FinTech as a Financial Liberator

Greg Buchak[1] Jiayin Hu[2] Shang-Jin Wei[3]

[1]GSB, Stanford University, [2]NSD, CCER & IDF, Peking University

[3]Columbia Business School and SIPA; NBER; FISF, Fudan University

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FinTech as a Force to End Financial Repression

- **Financial repression: artificially low interest rates on deposit funding**
  - Implicit tax to households, price distortion, and inefficiencies
  - A common phenomenon (McKinnon, 1973; Shaw, 1973; Fry, 1980a,b, 1997)

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  - Rising public debts after the 2007-2009 financial crisis (Reinhart, 2012) and the European sovereign debt crisis (Becker and Ivashina, 2018)
  - Bank deposits pass through fewer interest rate spikes to households than MMFs (Drechsler, Savov, and Schnabl, 2017, 2021; Xiao, 2020)

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- **Our paper underscores the liberating role of FinTech innovations**
  - Households' access to finance is often inhibited by regulation or powerful incumbent institutions (Badarinza, Balasubramaniam, and Ramadorai, 2019)
  - Banks benefit from repression and do not want to undermine the status quo
  - FinTech often emerges from outside the traditional financial system (Goldstein, Jiang, and Karolyi, 2019) and serves as a catalyst

FinTech MMFs Create Close Substitutes to Bank Deposits

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- **Financial inclusion in developing economies**
  - Analogous to check-writing MMFs under Regulation Q and the PayPal MMF
  - But in the context of a developing economy with insufficient bank services and wide adoption of digital payments enabled by tech companies

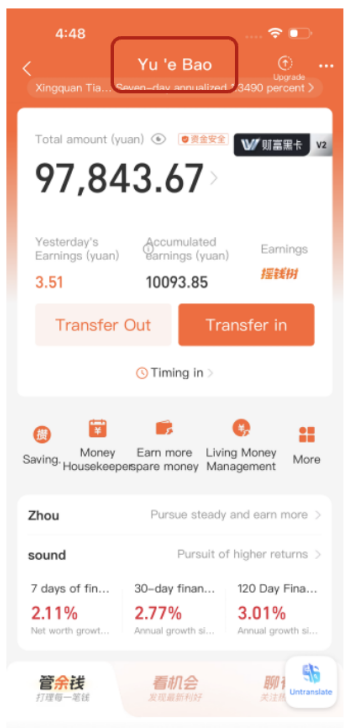
支付宝 ALIPAY

How Yu'ebao Works —– Alipay App Screenshots

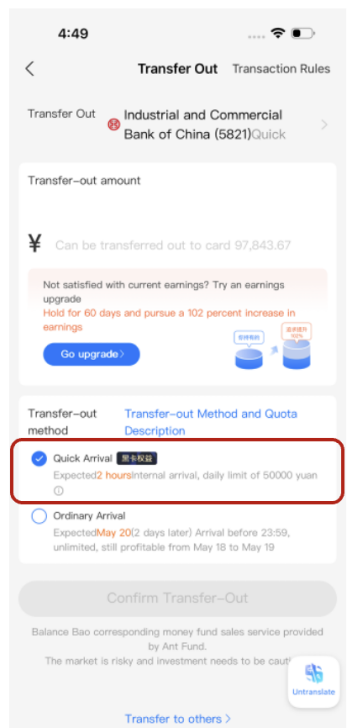
- Payment-centric financial system in the FinTech era

i. Alipay app homepage

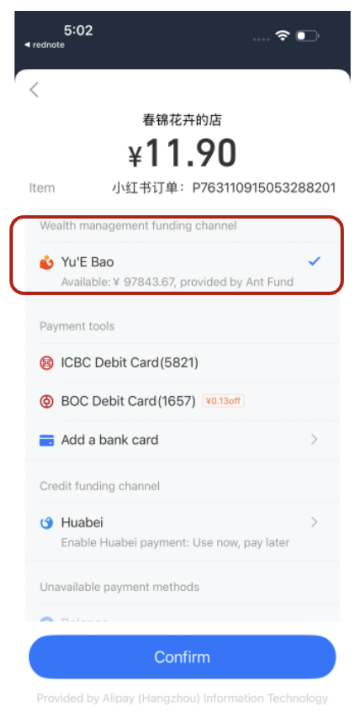
ii. Yu'ebao homepage



iii. Quick money withdrawal from Yu'ebao to bank cards



iv. Instant transaction payments using Yu'ebao



How Yu'ebao Works —– Alipay App Screenshots

- Payment-centric financial system in the FinTech era
  - "In this new type of financial hierarchy, traditional financial institutions such as banks could be replaced by fintech subsidiaries of payment systems."
  - "In China, for example, Yu'e Bao, which is a subsidiary of Ant Financial (Alibaba's financial branch), has become the world's largest money-market mutual fund." (Brunnermeier, James, and Landau, 2019)

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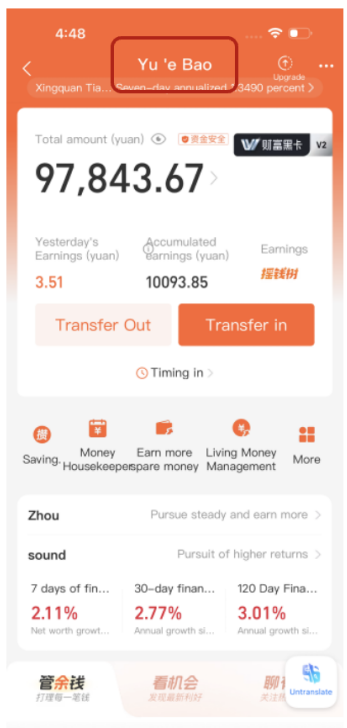

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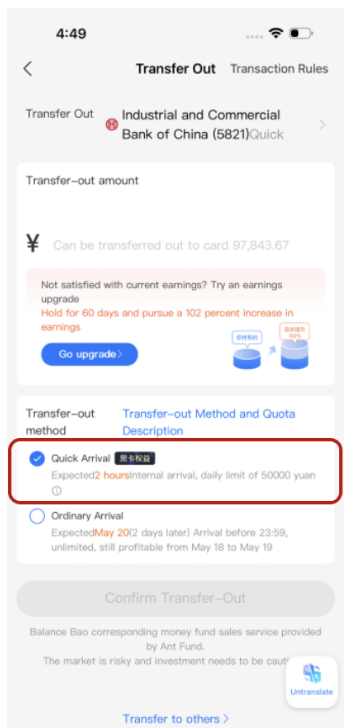

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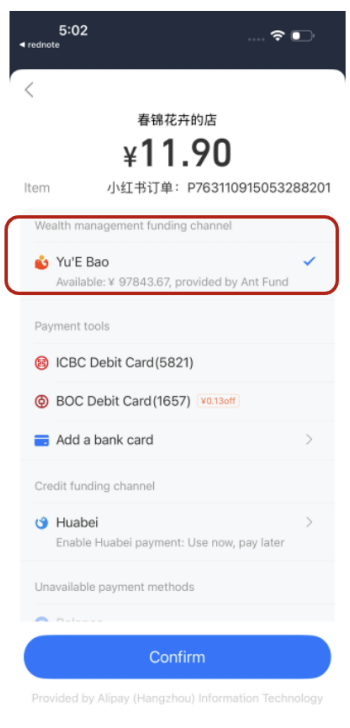

How Yu'ebao Works —– Competition in Savings and Payments

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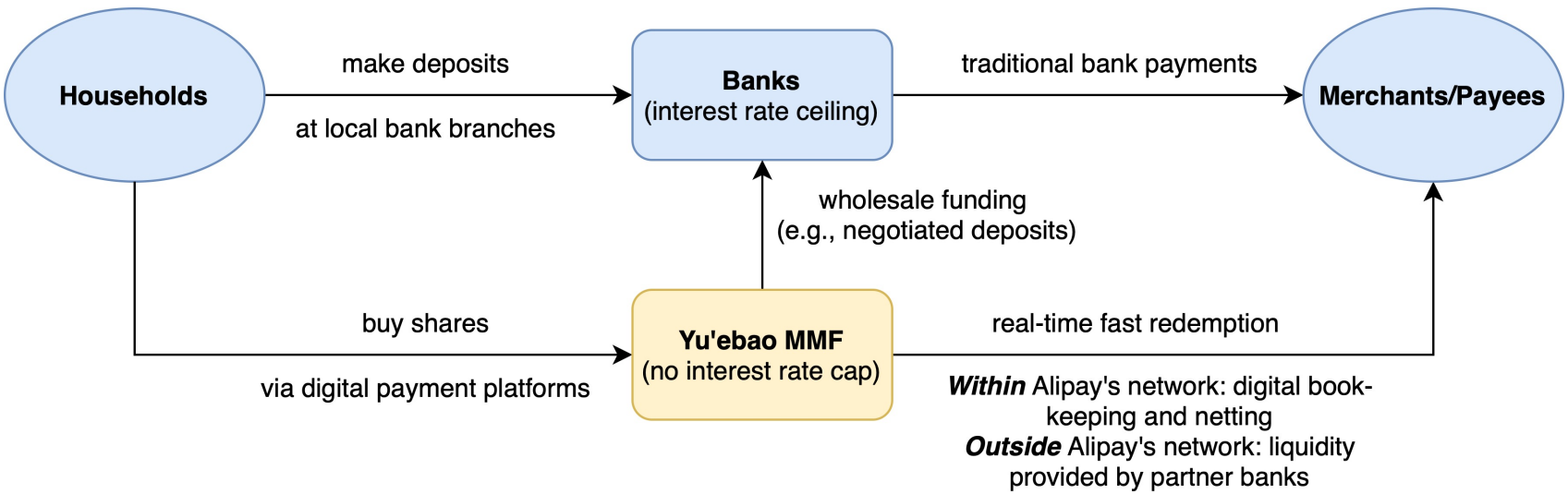

