



**Panel Session 2**  
***FINANCIAL TECHNOLOGY***



## Short Biography of Dr. Inka B. Yusgiantoro (Moderator)



**Dr. Inka B. Yusgiantoro** is Senior Executive Analyst at the Strategic Committee and Research Center of the Indonesia Financial Services Authorities (OJK) since August 2017. Previously, he was Senior Executive Researcher at the OJK

Department of Strategic Policy Development, focusing mainly on developing surveillance tools for financial system stability that include early warning system, financial stress index, and macroeconomic forecasting.

Before joining OJK in 2013, he was Research Fellow at the John F. Kennedy School of Government, Harvard University in 2011-2013, specializing in macroeconomic issues, growth strategies, and economic development in East Asia.

In addition to academic career, he has worked as Economic Analyst at Sempra Energy Company in San Diego (2004), Associate Investment Banking at Merrill Lynch and Company in New York City (2002-2003), and Corporate

Finance at Credit Suisse First Boston in Singapore (2000-2001).

Yusgiantoro received his Ph.D and M.A degrees from Cornell University (US) in 2011; M.S.E in financial engineering from the University of Michigan at Ann Arbor (US) in 2004; M.S degree in operation research from Columbia University (US) in 1997, and B.S.E degree in industrial and operation engineering from the University of Michigan at Ann Arbor (US) in 1996. Yusgiantoro has taught macroeconomic theory course in the Financial Risk Management's Master Program at Atmajaya University in Jakarta since January 2017.

## INTRODUCTION

Dr. Inka mentioned that as the definition of financial technology is relatively broad, the second session of the seminar will focus on Fintech lending institutions, especially the non-depository institutions which perform lending to the micro sector or any lender in a particular country. He also mentioned that Professor Stiglitz, the Nobel laureate who has mentioned about P2P lending in the OJK High-level Policy Dialogue, has expressed his concerns about the emergence of P2P lending as it uses technology to grow but has determine the risk that might be hidden through this new lending platform.

The second session discussed this issue through the presentation from Dr. Tianyue and Dr. Irwan. Dr. Tianyue gave relevant study in China, where the large part of shadow banking consists of P2P lending, while the second speaker, Dr. Irwan, discussed the study in Indonesia, where it used large data sets to analyze the phenomena existing in Indonesia.





***First Presentation by  
Dr. Tianyue Ruan***





## Short Biography of Dr. Tianyue Ruan

*National University of Singapore*



**Dr. Tianyue Ruan** is an Assistant Professor of Finance at the National University of Singapore (NUS) Business School. Her research explores issues in financial intermediation and systemic risk. Her current work focuses on the impact of financial regulation on the behaviors of traditional and emerging financial intermediaries, and associated implications for financial stability and the real economy. She is a recipient of the Macro Financial Modeling (MFM) and the Committee on the Status of Women in the Economics Profession (CSWEP) Dissertation Fellowships. She received her Ph.D in Finance from New York University Stern School of Business. As an undergraduate, she studied economics and finance at Peking University, China.

## **The Economics of Shadow Banking: Lessons from Surrogate Intermediaries in China**

**By: Dr. Tianyue Ruan**

The research by Dr. Tianyue in China highlighted the increasingly popular shadow banking in China, together with the growth of non-bank lenders in western economies. The study analyzed the cause and consequence of this issue by using entrusted loans data. Entrusted loans itself was a firm-to-firm loan which was legally required to have a trustee bank to administer and service the loan.

The rise of financial innovation which offered liquidity and convenience at a much higher yield, such as wealth management products, contributed to the decline of deposit for commercial bank. Further, as the deposit funding decreases, the loan constraints grow because the banks have to satisfy the 75% rule of Loan-deposit-ratio (LDR). In this study itself, banks whose LDR were 70% or higher at the end of 2010 are classified as constrained banks.

The result showed that the probability of the listed firm engages in entrusted lending and also make more profit, was higher in a constrained city, where the lending policy was tighter. The study also concluded that entrusted loans provided substitutes to bank loans. Further, larger firms and SOEs were more likely to be entrusted lenders.

In fact, the decline of deposit funding creates a gap in bank loan supply through the loan-to-deposit ratio regulation. Therefore, non-financial firms made entrusted loan to fill this gap. As the non-financial firms use cash instead of external finance, they were unlikely to undermine financial stability. Instead, they may play an important role in sustaining economic growth during China's transition from a bank-financed economy to a market economy.

## The Economics of Shadow Banking: Lessons from Surrogate Intermediaries in China

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OJK International Research Seminar

"Financial Sector Development And The Future Of Finance"

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### Does shadow banking threat financial stability?

