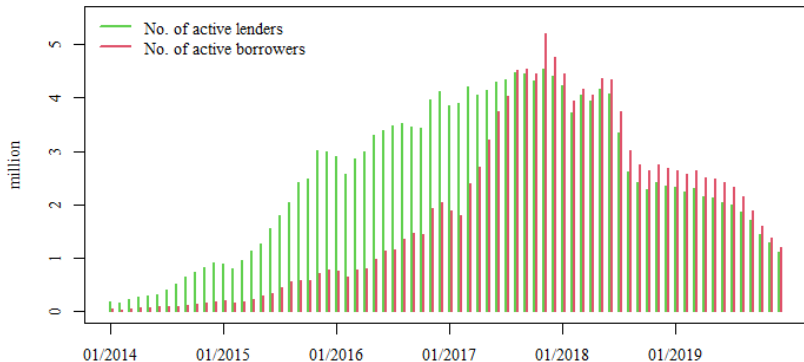
- P2P finance is an important complement to the traditional banking system for small-sized loans and expands financial inclusion (Tang, 2019).



Sources: WDJZ (www.wdzj.com), Wenzhou Government (www.wzpf.gov.cn), and People's Bank of China (www.pbc.gov.cn)

Boom and Bust

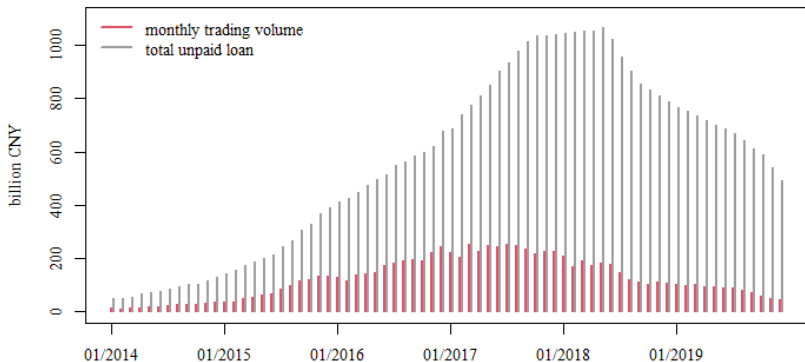
- Number of lenders and borrowers
 - ▶ Many lenders are attracted to P2P platforms because of high interest rate.



Boom and Bust

● Transaction Volume

- ▶ In 2017, thousands of P2P platforms handled approximately 2.8 trillion CNY transactions.
- ▶ total unpaid loans reached over 1 trillion CNY (total bank loans: 120 trillion CNY)



Boom and Bust

- International comparison

- ▶ At its peak, the total amount of P2P lending in China was 10 times greater than that in the US.
- ▶ From 2013 to 2018, the P2P trading volume in China was larger than the sum for the rest of the world.

Table: Total Amount of P2P Lending (million USD)

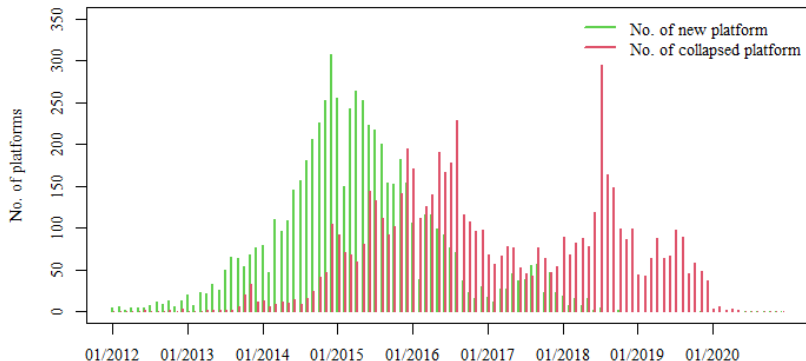
Country	2013	2014	2015	2016	2017	2018
China	5520	23,820	97,580	201,310	327,800	207,590
USA	3176	8742	21,282	23,420	17,340	27,420
UK	751	2135	3667	4810	6005	6359
Japan	79	108	326	171	236	873
Germany	48	116	205	227	448	813
France	57	117	181	277	431	494
Australia	2	16	70	165	365	321
New Zealand	–	14	245	178	242	222

Sources: [Ding et al. \(2020\)](#) and Cambridge Centre for Alternative Finance.

Boom and Bust

- Number of Collapsed P2P Platforms

- ▶ Government *laissez faire*, many platforms registered as consulting firms or technology companies with small registered capitals.
- ▶ After 2015, waves of platform collapse hurt investor confidence.