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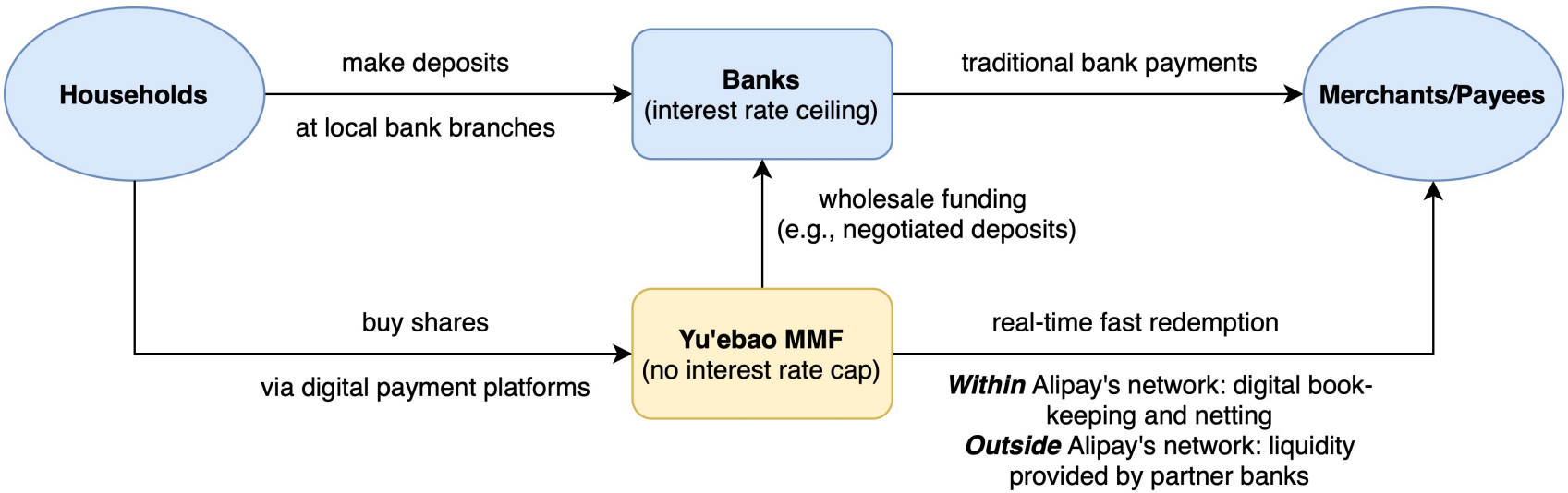

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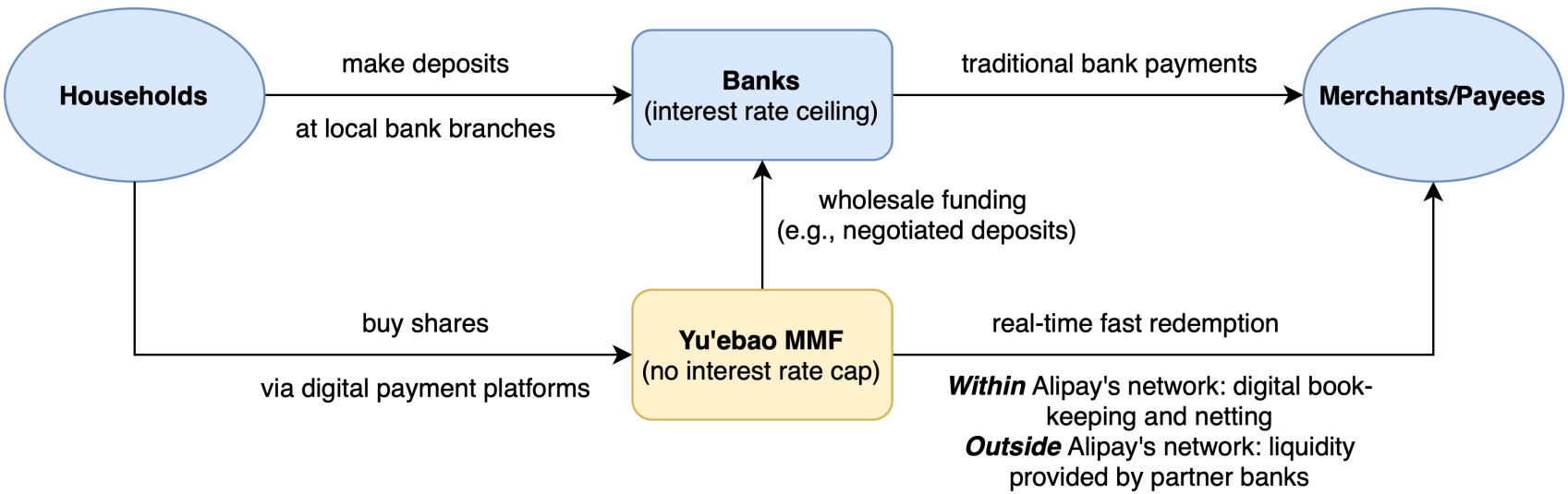

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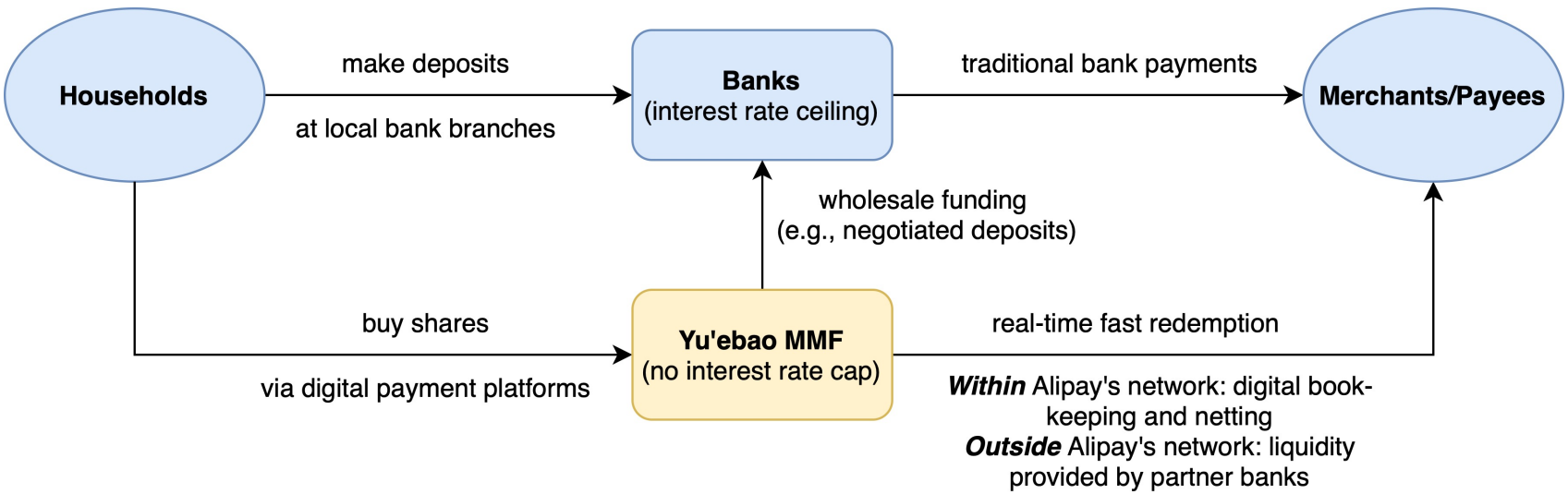
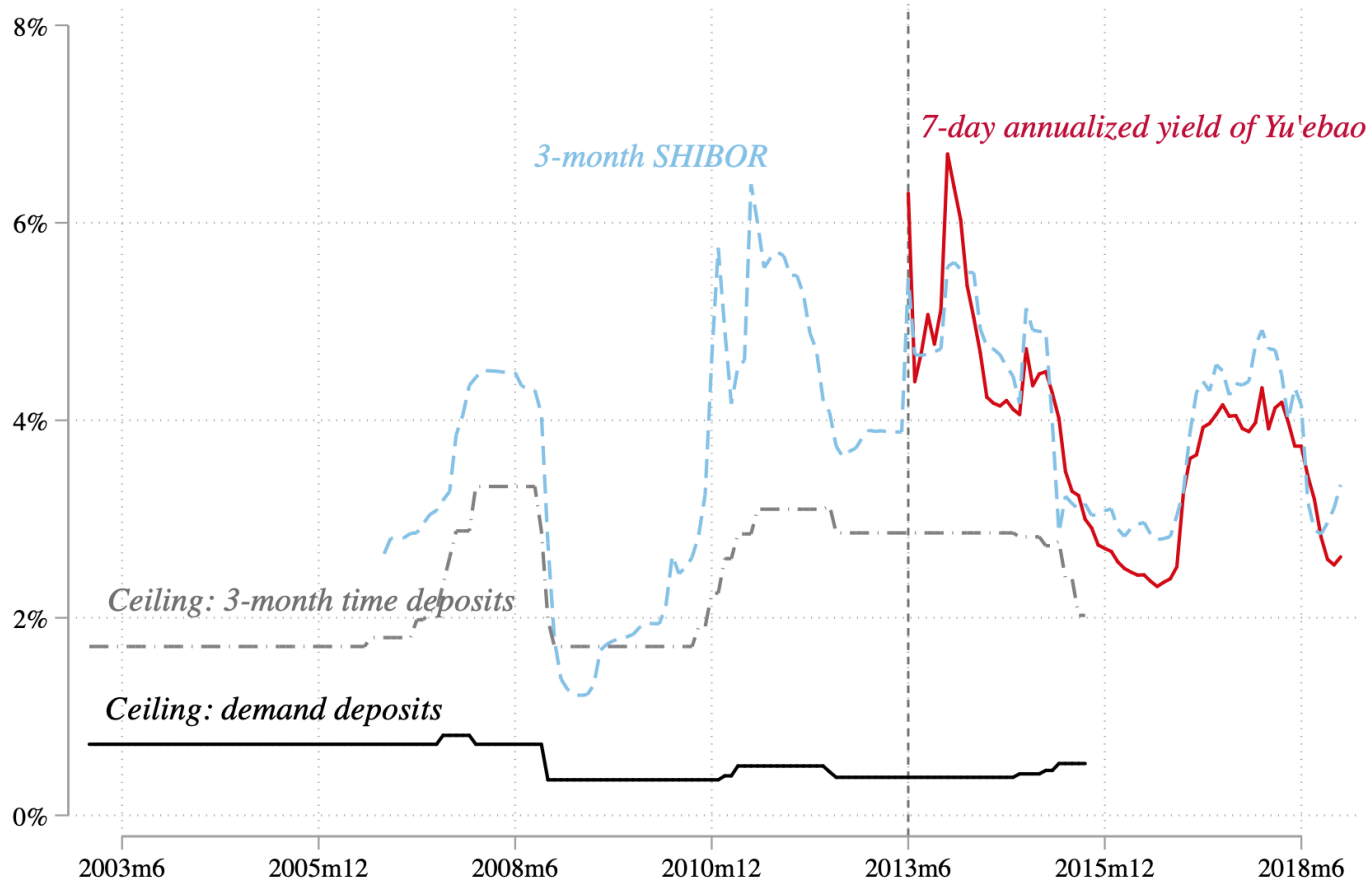
  - Households' investments in Yu'ebao are managed by the Tianhong Yu'ebao MMF, which mainly holds negotiated deposits and bonds as assets