Shadow banking exacerbated Global Financial Crisis

Who/what: ABCPs, ABS, CDOs, repos, MMFs, etc

Economic role: Convert opaque, risky, long-term assets  
into money-like, short-term liabilities

Contributed to real estate price appreciation prior to  
crisis

Became severely strained and collapsed during crisis

Triggered official liquidity facilities and credit  
guarantees

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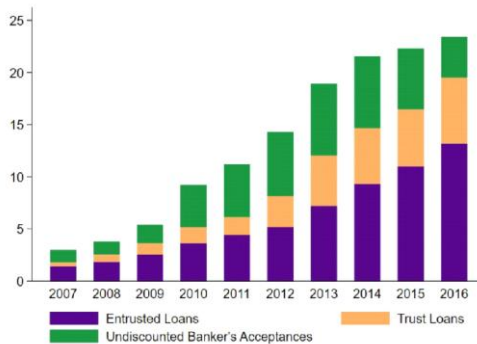
Continued evolution since GFC

Tenfold growth in China from 2007–17

Western parallel: rise of non-bank lenders in credit markets e.g. mortgage loans, personal loans, etc

## Entrusted loans is major part of shadow banking

Shadow banking credit to real economy (RMB trillion)



## This research: What explains entrusted loans?



Limited role of bank: manage administration & collection, charge a commission  
Lending firm bears risk & return

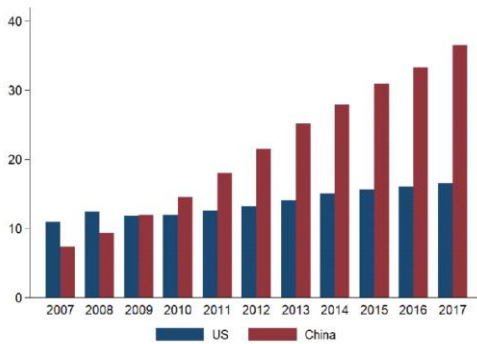
Non-financial firms' making loans to other firms is surprising:  
No access to deposits or short-term wholesale funding  
No expertise in credit evaluation & monitoring

### Findings:

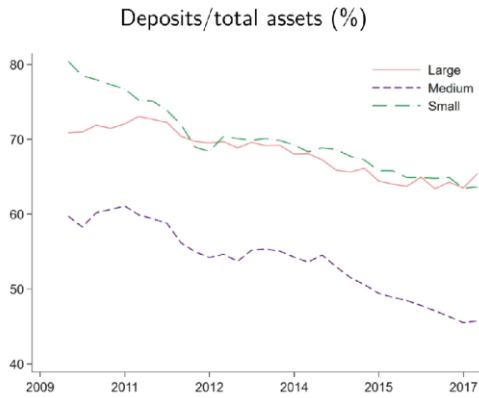
Firms are more likely to make entrusted loans in prefectural cities where growth of bank loan supply slows down  
Entrusted lenders rely on existing cash rather than raise external finance to make these loans

## How can growth of bank loan supply slow down?

Total banking assets of US and China (USD trillion)



## Deposit funding declines



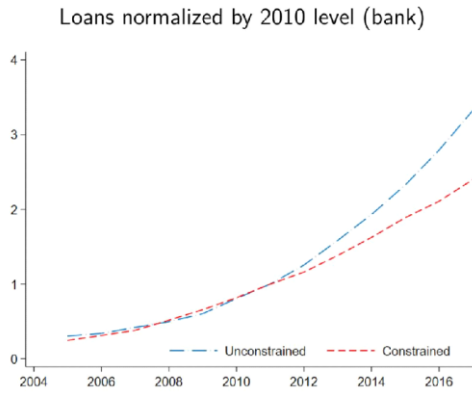
## Deposit funding matters for lending

Deposit is a unique stable source of funding (Drechsler Savov Schnabl 2017, Hanson et al 2015)

75% loan-to-deposit ratio (LDR) regulation: loan balance cannot exceed 75% of deposit balance

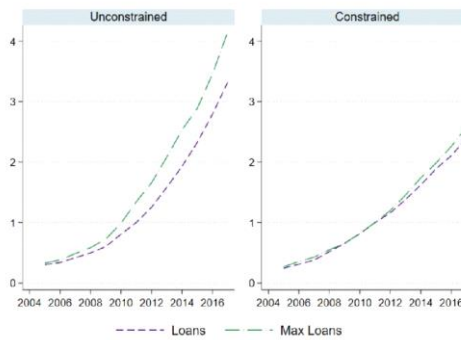
LDR limit enforcement since 2008 (Hachem Song 2017a,b)