Boom and Bust

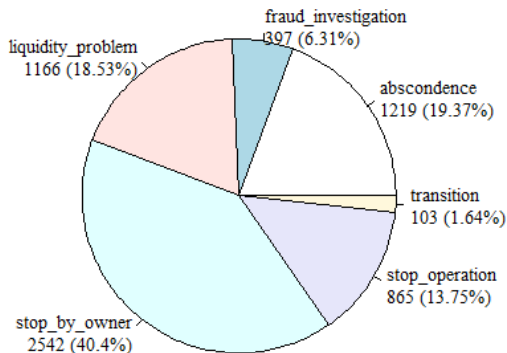
Platform	Collapse time	Unpaid loan (billion CNY)	No. of Lenders
Fanya*	04/2015	33.80	135,000
Ezubao*	12/2015	38.00	895,000
Kuailu*	04/2016	10.00	—
Qbao*	12/2017	30.00	—
Shanlin*	04/2018	2.05	30,000
Tangxiaoseng*	06/2018	5.29	107,000
Lingqianguan*	06/2018	2.20	6,000
Caogen*	07/2018	9.70	130,000
Yindou*	07/2018	4.30	23,000
Jinyinmao*	07/2018	2.23	1,000
Jucaimao*	07/2018	1.14	9,000
Tourongjia*	07/2018	1.68	23,000
Yonglibao*	07/2018	1.64	33,000
Touzhijia*	07/2018	2.90	—
Quark Finance*	08/2018	3.80	24,000
Leaderrcf*	09/2018	1.30	2,000
Yourongwang	01/2019	1.25	—
Koudailic	03/2019	1.03	19,000
Tuandai*	03/2019	14.50	222,000
Xinhehui*	04/2019	2.25	15,000
Wanglibao*	05/2019	3.03	40,000
Credit Harmony*	05/2019	8.40	31,000
Jinxin99*	05/2019	9.70	50,000
Yinhuwang	05/2019	3.37	20,000
Niubangold*	07/2019	4.30	94,000
itouzi*	07/2019	12.90	—
Houbank*	08/2019	1.18	16,000
Laocaibao*	09/2019	5.00	28,000
Mizlicai*	12/2019	1.32	12,000
Weidai*	07/2020	6.00	—

Note: * indicates that the platform involves convicted financial fraud.

Boom and Bust

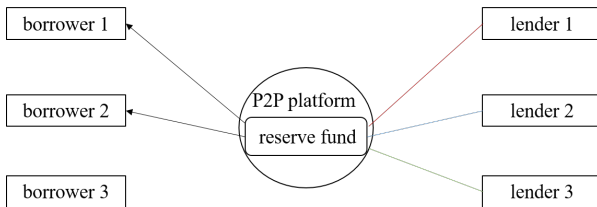
- Transaction Volume

- ▶ “normal” reasons: liquidity problems, lack of investors, fail to make profit
- ▶ man-made reasons: absconding by the owner (1219, 19.37%), Ponzi schemes and fabricating information about borrowers (397, 6.31%)



Boom and Bust

- In China, almost all platforms offer **principal guarantee terms**
 - ▶ Platforms form their own reserve funds (similar to bank reserves) by pooling money from lenders to hedge borrower default risks.
 - ▶ Lenders are exposed to less risk from borrower default but face the possibility of platform collapse.



- What kinds of platforms are less likely to fail? more registered capital ([Liu et al., 2019](#)), support from state-owned enterprises ([Jiang et al., 2021](#)), backed by venture capital ([Li et al., 2020](#))
- Why all platforms fail in the end?

Boom and Bust

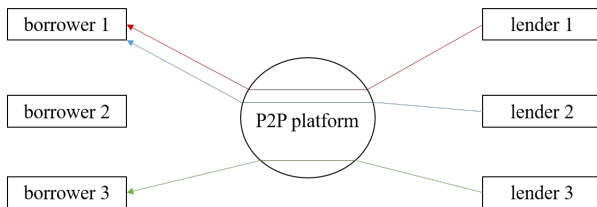
- Large number of platform compete by offering products with high returns and principal guarantee.
- Since 2015, fraud and scandal cases (Fanya, Ezubao) frequently occurred.
- Number of lenders and trading volume continue to decline after 2017.
- Lacking new investment, reserve funds get easily depleted, and platforms fail to fulfill their principal guarantee commitments.
- The lending base continued to shrink as investors lost confidence in the safety of P2P platforms.
- In 2018, largest wave of platform collapse.
- In 2019, leading platforms, Tuandai and Hongling Capital, collapse. Lufax (largest platform backed by PingAn bank) and Ppdai (first platform in China, NYSE) withdraw from P2P business.
- The number of P2P platforms returned to zero in November 2020.