China as an Empirical Setting is both important and useful

- **Deposit interest rate ceiling regulation kept until 2015**



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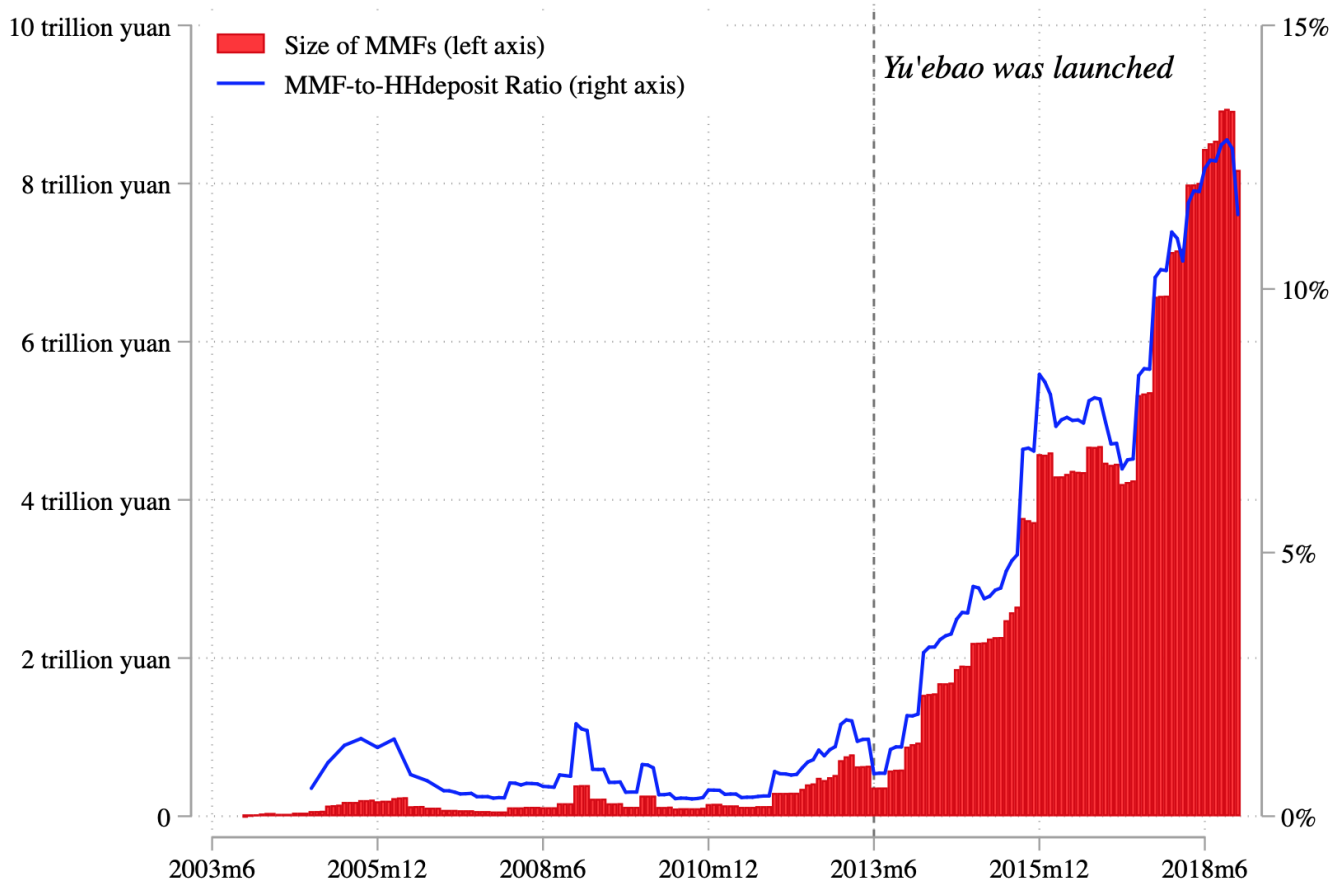

China as an Empirical Setting is both important and useful

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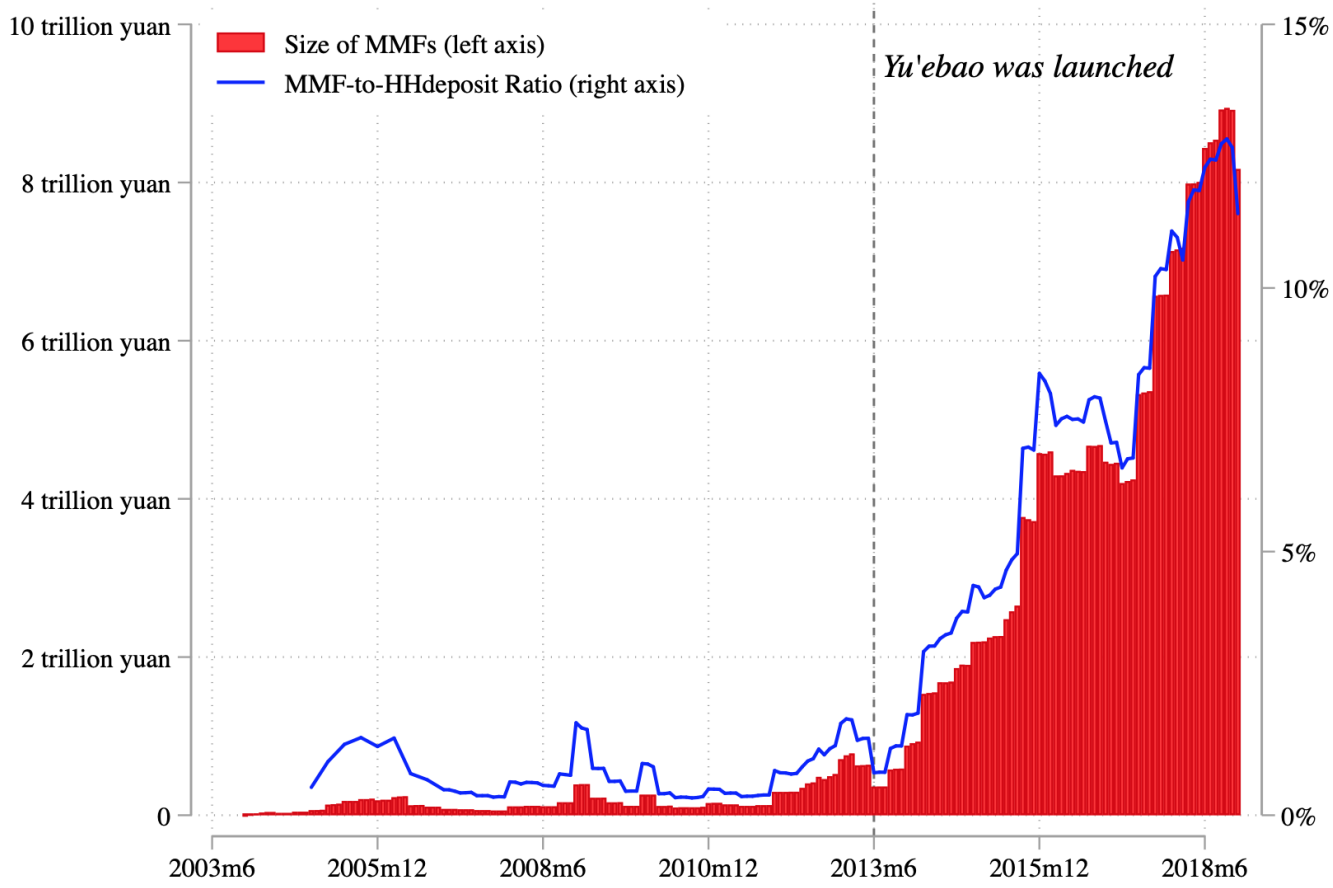
  - The size of MMFs relative to HH deposits increases from 1% to 12% since Yu'ebao, which became the world's largest MMF in 2017Q1
  - China revised its M2 measure to incorporate retail MMFs in Jan 2018