### Initial LDR corresponds to constraints



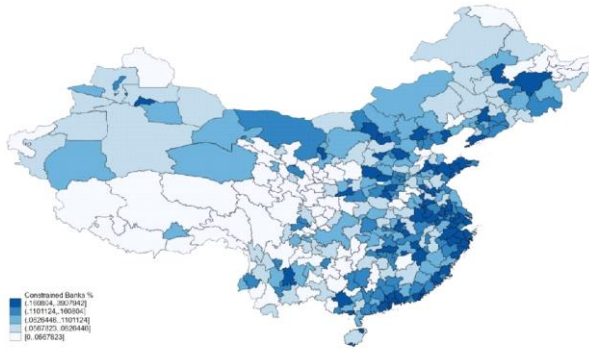
### Slackness of 75% LDR restriction

Loans and max loans (75% deposits) normalized (bank)



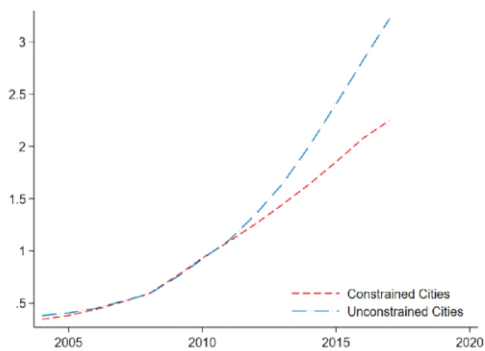


There was substantial geographic variation of constrained banks presence in 2010

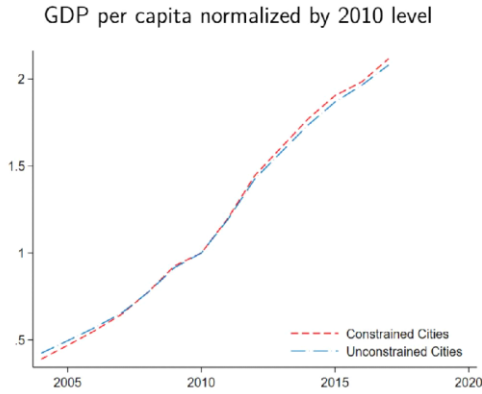


Prefectural cities with more constrained banks have lower loan growth

Bank loans normalized by 2010 level



They do not have lower loan demand



## Identifying bank supply shock

Credit supply and demand responses have different policy implications

Realized loan growth contains both responses

Differential constraining effect of the LDR regulation provides us an opportunity to separate the supply channel

## Identifying bank supply shock

Realized bank loan growth  $\Delta \text{LogBankLoan}_{j,t}$  ( $g$ )

$$g_{j,t} \approx \omega_{C,j,t-1} g_{C,j,t} + \omega_{U,j,t-1} g_{U,j,t}$$

C: constrained; U: unconstrained

## Identifying bank supply shock

Realized bank loan growth  $\Delta \text{LogBankLoan}_{j,t}$  ( $g$ )

$$g_{j,t} \approx \omega_{C,j,t-1} g_{C,j,t} + \omega_{U,j,t-1} g_{U,j,t}$$

Instrument purges local demand factors by:

(1) national growth rates of loans

$$Z_{j,t} = g_{C\bar{j},t} + g_{U\bar{j},t}$$

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Instrument purges local demand factors by:

- (1) national growth rates of loans
- (2) **time-invariant local shares of banks**

$$Z_{j,t} = \omega_{C,j,2010} g_{C,\bar{j},t} + \omega_{U,j,2010} g_{U,\bar{j},t}$$

C: constrained; U: unconstrained

## Identifying bank supply shock

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$$Z_{j,t} = \omega_{C,j,2010} g_{C,\bar{j},t} + \omega_{U,j,2010} g_{U,\bar{j},t}$$

Can be viewed as a Bartik research design (Bartik 1991), with similar applications used in labor, trade, banking, etc

C: constrained; U: unconstrained

## Entrusted loans provide substitutes to bank loans

Baseline: Net financing; Extra: Net affiliated & unaffiliated financing

	Dependent Variable: 1(EL)	
	IV (2SLS)	
Firm controls type	Baseline	Extra
log bank loan	-1.338*** (0.198)	-1.353*** (0.198)
Firm controls	Yes	Yes
City controls	Yes	Yes
1st-stage F statistic	40.68	40.62
Partial R <sup>2</sup>	0.138	0.138
Within R <sup>2</sup>	0.0471	0.0470
Observations	14718	14718

1 sd decrease of log bank loan (3.5 pp) ~ 4.7 pp increase of 1(EL), 30% of unconditional mean 15.7 pp

## Larger firms & SOEs more likely to be entrusted lenders

	Dependent Variable: 1(EL)	
	IV (2SLS)	
Firm controls type	Baseline	Extra
<i>Main effects are omitted.</i>		
Size	0.058*** (0.004)	0.058*** (0.004)
State-owned enterprise	0.059*** (0.010)	0.059*** (0.010)
Existing cash		
Operating cash flow		
Net financing		
Net affiliated financing		
Net unaffiliated financing		
City controls	Yes	Yes