Analysis

- Lenders/investors with mass 1
 - ▶ Each has cash 1 and decides whether to invest.
 - ▶ mass of lenders invest in 0-platform and 1-platform (m_0, m_1)
 - ▶ Extension: a proportion λ of naive investors believe that principal guarantee always hold.
- Borrowers
 - ▶ need outside finance 1
 - ▶ If project succeed, return is $R > 1$.
 - ▶ success rate $p \sim \text{Uniform}[0, 1]$
- P2P platforms, total number n
 - ▶ choose whether to offer principal guarantee, $x = 0, 1$
 - ▶ equilibrium number of 0-platform and 1-platform, (n_0, n_1)
- Limited regulatory capacity l
 - ▶ Regulator can only monitor $l \in [1, n]$ platforms.
 - ▶ Prob l/n_1 : 1-platform repays if solvent.
 - ▶ Prob $(1 - l/n_1)$: 1-platform commits fraud (absconds with the money).

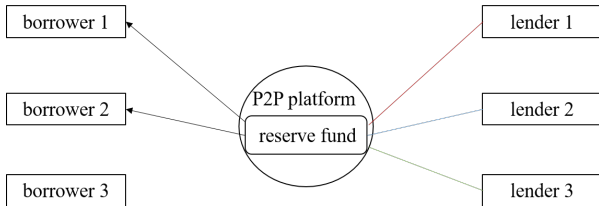
Analysis

- 0-platform, pure information intermediary
 - ▶ Platform charges a fixed commission fee $f > 0$ for matching a borrower to an investor.
 - ▶ If project succeeds, investor receives r , and borrower receives $R - r$. If project fails, lender and borrower receive 0.
 - ▶ Platform does not bear any risk.



Analysis

- 1-platform, principal guarantee/shadow bank
 - ▶ collects money from lenders and invests it to borrowers.
 - ▶ Platform repays r to each investor whenever it is solvent according to the principal guarantee term.
 - ▶ Platform **shares default risks** with borrowers and investors.
 - ▶ If not being monitored, abscond with the money.



Analysis

- Borrower expected payoff $u_x^b = p(R - r)m_x - f$, $x = 0, 1$.
 - ▶ Participation requires $u_x^b \geq 0 \Leftrightarrow p \geq \frac{f}{(R-r)m_x} \equiv \underline{p}_x$ (positive selection).
 - ▶ Smaller mass of lenders (m_x) \Rightarrow stronger positive selection (\underline{p}_x)
- 0-platform expected profit

$$\pi_0 = fm_0.$$

- 1-platform expected profit

$$\pi_1 = \left[\left(1 - \frac{l}{n_1}\right) + \frac{l}{n_1} (E(p|p \geq \underline{p}_1)r + f - r) \right] m_1.$$

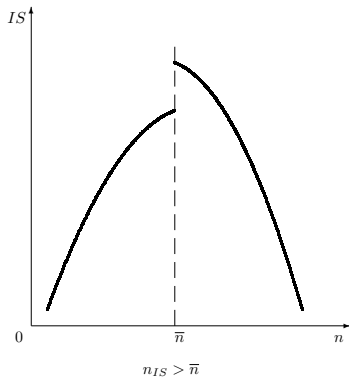
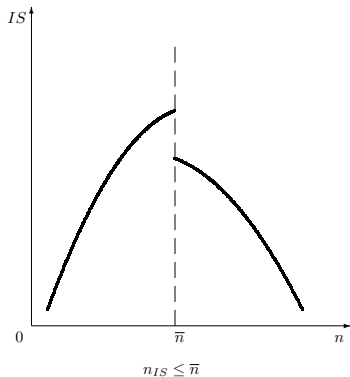
- ▶ Prob $1 - l/n_1$: regulator is absent, platform absconds with the money.
- ▶ Prob l/n_1 : platform makes real investment.
- ▶ $E(p|p \geq \underline{p}_1)$: average project success rate
- ▶ $E(p|p \geq \underline{p}_1)r$: expected investment return
- ▶ $-r$: repay under principal guarantee