Preview of This Paper

- **Digital payment infrastructure generates synergies for the provision of other financial services (e.g., savings and investments)**
  - Higher adoption of Alipay predicts more fund flows into Yu'ebao
  - Larger effects for households with lower incomes and less financial knowledge, hence promoting financial inclusion in MMF investments

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  - Size heterogeneity: large banks adapt whereas SMBs scale down

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  - Size heterogeneity: large banks adapt whereas SMBs scale down
- **FinTech innovations finally let households be paid market interest rates on their savings by democratizing the access to MMFs**
  - FinTech succeeds where standard MMFs had failed over the reluctance of the banks $\rightarrow$ *de facto* bottom-up financial liberalization

Contributions to the Literature

- **Rise of FinTech is a new force, esp. in developing countries, with inadequate banking services**
  - Mobile, digital, and cashless payments: Jack, Ray, and Suri (2013), Ghosh, Vallee, and Zeng (2022), Crouzet, Gupta, and Mezzanotti (2023), Chodorow-Reich et al. (2019), Ouyang (2021), Beck et al. (2022)
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- **Instant payment has reshaped competition among banks**
  - India's UPI: >300 million users (Alok, Ghosh, Kulkarni, and Puri, 2024)
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- **However, little is known about the impact of real-time payments combined with MMFs enabled by private-sector digital platforms**

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- **New Role of FinTech in financial inclusion**
  - Synergies: lending (Suri, Bharadwaj, and Jack, 2021; Parlour, Rajan, and Zhu, 2022), savings (Bharadwaj and Suri, 2020; Bachas et al., 2018, 2021), investment (Hong, Lu, and Pan, 2020; Chen and Jiang, 2024)

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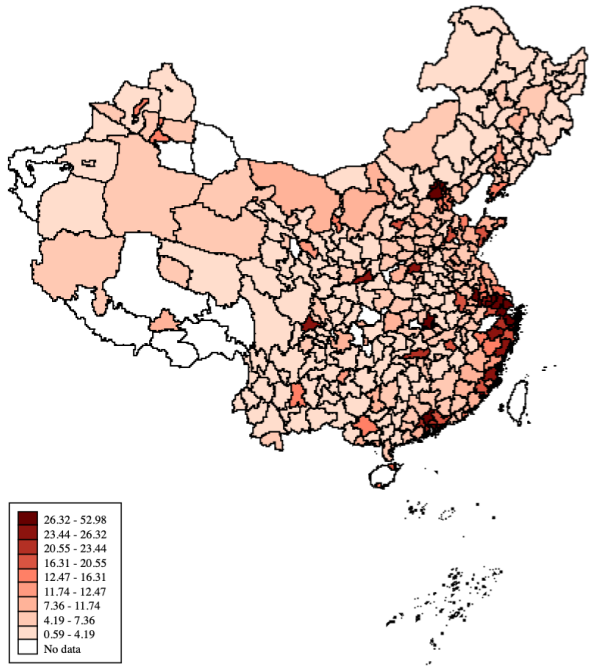
- **Role of FinTech-enabled MMFs in the creation of quasi-money**
  - Demandable equity and the specialness of banks: Jacklin (1987)
  - Deposit competition: Drechsler, Savov, and Schnabl (2017); Xiao (2020)
  - Banks' response to FinTech: Jiang et al. (2021), Puri, Qian, and Zheng (2024)

Outline

Spatial Variation in FinTech User Penetration

- **City-level FinTech adoption aggregated from account-level transactions**
  - Our proprietary Ant Group data:#active FinTech users in each city

$$Adoption_{ct}^{YEB} = \frac{Users_{ct}^{YEB}}{Population_{ct}}$$



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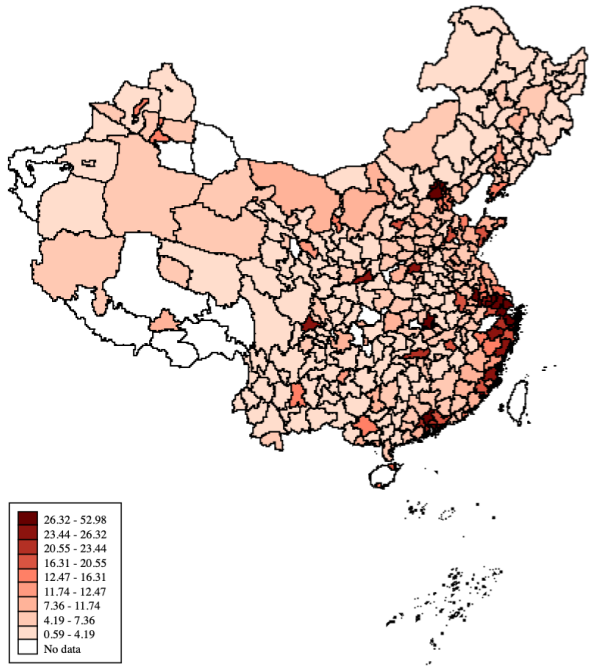

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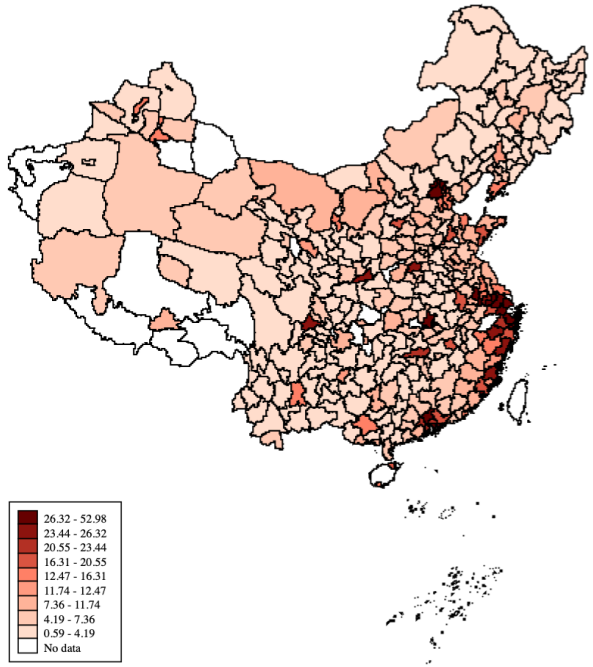
  - The proprietary and public indices are highly correlated. For data transparency, we mainly use public adoption indices



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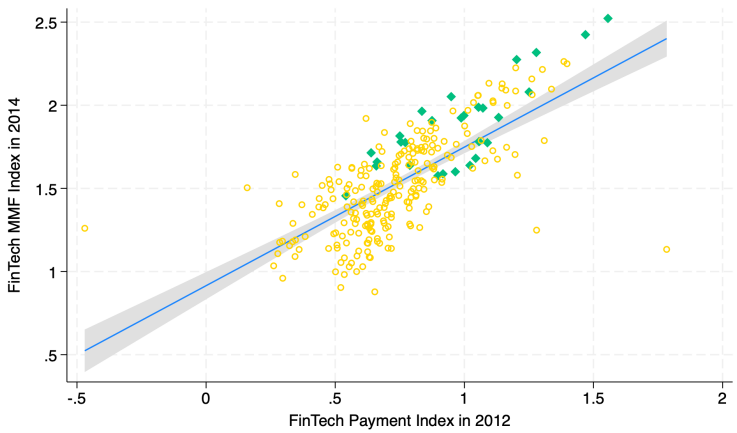
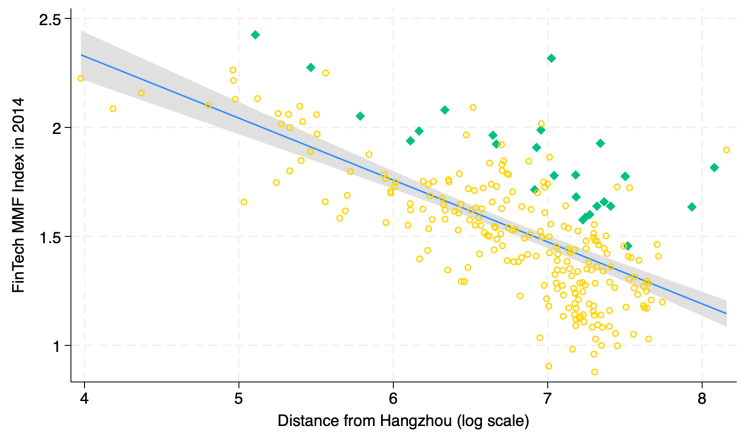
  - Pseudo-instrument: Distance to Tencent's headquarter in Shenzhen

Digital Payments Create Synergies for MMF Investments

- Alipay adoption or FinTech HQ distance predicts Yu'ebao adoption

	Y = Yu'ebao Adoption in 2014				
	(1)	(2)	(3)	(4)	(5)
$\text{Adoption}_{c,2012}^{Alipay}$	0.511***				0.385***
	(0.090)				(0.089)
$\ln(\text{HZdistance}_c)$		−0.100**			−0.071**
		(0.041)			(0.034)
$\ln(\text{SZdistance}_c)$			−0.004		0.006
			(0.015)		(0.005)
$\ln(\text{MobileUserRatio}_{c,2012})$				−0.010	−0.015
				(0.058)	(0.040)
City controls	Yes	Yes	Yes	Yes	Yes
N	259	259	259	259	259
adj. R^2	0.75	0.74	0.62	0.62	0.81