State-owned enterprise (36% of overall sample)

~ 0.056 pp increase of 1(EL), 3.6% of unconditional mean 15.7 pp

## How about funding source?

Firm controls type	Dependent Variable: 1(EL)	
	IV (2SLS)	
	Baseline	Extra
<i>Main effects are omitted.</i>		
Size	0.058*** (0.004)	0.058*** (0.004)
State-owned enterprise	0.059*** (0.010)	0.059*** (0.010)
Existing cash	0.051*** (0.016)	
Operating cash flow	-0.030 (0.025)	
Net financing	0.019 (0.013)	
Net affiliated financing		
Net unaffiliated financing		
City controls	Yes	Yes

1 standard deviation increase of existing cash (16 pp)  
~ 0.8 pp increase of 1(EL), 5.1% of unconditional mean  
15.7 pp

## How about funding source?

Firm controls type	Dependent Variable: 1(EL)	
	IV (2SLS)	
	Baseline	Extra
<i>Main effects are omitted.</i>		
Size	0.058*** (0.004)	0.058*** (0.004)
State-owned enterprise	0.059*** (0.010)	0.059*** (0.010)
Existing cash	0.051*** (0.016)	0.052*** (0.016)
Operating cash flow	-0.030 (0.025)	-0.028 (0.024)
Net financing	0.019 (0.013)	
Net affiliated financing		0.149** (0.071)
Net unaffiliated financing		0.017 (0.013)
City controls	Yes	Yes

No evidence of borrowing to lend from unaffiliated sources (e.g. banks)

~ No contagion threat to financial stability!

## Higher profitability in constrained cities

Baseline: Net financing; Extra: Net affiliated & unaffiliated financing

Dependent Variable: Return on EL (%)		
IV (2SLS)		
Firm controls type	Baseline	Extra
log bank loan	-1.730* (0.991)	-1.730* (1.006)
Firm controls	Yes	Yes
City controls	Yes	Yes
1st-stage F statistic	45.63	45.27
Partial R <sup>2</sup>	0.137	0.136
Within R <sup>2</sup>	0.0383	0.0384
Observations	2339	2339

## The banking sector constraint matters in the aggregate

Dependent Variable: Province-level Aggregate Financing to the Real Economy Component/GDP				
	Total Financing	Bank Credit	Shadow Bank Credit	Capital Markets
Constrained		-0.724*** (0.184)	-0.064 (0.124)	0.282*** (0.088)
Province controls	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.166	0.235	0.266	0.0933
Observations	124	124	124	124

## Decline in bank credit is dominant!

Dependent Variable: Province-level Aggregate Financing to the Real Economy Component/GDP				
	Total Financing	Bank Credit	Shadow Bank Credit	Capital Markets
Constrained	-0.523* (0.303)	-0.724*** (0.184)	-0.064 (0.124)	0.282*** (0.088)
Province controls	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.166	0.235	0.266	0.0933
Observations	124	124	124	124

## Different forms of shadow banking respond differently

Dependent Variable: Province-level Aggregate Financing to the Real Economy Component/GDP					
	Shadow Bank Credit			Capital Markets	
	Entrusted Loans	Trust Loans	Undisc. BABs	Bond Market	Stock Market
Constrained	0.157*** (0.053)	-0.218** (0.105)	-0.003 (0.044)	0.232*** (0.076)	0.050** (0.023)
Province controls	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.105	0.128	0.348	0.0909	0.163
Observations	124	124	124	124	124



## Conclusion

Decline in deposit funding and regulation on the loan-to-deposit ratio create a gap in bank loan supply in China

Non-financial firms make entrusted loans using their existing cash to fill this gap, and therefore are unlikely to undermine financial stability

More diffused holding of credit risk may make the financial sector safer but could be less efficient for the whole economy





***Second Presentation by  
Dr. Irwan Trinugroho***



## Short Biography of Dr. Irwan Trinugroho

*Universitas Sebelas Maret*



**Dr. Irwan Trinugroho** is Associate Professor of Finance at the Faculty of Economics and Business, Universitas Sebelas Maret (FEB UNS), Indonesia. He was UNS best lecturer in 2015 and 2018 as well as UNS best scholar in 2015 and 2016. He has published a number of papers in reputable journals including Journal of Financial Stability, Global Finance Journal, Research in International Business and Finance, Borsa Istanbul Review, Economics Bulletin, Emerging Markets Finance and Trade, Singapore Economic Review and Journal of Asia Business Studies.

Dr. Trinugroho is the editor-in-chief of International Journal of Governance and Financial Intermediation and serves as editorial board members in some journals including Eurasian Economic Review, Journal of Asia Business Studies, International Journal of Economics and management, International Journal of Monetary Economics and Finance and International Journal of Education Economics and Development. Currently, Irwan

is also the Vice President for Program and International Affairs of the Indonesian Finance Association (IFA).