Analysis

- Profit-dominant Nash equilibrium:
 - ▶ Find threshold by equal profit condition $\bar{n} = \frac{l}{1-\phi} \left[1 + \frac{r}{2(1-f)} \right]$ where $\phi = \frac{l}{2} \left(\frac{f}{1-f} \right) \left(\frac{r}{R-r} \right)$.
 - ▶ When $n < \bar{n}$, all choose $x = 0$, $(n, 0)$;
 - ▶ When $n \geq \bar{n}$, all choose $x = 1$, $(0, n)$.
- Intense competition tips platforms from being pure information intermediary to shadow banks.
 - ▶ Larger n makes monitoring more difficult.
 - ▶ Larger $n \Rightarrow$ smaller mass of investors for each platform \Rightarrow stronger positive selection in 1-platforms (excludes low-quality borrowers).
- Consistent with the observed data pattern
 - ▶ 2007-2012, Ppdai and a few other platforms used the information intermediary business model.
 - ▶ 2012-2015, no regulation. [Jiang et al. \(2021\)](#): “given the fierce cross-platform competition for visitor traffic and survival, some platforms have begun to adopt the practice of ‘principal guarantee’; this practice quickly has become prevalent among all P2P platforms.”
 - ▶ 2015-2017, [Li et al. \(2020\)](#): “almost all platforms provide a principal guarantee that protects lenders’ principal once borrowers default.”

Analysis

- Investor surplus $IS(n, l)$
 - Competition among information platforms benefit investors.
 - However, if $n > \bar{n}$, platforms offer principal guarantees and commit fraud (under limited regulatory capacity).
 - Competition among shadow-bank platforms hurt investors.
 - When l is sufficiently large (right panel), it is possible for shadow-bank platforms to benefit investors.



Analysis

- Naive investors

- ▶ A proportion $\lambda \in (0, 1)$ of naive investors hold the **misperception** that the platforms offering principal guarantee always repay the money.
- ▶ Literature: investors may be unaware of hidden fee (Kosfeld and Schüwer, 2017), hidden contract terms (Agarwal et al., 2017), some options, (Auster and Pavoni, 2018), firm's informational advantage (Kondor and Kőszegi, 2017), or possibility of financial fraud (Gui et al., 2020).

泛亚日金宝——以稀有成就富有

日金宝

每日3.75% 年化收益率最高可达13.68% 复利操作收益率14.60%
收益是余额宝的3倍 银行定期存款的4倍

无封闭期

平台	收益	最高年收益率	10万年收益率	100万年收益率
银行活期		0.35%	350元	3500元
银行定期		3%	3000元	30000元
日金宝收益		13.68%	13680元	136800元

Analysis

- Naive investors will not invest in platforms without principal guarantee.
 - ▶ 0-platforms share default risk with lenders. 1-platforms have the risk of collapse and fraud, but naive investors are **unaware of the risk**.
 - ▶ Threshold \bar{n} decrease in λ : existence of naive investors makes offering principal guarantee more attractive.
 - ▶ Ambiguous welfare implications: as long as regulatory capacity is sufficiently large, 1-platforms are more likely to repay.
- Information disclosure about possible failure of principal guarantee
 - ▶ financial education reducing λ (Gui et al., 2021; Song, 2020)
 - ▶ $m_1 \downarrow$, 1-platforms are more likely to fail.

Policy Implications

- Policy intervention in practice

- ▶ 2016, **prohibits** P2P platforms from certain activities including fundraising for the platforms themselves, securitization, and **providing guarantees to investors on repaying principal and returns on investment**.
- ▶ 2016, Platforms were required to **establish custody accounts** with commercial banks and perform transaction through banks.
- ▶ 2017, regulation requires platforms to make truthful, adequate, complete, and timely **information disclosure** to the public. All disclosed information must be verified by a third party.

- Comments

- ▶ Before 2015, no regulation. In 2016, there is already thousands of platforms. Regulatory capacity is too weak to monitor the large market.
- ▶ High-profile cases of platform collapse and fraud \Rightarrow lender base shrinks
- ▶ Information disclosure and increasing investor sophistication \Rightarrow 1-platforms become less profitable \Rightarrow more platforms collapse

Policy Implications

- In P2P market, competition (n) has ambiguous welfare effect.
 - ▶ With limited regulatory capacity (l), regulator should **establish high barriers to entry**.
 - ▶ Strictly enforce the regulation on a small number of platforms (setting up custody account, prohibited business model).
- The level of regulation depends on the **level of financial literacy** (λ) ([Lusardi and Mitchell, 2014](#)).
 - ▶ In China, a majority of investors were individuals who were much less sophisticated than institutional investors. (In the UK and US, institutional investors are much more prominent.)
 - ▶ In China, many investors ignore the high default risk of the borrowers and are unaware of the risk of platform collapse or possible deceptive actions such as absconding with the money. (UK Financial Conduct Authority is to ensure that retail investors are fully aware that lending on P2P platforms is not like bank deposits.)
- Universal credit scoring system for individuals and small firms
- Apply due diligence in regulating new business models in the Fintech.



*“Remember: All financial frauds share the same feature
— high return.”*

A police department in China

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