Digital Payments Create Synergies for MMF Investments

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  - Controls: ln(GDP), ln(population), ln(consumption), ln(ratio of bank branches), ratio of 2nd industry, provincial capital, all in 2012 value

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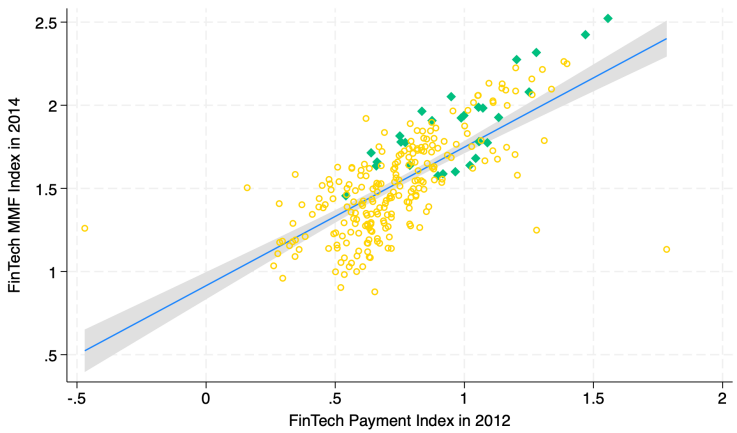
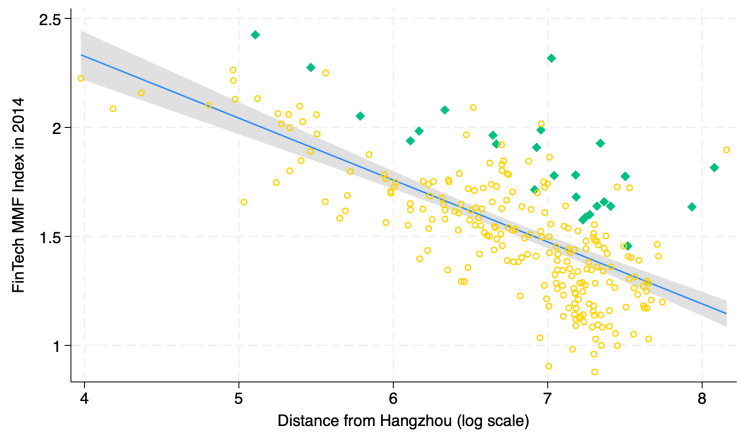




Deposit Migration into the Yu'ebao MMF

- Registering a Yu'ebao account does not necessarily imply savings
  - Counterargument: greater Alipay consumption via Yu'ebao as a conduit

	Baseline		*IV*		
	w/o controls	*w/ controls*	*Alipay*	*HZdistance*	*Both*
	(1)	(2)	(3)	(4)	(5)
Panel A: Y = Deposit-funded purchases of the Yu'ebao MMF					
$\ln(\text{Adoption}^{YEB}_{c,2013})$	1.527***	1.013***	0.987***	1.175***	0.999***
	(0.063)	(0.034)	(0.037)	(0.068)	(0.035)
City controls	No	Yes	Yes	Yes	Yes
N	323	302	302	302	302
adj. R^2	0.68	0.98	0.98	0.98	0.98
Panel B: Y = Yu'ebao MMF balance held by households					
$\ln(\text{Adoption}^{YEB}_{c,2013})$	1.496***	1.006***	0.968***	1.133***	0.979***
	(0.059)	(0.027)	(0.028)	(0.053)	(0.028)
City controls	No	Yes	Yes	Yes	Yes
N	323	302	302	302	302
adj. R^2	0.71	0.98	0.98	0.98	0.98

Deposit Migration into the Yu'ebao MMF

- Registering a Yu'ebao account does not necessarily imply savings
  - Counterargument: greater Alipay consumption via Yu'ebao as a conduit
- To address this question, we directly link Yu'ebao adoption to deposit-funded purchases and holdings of Yu'ebao
  - We find consistently positive and statistically significant results

	Baseline		*IV*		
	w/o controls	*w/ controls*	*Alipay*	*HZdistance*	*Both*
	(1)	(2)	(3)	(4)	(5)
Panel A: Y = Deposit-funded purchases of the Yu'ebao MMF					
$\ln(\text{Adoption}^{YEB}_{c,2013})$	1.527***	1.013***	0.987***	1.175***	0.999***
	(0.063)	(0.034)	(0.037)	(0.068)	(0.035)
City controls	No	Yes	Yes	Yes	Yes
N	323	302	302	302	302
adj. R^2	0.68	0.98	0.98	0.98	0.98
Panel B: Y = Yu'ebao MMF balance held by households					
$\ln(\text{Adoption}^{YEB}_{c,2013})$	1.496***	1.006***	0.968***	1.133***	0.979***
	(0.059)	(0.027)	(0.028)	(0.053)	(0.028)
City controls	No	Yes	Yes	Yes	Yes
N	323	302	302	302	302
adj. R^2	0.71	0.98	0.98	0.98	0.98

City-level Deposit Growth

- Given large inflows into Yu'ebao, a decline in deposit growth is plausible
- We formally test the hypothesis using city-year panel regression:

$$ln(HHDeposit)_{ct} = \alpha + \beta Adoption^{YEB}_{c,2014} \times post2014_t + \eta \mathbf{X}_{ct-1} + \gamma_c + \gamma_t + \mu_{ct},$$

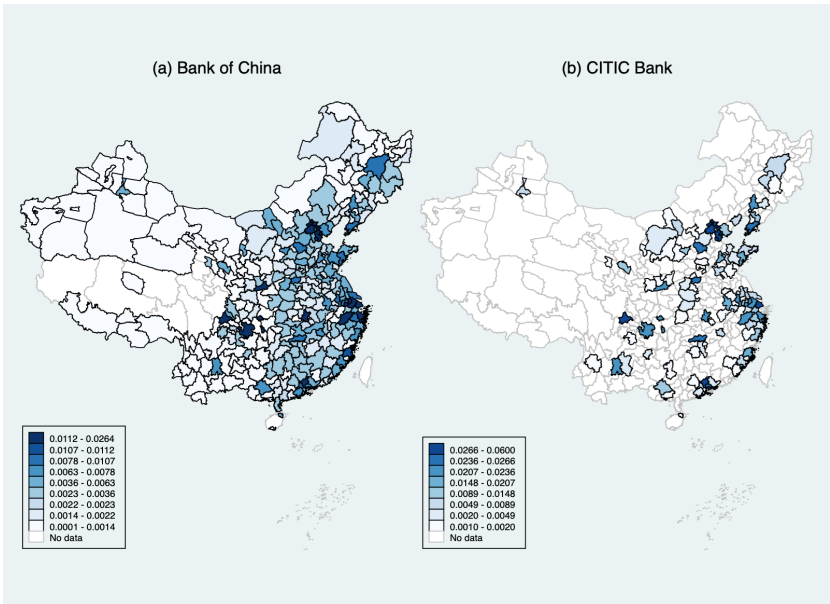
- Deposit growth in highly-exposed cities significantly reduces since 2014

	Y = Household Deposits$_{ct}$ (log scale)				
	Baseline		*IV*		
	w/o controls	*w/ controls*	*Alipay*	*HZdistance*	*Both*
	(1)	(2)	(3)	(4)	(5)
Adoption$^{YEB}_{c,2014}$ × post2014	−0.152***	−0.134***	−0.155***	−0.014	−0.089***
	(0.016)	(0.015)	(0.023)	(0.028)	(0.018)
City controls	NO	YES	YES	YES	YES
City F.E.	YES	YES	YES	YES	YES
Year F.E.	YES	YES	YES	YES	YES
Observations	2,256	2,197	2,197	2,197	2,197
Adjusted R-squared	0.99	0.99	0.99	0.99	0.99

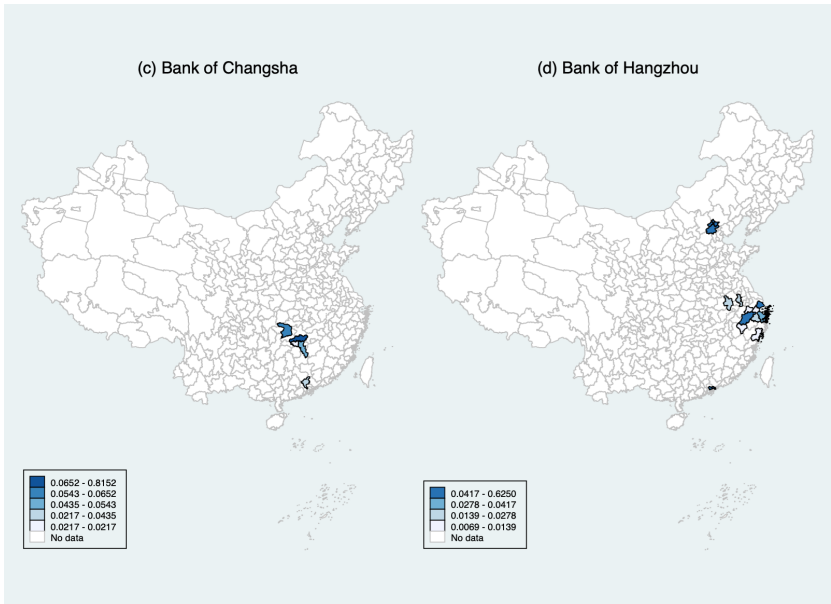
Outline

Heterogeneity in Banks' Branch Network

- We compute the bank-level exposure to Yu'ebao by exploiting the branch network heterogeneity: A darker shade indicates a higher fraction of a bank's branches located in the corresponding city