Irwan graduated with a Ph.D degree in banking and finance from the University of Limoges, France.

**The economics of financial technology  
online direct lending:  
Evidence from Indonesia**

**By: Dr. Irwan Trinugroho**

Policy makers have made various efforts to promote financial inclusion, including small business lending. In his study, Dr. Irwan focused on direct or peer-to-peer (P2P) lending online by empirically investigating the determinants of P2P lending interest rate and the determinant of P2P lending default status.

The study was conducted using three platforms with different business models and used loan and borrower-specific characteristics as a determinant of the loan rate and default status of P2P lending. Loan-specific characteristics consisted of the amount of loan and period of the loan. While borrower-specific characteristics consisted of gender, marriage status, housing ownership, education, income, and age. The result showed that both loan-specific characteristics and borrower-specific characteristics were a significant predictor of both loan interest rate and loan default status.

The result also showed that specific business model and target implied in every P2P lending platform in Indonesia

contributed to significant differences in the loan rate and the default level in each platform. Furthermore, with the presence of POJK 77 in 2016, the number of loan recipients increased significantly compared to lenders.



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*Knowledge For Prosperity*

## The economics of financial technology online direct lending: Evidence from Indonesia

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### Preliminary Results

**Research Team**


Irwan Trinugroho  
Muhammad Agung Prabowo  
Tastaftiyen Risfandy

### Background

Indonesian policy makers have made substantial efforts to promote financial inclusion including small business lending over the past decade through traditional banking system.

Technological-based financial innovations have been rising significantly in most countries in the world including Indonesia over the last few years to ease in delivering and facilitating financial services and transactions as well as to improve financial activities.

In here, we focus on the online direct (peer-to-peer/P2P) lending by empirically investigating the determinants of interest rate and default status of online direct (peer-to-peer) lending

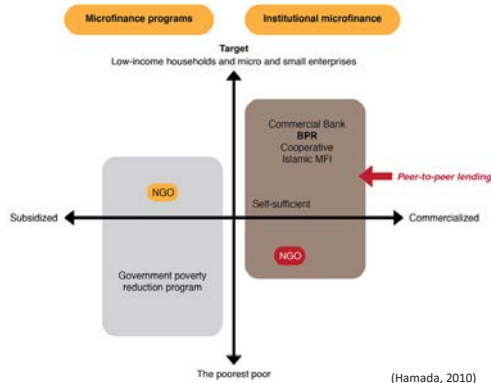


### Peer-to-peer lending: Indonesian context

In the context of Indonesia, peer-to-peer lending, has shown a **significant growth**.

- ❑ 67 platforms have been registered in the OJK (as of September 2018). 65 platforms are conventional and 2 platforms are sharia.
- ❑ The channelled loans have been more than IDR 9 trillion (USD 600 million), with the average yearly growth is around 300%.
- ❑ The number of borrowers have been more than 1.4 million accounts while total lenders are more than 135 thousand accounts.

### P2P Lending and Micro Financing in Indonesia



## Objectives

The main objective of this research is to empirically investigate the determinants of loan rate and default status of online direct (peer-to-peer) lending in the context of Indonesia

- 1 explaining the existence and the growing of online direct lending in Indonesia
- 2 empirically investigate the determinants of loan rate and default status of online direct (peer-to-peer) lending
- 3 empirically examine the determination factors of default status of online direct (peer-to-peer) lending
- 4 examine the difference in loan rate and default status before and after the regulation on online-based lending (POJK 77/2016)

## Literature Review

- Peer-to-peer lending**
  - ✓ Reverse-auction vs Posted-price mechanism  
*Lee and Lee (2012), Herzenstein et al. (2011), Chen et. al (2014), Wei and Lin (2015)*
  - ✓ Intermediation cost vs risk premium
- Determinants of interest rate and lending outcomes in P2P lending**  
*Dietrich and Wernli (2016); Prystav (2016), Jin et al. (2017), Pope and Sydnor (2011), Freedman and Jin (2017), Chen et al. (2016), Atz and Bholat (2016), Freedman and Jin (2014), Gonzalez and Loureiro (2014), Cai et al. (2016)*
  - (1) Loan-specific information
  - (2) Borrower-specific information
    - ✓ Classical principal-agent model – information asymmetry
  - (3) Macroeconomic view
    - ✓ Monetary policy
    - ✓ Economic cycle
    - ✓ Industry-specific regulation
  - (4) Platform-specific characteristics (business model)
  - (5) Geographical differences

## Research Method

- 3 platforms with different business models

### Variables

#### *Loan-specific characteristics*

- Default\_status is a dummy variable equals to 1 if the loan is default.
- Loan\_rate is yearly loan rate.
- Amount is amount of loan in million rupiah.
- Period is period of loan (number of days).

#### *Borrower-specific characteristics*

- Gender is a dummy variable taking a value of 1 for woman.
- Married is a dummy variable taking a value of 1 married.
- House is a dummy variable taking a value of 1 for a borrower has a house.
- Educations formal degree of education, ranges from 1 to 7.
- Income is borrower's income in million rupiah (monthly).
- Age is the borrower's age.

## Research Method

### • Baseline model

*Loan Rate = f(Loan-specific characteristics, borrower-specific characteristics, time effect, province effect, platform effect)*

*Default status= f(Loan rate, Loan-specific characteristics, borrower-specific characteristics, time effect, province effect, platform effect)*

## Descriptive Statistics

Variable	Platform = 810004				Platform = 810005				Platform = 820012						
	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max
default_st-s	1,039,555	0.003	0.050	0	1	6,951	0.052	0.221	0	1	168,434	0.116	0.320	0	1
loan_rate	1,039,555	0.288	0.003	0.192	0.384	6,951	0.200	0.056	0.14	0.3	168,434	0.279	0.720	0.14	1
reg_pojk77	1,039,555	0.835	0.371	0	1	6,951	0.941	0.235	0	1	168,434	0.916	0.278	0	1
amount1	1,039,555	3.096	1.166	0.5	13	6,951	60.431	79.892	2	600	168,434	2.914	1.928	1	1
period	1,039,555	342.055	36.441	70	350	6,951	349.193	41.146	90	360	168,434	40.828	26.503	10	10
gender	1,039,555	1	0	1	1	6,951	0.461	0.498	0	1	168,434	0.464	0.499	0	1
married	1,039,555	0.996	0.061	0	1	6,951	0.711	0.453	0	1	168,434	0.647	0.478	0	1
house						6,951	0.705	0.456	0	1	168,434	0.261	0.439	0	1
education						6,917	4.639	0.811	3	6	168,434	4.267	1.738	1	1
incomel	1,039,555	3.101	1.920	0.9	9	6,951	19.664	20.620	2.2	80	168,434	5.970	3.517	2.5	2.5
age	1,039,555	41.564	9.400	22	60	6,951	37.043	8.065	22	60	168,434	26.314	8.996	14	14

## Borrower-specific characteristics and loan rate

	All sample	810004	810005	820012
	(1)	(2)	(3)	(4)
<i>log_amount</i>	-0.348*** (-123.63)	-0.00178*** (-58.45)	-0.00132** (-2.53)	-0.445*** (-144.71)
<i>log_period</i>	-0.526*** (-171.59)	0.00280*** (59.70)	-0.00887** (-2.45)	-0.454*** (-140.11)
<i>gender</i>	0.000482 (0.19)		0.00326*** (2.69)	-0.00387 (-1.51)
<i>married</i>	0.000178 (0.06)	-0.000205*** (-12.48)	-0.0166*** (-13.15)	0.00835*** (2.68)
<i>house</i>	-0.000133 (-0.05)		-0.0236*** (-18.99)	0.00356 (1.18)
<i>education</i>	-0.0000138 (-0.02)		-0.0170*** (-20.90)	0.00181** (2.30)
<i>log_income</i>	0.000343 (0.12)	-0.00000718 (-1.26)	-0.0239*** (-31.22)	-0.00902*** (-2.89)
<i>log_age</i>	-0.0260*** (-5.81)	-0.0000961*** (-7.16)	0.0191*** (6.43)	-0.0398*** (-8.77)
<i>constant</i>	9.251*** (160.04)	0.300*** (1378.39)	0.720*** (31.96)	11.01*** (178.91)
Platform FE	v			
Year FE	v	V	v	v
N	175351	1039555	6917	168434
R-sq.	0.643	0.0388	0.409	0.490

Note: Platform 810004 do not have data of house and education. Variable gender in platform 810004 is dropped from the analysis because all of the borrowers is woman.