(a) Examples of large, national banks



(b) Examples of small banks

From City-Level FinTech Adoption to Bank-Level FinTech Exposure

- **Branch weights** $\omega_{bc,2012}$: Banks' local user base exposed to FinTech
  - Fixed in Dec 2012, pre-determined before the launch of Yu'ebao

$$\omega_{bc,2012} = \frac{\#Branches_{bc,2012}}{\sum_k \#Branches_{bk,2012}} \tag{1}$$

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- **Bank-level variables**: Branch-weighted sum of city-level variables

$$Exposure^{YEB}_{b,2014} = \sum_c \omega_{bc,2012} Adoption^{YEB}_{c,2014} \tag{2}$$

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- **Bank-year panel regressions, 2009-2019**

$$ln(Deposit_{bt}) = \alpha + \beta Exposure^{YEB}_{b,2014} \times post2014_t + \eta \mathbf{X}_{bt-1} + \gamma_b + \gamma_t + \epsilon_{bt}$$

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$$ln(Deposit_{bt}) = \alpha + \beta Exposure^{YEB}_{b,2014} \times post2014_t + \eta \mathbf{X}_{bt-1} + \gamma_b + \gamma_t + \epsilon_{bt}$$

  - $post2014_t = 1$ if year >= 2014 and 0 otherwise
  - Controls include lagged value of bank size (ln), branch share, bank-level aggregated local GDP, population, consumption, and 2nd industry ratio
  - γ_b and γ_t are bank and year F.E.s; ϵ_{bt} clustered at bank level

FinTech Exposure and Bank Deposit Growth

- Bank-level analysis allows for a more nuanced study by deposit types

Dep. Var.	**Y = Bank Deposits$_{bt}$ (log scale)**					
	Total		Household		Corporate	
	(1)	(2)	(3)	(4)	(5)	(6)
Exposure$^{YEB}_{b,2014}$ × post2014	−0.218**	−0.224**	−0.348**	−0.377***	0.008	−0.000
	(0.097)	(0.096)	(0.137)	(0.136)	(0.108)	(0.108)
Controls	NO	YES	NO	YES	NO	YES
Bank F.E.	YES	YES	YES	YES	YES	YES
Year F.E.	YES	YES	YES	YES	YES	YES
Observations	1,086	1,059	1,086	1,059	1,086	1,059
Adjusted R-squared	0.986	0.986	0.977	0.978	0.983	0.983
Mean of depvar.	7.333	7.333	6.056	6.056	6.745	6.745

FinTech Exposure and Bank Deposit Growth

- Bank-level analysis allows for a more nuanced study by deposit types
  - Yu'ebao offers instant liquidity and market interest rates for retail users, who did not have access to such options, therefore mainly displacing household deposits rather than corporate deposits

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FinTech Exposure and Bank Deposit Growth

- Bank-level analysis allows for a more nuanced study by deposit types
  - Yu'ebao offers instant liquidity and market interest rates for retail users, who did not have access to such options, therefore mainly displacing household deposits rather than corporate deposits
  - The estimates remain robust under IV methods IV results

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	Total		Household		Corporate	
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Bank F.E.	YES	YES	YES	YES	YES	YES
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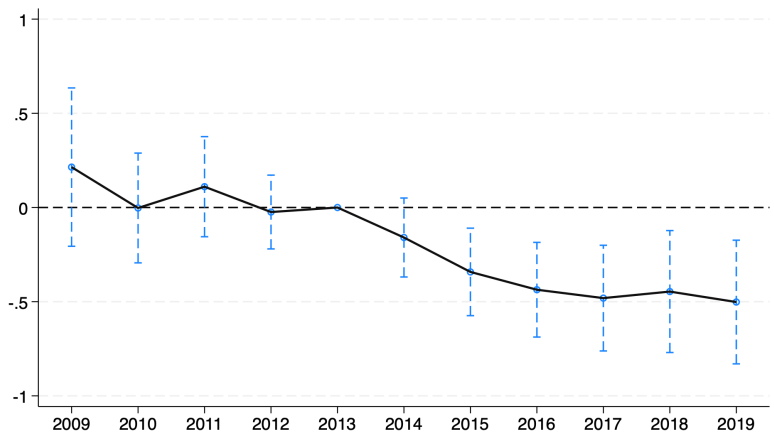
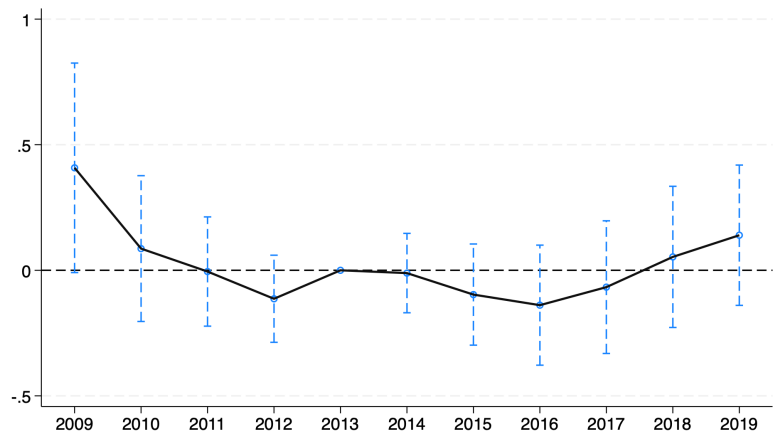
FinTech Exposure and Deposit Growth, Pre-Trend Analysis

- One remaining identification concern is that highly exposed banks might already be on different deposit trends



(a) Household deposits



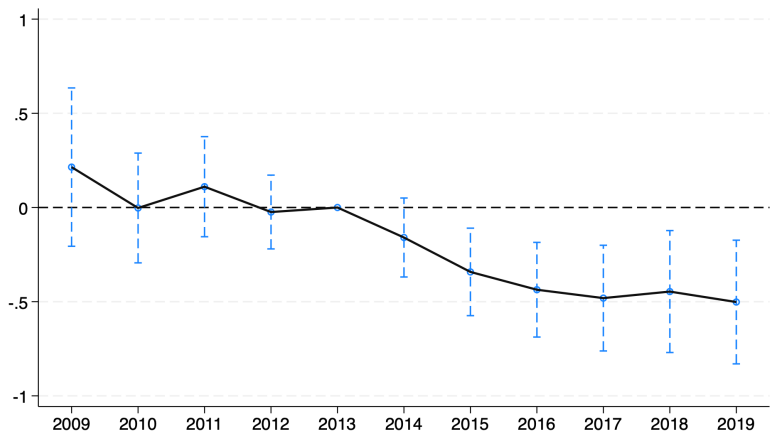
(b) Corporate deposits

FinTech Exposure and Deposit Growth, Pre-Trend Analysis

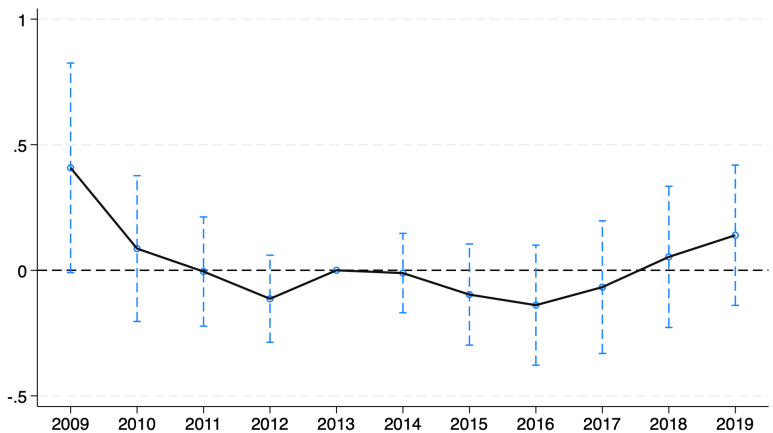
- One remaining identification concern is that highly exposed banks might already be on different deposit trends
- We test for pre-trends with the following dynamic DID:

$$\ln(\text{Deposit})_{bt} = \alpha + \sum_{t \neq 2013} \beta_t \, Exposure^{YEB}_{b,2014} \times Year_t + \eta X_{bt-1} + \gamma_b + \gamma_t + \mu_{bt}.$$

  - $Year_t = 1$ if the corresponding year is t and 0 otherwise



(a) Household deposits



(b) Corporate deposits

Deposits and Interest Rates

- Under FinTech competition, banks in general lose deposits and reduce interest expenses
  - We exclude six state-owned, largest banks ("Big 6") to test robustness

	Full Sample		Excluding Big 6	
	(1)	(2)	(3)	(4)
Panel A: Y = Household Deposits (log scale)				
$\text{Exposure}^{YEB}_{b,2014} \times \text{post2014}$	−0.348**	−0.436***	−0.386***	−0.469***
	(0.137)	(0.116)	(0.138)	(0.115)
Adjusted R-squared	0.977	0.980	0.961	0.967
Mean of depvar.	6.056	6.056	5.773	5.773
Panel B: Y = Interest Expenses (log scale)				
$\text{Exposure}^{YEB}_{b,2014} \times \text{post2014}$	−0.343**	−0.445***	−0.403***	−0.498***
	(0.139)	(0.123)	(0.134)	(0.118)
Adjusted R-squared	0.954	0.956	0.942	0.945
Mean of depvar.	8.420	8.420	8.190	8.190
Panel C: Y = Deposit Interest Rates (%)				
$\text{Exposure}^{YEB}_{b,2014} \times \text{post2014}$	0.096	−0.114	0.017	−0.185
	(0.315)	(0.318)	(0.316)	(0.318)
Adjusted R-squared	0.665	0.678	0.658	0.671
Mean of depvar.	3.231	3.231	3.296	3.296
All Panels				
Observations	1,086	1,067	1,024	1,005
Controls	NO	YES	NO	YES
Bank F.E.	YES	YES	YES	YES
Year F.E.	YES	YES	YES	YES

Deposits and Interest Rates

- Under FinTech competition, banks in general lose deposits and reduce interest expenses
  - We exclude six state-owned, largest banks ("Big 6") to test robustness
- Interest rates barely change
  - potentially due to ceiling regulations and other frictions (e.g., window guidance by regulatory authorities or self-disciplinary organizations)

	Full Sample		Excluding Big 6	
	(1)	(2)	(3)	(4)
Panel A: Y = Household Deposits (log scale)				
$\text{Exposure}^{YEB}_{b,2014} \times \text{post2014}$	−0.348**	−0.436***	−0.386***	−0.469***
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Observations	1,086	1,067	1,024	1,005
Controls	NO	YES	NO	YES
Bank F.E.	YES	YES	YES	YES
Year F.E.	YES	YES	YES	YES

Banks' Retail Product Innovation

- To track banks' product responses, we hand-collect all "*bao*"-type MMFs from WIND announcements and cross-check with media releases

	Baseline	*IV*		
	w/ controls	*exposureAlipay*	*HZdistance*	*Both*
	(1)	(2)	(3)	(4)
Panel A: Y = Prob. of banks offering bao-type products, OLS model				
ln(exposureYEB)	0.124**	0.125*	0.152	0.129**
	(0.062)	(0.065)	(0.092)	(0.065)
Bank controls	Yes	Yes	Yes	Yes
N	130	130	130	130
adj. R^2	0.422	0.422	0.421	0.422
Panel B: Y = Prob. of banks offering bao-type products, hazard model				
ln(exposureYEB)	1.469**	1.579**	0.774*	1.497**
	(0.585)	(0.633)	(0.410)	(0.583)
Bank controls	Yes	Yes	Yes	Yes
N	130	130	130	130
R^2	0.427	0.426	0.409	0.427

Banks' Retail Product Innovation

- To track banks' product responses, we hand-collect all "*bao*"-type MMFs from WIND announcements and cross-check with media releases
- FinTech competition induces banks to offer Yu'ebao-style MMFs with instant liquidity and low investment thresholds

	Baseline	*IV*		
	w/ controls	*exposureAlipay*	*HZdistance*	*Both*
	(1)	(2)	(3)	(4)
Panel A: Y = Prob. of banks offering bao-type products, OLS model				
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	(0.062)	(0.065)	(0.092)	(0.065)
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ln(exposureYEB)	1.469**	1.579**	0.774*	1.497**
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Bank controls	Yes	Yes	Yes	Yes
N	130	130	130	130
R^2	0.427	0.426	0.409	0.427

Deposit-Loan Channel: Transmission to Bank Loan Supply

- Financial repression often justified as shielding banks from deposit competition to preserve stability

	Full Sample		Excluding Big 6	
	(1)	(2)	(3)	(4)
Panel A: Y = Bank Loans (log scale)				
$\text{Exposure}^{YEB}_{b,2014} \times \text{post2014}$	−0.312***	−0.352***	−0.337***	−0.376***
	(0.106)	(0.096)	(0.105)	(0.095)
Adjusted R-squared	0.986	0.986	0.980	0.981
Mean of depvar.	6.840	6.840	6.585	6.585
Panel B: Y = Interest Income (log scale)				
$\text{Exposure}^{YEB}_{b,2014} \times \text{post2014}$	−0.206	−0.288**	−0.248*	−0.326***
	(0.138)	(0.122)	(0.137)	(0.121)
Adjusted R-squared	0.962	0.963	0.947	0.949
Mean of depvar.	9.142	9.142	8.904	8.904
Panel C: Y = Loan Interest Rates (%)				
$\text{Exposure}^{YEB}_{b,2014} \times \text{post2014}$	1.353	0.571	1.207	0.466
	(1.004)	(0.941)	(1.023)	(0.956)
Adjusted R-squared	0.595	0.608	0.580	0.592
Mean of depvar.	10.49	10.49	10.66	10.66
All Panels				
Observations	1,086	1,067	1,024	1,005
Controls	NO	YES	NO	YES
Bank F.E.	YES	YES	YES	YES
Year F.E.	YES	YES	YES	YES

Deposit-Loan Channel: Transmission to Bank Loan Supply

- Financial repression often justified as shielding banks from deposit competition to preserve stability
- Dark side of FinTech competition?

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All Panels				
Observations	1,086	1,067	1,024	1,005
Controls	NO	YES	NO	YES
Bank F.E.	YES	YES	YES	YES
Year F.E.	YES	YES	YES	YES

Deposit-Loan Channel: Transmission to Bank Loan Supply

- Financial repression often justified as shielding banks from deposit competition to preserve stability
- Dark side of FinTech competition?
  - Yu'ebao does not lend; invests mainly in bank CDs and bonds

	Full Sample		Excluding Big 6	
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Bank F.E.	YES	YES	YES	YES
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Deposit-Loan Channel: Transmission to Bank Loan Supply

- Financial repression often justified as shielding banks from deposit competition to preserve stability
- Dark side of FinTech competition?
  - Yu'ebao does not lend; invests mainly in bank CDs and bonds
  - Thus the funds it attracts return to the banking sector writ large but at market rates, altering banks' funding costs and potentially their loan supply

	Full Sample		Excluding Big 6	
	(1)	(2)	(3)	(4)
Panel A: Y = Bank Loans (log scale)				
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All Panels				
Observations	1,086	1,067	1,024	1,005
Controls	NO	YES	NO	YES
Bank F.E.	YES	YES	YES	YES
Year F.E.	YES	YES	YES	YES

Deposit-Loan Channel: Bank Risk-taking and Profitability

- Competitive pressure in deposit market alters bank behavior

	Full Sample		Excluding Big 6	
	(1)	(2)	(3)	(4)
Panel A: Y = NPL Ratios (%)				
$\text{Exposure}^{YEB}_{b,2014} \times \text{post2014}$	−0.630***	−0.661***	−0.691***	−0.699***
	(0.199)	(0.205)	(0.199)	(0.204)
Observations	844	836	782	774
Adjusted R-squared	0.326	0.322	0.324	0.320
Mean of depvar.	1.424	1.424	1.432	1.432
Panel B: Y = Commission Income (net, log scale)				
$\text{Exposure}^{YEB}_{b,2014} \times \text{post2014}$	0.766***	0.743***	0.709**	0.691**
	(0.283)	(0.262)	(0.289)	(0.269)
Observations	1043	1027	981	965
Adjusted R-squared	0.930	0.934	0.907	0.911
Mean of depvar.	5.858	5.858	5.537	5.537
Panel C: Y = Bank Profits (net, log scale)				
$\text{Exposure}^{YEB}_{b,2014} \times \text{post2014}$	0.049	−0.005	0.033	−0.018
	(0.165)	(0.160)	(0.167)	(0.161)
Observations	1083	1064	1021	1002
Adjusted R-squared	0.939	0.939	0.905	0.907
Mean of depvar.	7.501	7.501	7.244	7.244
All Panels				
Controls	NO	YES	NO	YES
Bank F.E.	YES	YES	YES	YES
Year F.E.	YES	YES	YES	YES

Deposit-Loan Channel: Bank Risk-taking and Profitability

- Competitive pressure in deposit market alters bank behavior
  - Banks scale down loan supply and lend to less risky borrowers

	Full Sample		Excluding Big 6	
	(1)	(2)	(3)	(4)
Panel A: Y = NPL Ratios (%)				
$\text{Exposure}^{YEB}_{b,2014} \times \text{post2014}$	−0.630***	−0.661***	−0.691***	−0.699***
	(0.199)	(0.205)	(0.199)	(0.204)
Observations	844	836	782	774
Adjusted R-squared	0.326	0.322	0.324	0.320
Mean of depvar.	1.424	1.424	1.432	1.432
Panel B: Y = Commission Income (net, log scale)				
$\text{Exposure}^{YEB}_{b,2014} \times \text{post2014}$	0.766***	0.743***	0.709**	0.691**
	(0.283)	(0.262)	(0.289)	(0.269)
Observations	1043	1027	981	965
Adjusted R-squared	0.930	0.934	0.907	0.911
Mean of depvar.	5.858	5.858	5.537	5.537
Panel C: Y = Bank Profits (net, log scale)				
$\text{Exposure}^{YEB}_{b,2014} \times \text{post2014}$	0.049	−0.005	0.033	−0.018
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Bank F.E.	YES	YES	YES	YES
Year F.E.	YES	YES	YES	YES

Deposit-Loan Channel: Bank Risk-taking and Profitability

- Competitive pressure in deposit market alters bank behavior
  - Banks scale down loan supply and lend to less risky borrowers
  - Business model transformation: net income from commission fees increases

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Bank F.E.	YES	YES	YES	YES
Year F.E.	YES	YES	YES	YES

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  - Banks scale down loan supply and lend to less risky borrowers
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  - Overall, net profits are unaffected

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All Panels				
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Bank F.E.	YES	YES	YES	YES
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Deposit-Loan Channel: Bank Risk-taking and Profitability