## Borrower-specific characteristics and default status

	All sample	810004	810005	820012
	(1)	(2)	(3)	(4)
<i>loan_rate</i>	1.291*** (39.00)	31.93*** (26.56)	-1.945* (-1.93)	1.231*** (36.91)
<i>log_amount</i>	0.390*** (18.35)	1.370*** (23.27)	0.483*** (9.02)	0.313*** (13.46)
<i>log_period</i>	1.819*** (51.11)	-1.310*** (-6.62)	2.100* (1.84)	1.817*** (51.71)
<i>gender</i>	0.0921*** (5.85)	2.605*** (11.87)	0.0479*** (3.01)	0.0479*** (3.01)
<i>married</i>	-0.0289 (-1.52)	0.771* (1.72)	-0.453*** (-3.34)	0.00101 (0.05)
<i>house</i>	0.0123 (0.65)	-0.213* (-1.88)	0.0369* (1.94)	0.0369* (1.94)
<i>education</i>	-0.0194*** (-3.94)	-0.234** (-2.26)	-0.0150*** (-3.03)	-0.0150*** (-3.03)
<i>log_income</i>	0.0628*** (3.33)	-1.016*** (-29.27)	0.515*** (5.83)	0.0295 (1.50)
<i>log_age</i>	-0.167*** (-6.19)	0.293*** (3.47)	-0.420 (-1.19)	-0.215*** (-7.95)
<i>constant</i>	-21.90*** (-39.66)	-14.65*** (-9.91)	-31.67*** (-4.67)	-17.40*** (-31.48)
Platform FE	v			
Year FE	v	V	v	v
N	175351	1022780	6509	168434

Note: Platform 810004 do not have data of house and education. Variable gender in platform 810004 is dropped from the analysis because all of the borrowers is woman.

## The impact of regulatory change

	All sample	810004	810005	820012
	(1)	(2)	(3)	(4)
<i>reg_pojk77</i>	0.511*** (3.88)	-0.00153*** (-23.19)	-0.0545*** (-21.02)	0.129*** (7.47)
<i>log_amount</i>	-0.348*** (-123.64)	-0.00178*** (-58.45)	-0.00130*** (-2.49)	-0.445*** (-144.71)
<i>log_period</i>	-0.526*** (-171.58)	0.00280*** (59.70)	-0.00877** (-2.43)	-0.454*** (-140.11)
<i>gender</i>	0.000465 (0.19)		0.00330*** (2.73)	-0.00387 (-1.51)
<i>married</i>	0.000171 (0.06)	-0.000205*** (-12.48)	-0.0165*** (-13.12)	0.00835*** (2.68)
<i>house</i>	-0.000147 (-0.05)		-0.0235*** (-18.94)	0.00356 (1.18)
<i>education</i>	-0.0000163 (-0.02)		-0.0170*** (-20.85)	0.00181*** (2.30)
<i>log_income</i>	0.000367 (0.13)	-0.00000718 (-1.26)	-0.0239*** (-31.25)	-0.00902*** (-2.89)
<i>log_age</i>	-0.0260*** (-5.82)	-0.0000961*** (-7.16)	0.0191*** (6.42)	-0.0398*** (-8.77)
<i>constant</i>	9.251*** (160.04)	0.300*** (1378.39)	0.720*** (31.94)	11.01*** (178.91)
Platform FE	v			
Year FE	v	v	v	v
N	175351	1039555	6917	168434
R-sq	0.643	0.0388	0.409	0.490

Note: Dependent variable is loan rate

## The impact of regulatory change

	All sample (1)	810004 (2)	810005 (3)	820012 (4)
<i>loan_rate</i>	1.097*** (9.42)	-117.4*** (-2.89)	-142.5*** (-6.06)	0.979*** (5.42)
<i>reg_pojk77</i>	0.625* (1.68)	-41.75*** (-3.56)	-23.55*** (-6.23)	0.469 (0.83)
<i>loan_rate*reg_pojk77</i>	0.207* (1.82)	151.7*** (3.73)	143.1*** (6.10)	0.265 (1.44)
<i>log_amount</i>	0.398*** (18.85)	1.369*** (23.28)	0.510*** (9.47)	0.316*** (13.64)
<i>log_period</i>	1.827*** (51.05)	-1.308*** (-6.61)	2.242** (2.01)	1.830*** (50.88)
<i>gender</i>	0.0913*** (5.80)		2.380*** (12.36)	0.0479*** (3.01)
<i>married</i>	-0.0298 (-1.58)	0.771* (1.72)	-0.358*** (-2.63)	0.00103 (0.05)
<i>house</i>	0.0131 (0.69)		-0.188* (-1.67)	0.0367* (1.93)
<i>education</i>	-0.0197*** (-3.98)		-0.120 (-1.11)	-0.0150*** (-3.02)
<i>log_income</i>	0.0684*** (3.64)	-1.017*** (-29.28)	0.617*** (6.60)	0.0294 (1.50)
<i>log_age</i>	-0.167*** (-6.19)	0.294*** (3.49)	-0.463 (-1.35)	-0.215*** (-7.92)
<i>constant</i>	-21.52*** (-33.46)	26.41** (2.24)	-11.80*** (-3.06)	-16.72*** (-22.25)
Platform FE	v	v	v	v
Year FE	v	v	v	v
N	175351	1022780	6509	168434

Note: Dependent variable is default status

## Conclusion

- ❑ We confirm that loan-specific factors and borrowers-specific characteristics play important role in the determination of loan rate and default status of online direct lending in the context of Indonesia
- ❑ Each P2P lending platform in Indonesia has specific business model and target. Therefore, there is a significant difference in loan rate and default status between each platform
- ❑ In general, following the formal regulation on peer-to-peer lending (POJK No. 77/POJK.01/2016) in 2016, the number of borrowers increase significantly much more than the number of lenders. The shortfall of supply then drives the increase of loan rate

### Limitation and Challenges

- This study is limited to three platforms
- We do not have some other information which is matter in the determination of loan rate of P2P lending such as loan purpose
- Need further researches (which require more reliable and standardized information).
  - Contribution to small business financing
  - Impact on traditional financial intermediary institutions and possibility of linkage between financial institutions and P2P platforms
  - Consumer protection, business transparency and regulatory perspective
  - .....

Thank you.



## Discussion between Speakers

Started from the second session of the seminar, both speakers were welcomed to discuss and offer feedback to the other speakers in the same session. Dr. Inka started the discussion by mentioning how interesting it is that the presentation by both speakers has shown many similarities between the two countries. The core issue was related to the classic supply and demand problem, wherein the China case, the shortfall of supply in a term deposit and regulatory issue in term of LDR has pushed the emergence of the shadow banking, while in Indonesia the regulatory update has also affected the loan rate.

In this discussion session, Dr. Tianyue offered several suggestions which may strengthen the analysis of Dr. Irwan's study, as follow:

1. If there was a concern about the borrower's default status, the lender could charge a higher loan rate or grant a smaller loan. Therefore, the amount and rate of the loan could be jointly determined.
2. Regulation on online-based lending might affect various loan-specific and borrower-specific variables. Therefore, it might be better to include interaction terms in the regression specification.

3. Dr. Tianyue also asked if the all-female platform 810004 help level the playing field of financial access or financial inclusion? As in Indonesia, women were no longer to be less likely to have a bank account. She also did not believe that in the access to borrowing, women are still under privilege. Therefore, she wondered if this all-female-platform can help broaden the financial inclusion to a woman.

Dr. Irwan agreed with the first and second feedback from Dr. Tianyue, but regarding the third point, he explained that the platform was specifically focused on giving lending to the female customer, which was a unique business model. Further, he also gave several feedbacks for Dr. Tianyue's presentation as follow:

1. If the entrusted loan in China did not have any effect on financial stability (because it uses existing cash instead of the external fund), then what was the actual effect of entrusted loans?
2. Why the Loan to Deposit Ratio in China was low (only 70%), while other countries have a higher ratio, for example, Indonesia has 78-93%.

In respond to Dr. Irwan's feedback, Dr. Tianyue explained the following:

1. The setting of the Loan to Deposit ratio was as a liquidity management tool by the banking regulator.

However, it became a lot less effective since currently there are too many “too-liquid” asset type. Therefore, the nominal amount of Loan to Deposit ratio was reduced in 2015.

2. Her result could not speak to what was wrong with the entrusted loan. However, she was pretty convinced that entrusted loans were not likely to threaten the financial stability because the firms who made entrusted loan were relying on their existing cash, instead of external sources.

In the end, Dr. Inka as a moderator added that the biggest issue was not only financial stability but also regarding financial inclusion. Further, finding the middle ground between financial stability and financial inclusion is the responsibility of the policymaker.

## **Session Review by Dr. Miguel Soriano**

Dr. Miguel mentioned that some of the interesting part found on Dr. Irwan's research was that how some of the findings were contradictory compared to the existing result. The conservative theory usually explains a positive correlation between loan rate, loan amount and loan tenure, as the loan rate usually represents the credit risk of individual borrowers. However, in some of Dr. Irwan's result, the correlation was negative, which was maybe because of the characteristic of the business model. Dr. Miguel considered this as an interesting fact which could be explored further.

Further, in his opinion, Dr. Irwan's study made many contributions to the growing literature of P2P lending, especially by adding some perspective from Indonesian's point of view. However, it will also be more interesting to add some macro perspective to the variables as they could be the control factors which can affect the other variables. Dr. Miguel also suggested Dr. Irwan to also add the interaction effects and factors to the business model as well, as what has been suggested by Dr. Tianyue.

## Questions and Answers Session

### Questions:

There were several questions from Trusting Social regarding Dr. Irwan's research, as follow:

1. How do you define the default rate? (For example, how many months does it take to consider that the loan is the default, etc)
2. What method do you use to define the credit score?

### Answers:

1. Default rate data was obtained directly from the data of each platform, which will differ accordingly. In one platform, the default rate period was three months, while in the other platform it was different.
2. A credit score was defined by the posted price mechanism, where the platform did the credit scoring and posted the interest rate. The lender will follow such credit score released by the platform.