- Competitive pressure in deposit market alters bank behavior
  - Banks scale down loan supply and lend to less risky borrowers
  - Business model transformation: net income from commission fees increases
  - Overall, net profits are unaffected
- The shifting business model of banks (e.g., Buchak et al., 2024): balance sheet banking model $\rightarrow$ fee business model

	Full Sample		Excluding Big 6	
	(1)	(2)	(3)	(4)
Panel A: Y = NPL Ratios (%)				
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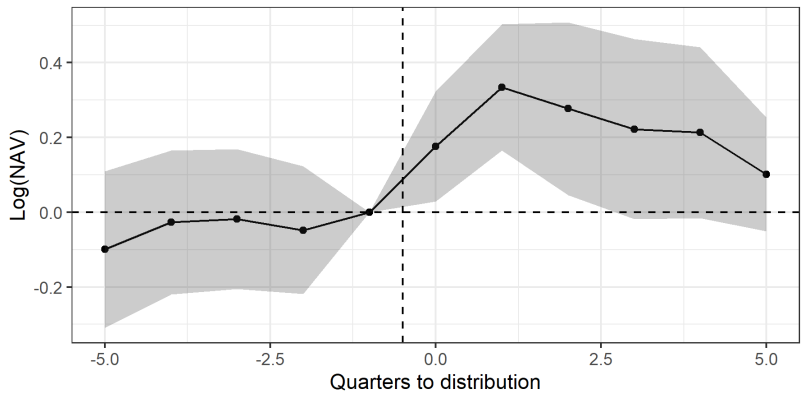
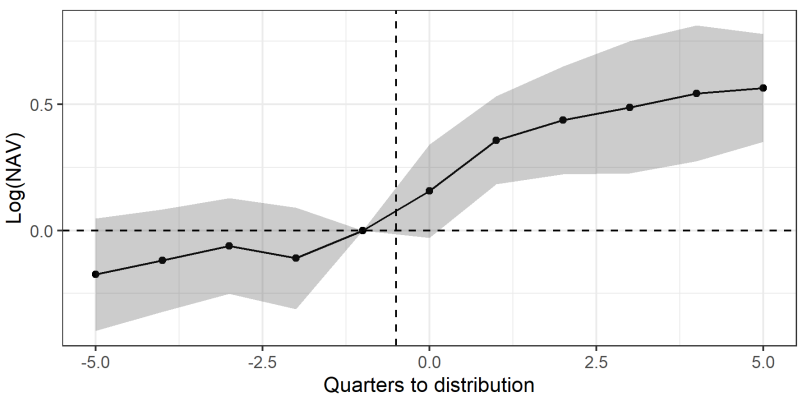
All Panels				
Controls	NO	YES	NO	YES
Bank F.E.	YES	YES	YES	YES
Year F.E.	YES	YES	YES	YES

Mechanisms: The Distribution Channel

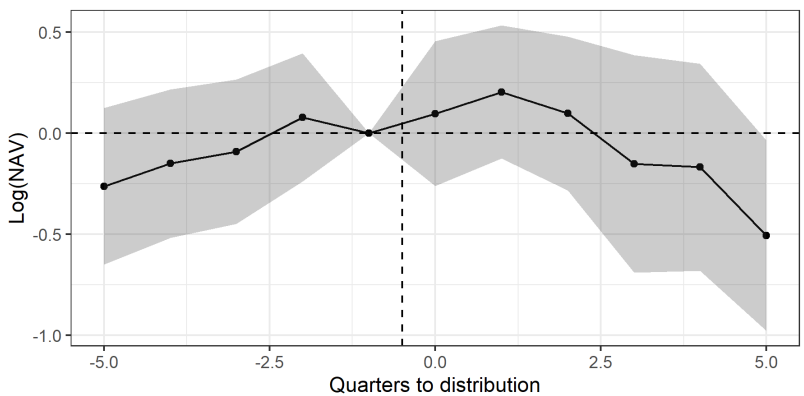
- Digital tech-enabled convenience is critical to the success of Yu'ebao
- We focus on the NAV growth of non-MMF mutual funds distributed by tech platforms vs. banks to shut down the instant payment channel



(a) Distribution by Ant



(b) Distribution by Non-Ant Tech Platform



(c) Distribution by Banks

Mechanisms: Deposit-Like Features

- Placebo tests: wealth management products (WMPs) offered by banks to households, which is also not subject to deposit ceiling regulation
  - But with high investment thresholds ($\geq$ 50k RMB), no fast redemption
  - Shadow banking, Chinese style (Allen et al., 2019; Acharya et al., 2024)

Dep. Var.	**Y = WMP yields**			
	Full Sample		Excluding Big 6	
	Max	Min	Max	Min
	(1)	(2)	(3)	(4)
$\text{Exposure}^{YEB}_{b,2014} \times \text{post2014}$	−0.050	−0.482	−0.029	−0.394
	(0.133)	(0.487)	(0.134)	(0.484)
Controls	YES	YES	YES	YES
Bank F.E.	YES	YES	YES	YES
Year F.E.	YES	YES	YES	YES
Observations	742	730	695	683
Adjusted R-squared	0.800	0.612	0.803	0.615
Mean of depvar.	4.771	3.912	4.790	3.924

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  - But with high investment thresholds ($\geq$ 50k RMB), no fast redemption
  - Shadow banking, Chinese style (Allen et al., 2019; Acharya et al., 2024)
- Yu'ebao targets ordinary households and does not compete with WMPs
  - No significant impact on WMP yields (all winsorized at 1% and 99%)

Dep. Var.	**Y = WMP yields**			
	Full Sample		Excluding Big 6	
	Max	Min	Max	Min
	(1)	(2)	(3)	(4)
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Outline

YEB Adoption Appears to Increase Financial Inclusion

- 95% of Yu'ebao holdings balance $\leq$ 50k RMB

Y = FinTech MMF Participation (dummy, as of 2015 survey time)				
	(1)	(2)	(3)	(4)
Panel A: Baseline impact	*Logit*		*IV*	
		Alipay	*HZdistance*	*Both*
$\text{Adoption}^{YEB}_{c,2014}$	0.043***	0.505*	0.853***	0.662***
	(0.013)	(0.288)	(0.266)	(0.232)
Panel B: Heterogeneity by individual characteristics				
$\text{Adoption}^{YEB}_{c,2014}$	0.243***	0.038**	0.070***	0.233***
	(0.083)	(0.015)	(0.017)	(0.083)
$\text{Adoption}^{YEB}_{c,2014} \times \ln(\text{Income})_{i,2012}$	−0.021***			−0.018**
	(0.007)			(0.008)
$\ln(\text{Income})_{i,2012}$	0.056***			0.048***
	(0.006)			(0.006)
$\text{Adoption}^{YEB}_{c,2014} \times \text{FAttention}_{i,2012}$		0.053**		0.054***
		(0.020)		(0.020)
$\text{FAttention}_{i,2012}$		−0.007		−0.029*
		(0.017)		(0.017)
$\text{Adoption}^{YEB}_{c,2014} \times \text{FLiteracy}_{i,2012}$			−0.050***	−0.040**
			(0.016)	(0.016)
$\text{FLiteracy}_{i,2012}$			0.089***	0.062***
			(0.013)	(0.013)
All Panels				
N	13,264	13,264	13,264	13,264
Controls	YES	YES	YES	YES

YEB Adoption Appears to Increase Financial Inclusion

- 95% of Yu'ebao holdings balance $\leq$ 50k RMB
- Yu'ebao's low threshold and easy interface benefit lower-income and −literacy families more
  - 13,264 households in both 2013 and 2015 CHFS waves in 161 cities
  - Statistically positive average marginal effects from the logit model

Y = FinTech MMF Participation (dummy, as of 2015 survey time)				
	(1)	(2)	(3)	(4)
Panel A: Baseline impact	*Logit*		*IV*	
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			(0.016)	(0.016)
$\text{FLiteracy}_{i,2012}$			0.089***	0.062***
			(0.013)	(0.013)
All Panels				
N	13,264	13,264	13,264	13,264
Controls	YES	YES	YES	YES

Outline

Takeaways

- **We provide the first systematic investigation into the potential of FinTech as a bottom-up liberalizing force**
  - Esp. in developing economies potentially hampered by financial repression
  - FinTech more successful than standard MMFs to introduce market interest rates to households over the reluctance of banks

Takeaways

- **We provide the first systematic investigation into the potential of FinTech as a bottom-up liberalizing force**
  - Esp. in developing economies potentially hampered by financial repression
  - FinTech more successful than standard MMFs to introduce market interest rates to households over the reluctance of banks
- **We examine the equilibrium effect of a new FinTech entrant that competes directly with bank household deposits in China**
  - The entry of Yu'ebao, China's first MMF that offers deposit-like services through a widely-adopted and well-trusted digital payment platform, siphons deposits out of the traditional banking system
  - Banks' strategic responses help avoid the worst effects on profitability

Takeaways

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  - The entry of Yu'ebao, China's first MMF that offers deposit-like services through a widely-adopted and well-trusted digital payment platform, siphons deposits out of the traditional banking system
  - Banks' strategic responses help avoid the worst effects on profitability
- **FinTech outsiders can effect bottom-up liberalization**
  - Relevant to other cases of explicit (i.e., government-led) or implicit (i.e., arising because of bank market power) financial repression
  - Important lessons for understanding the efficiency and stability consequences of FinTech innovations in other countries

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FinTech Exposure and Bank Deposit Growth: IV Results

back

	OLS	*IV*		
		Alipay	*HZdistance*	*Both*
	(1)	(2)	(3)	(4)
Panel A: Y = Household Deposit (log scale)				
$\text{Exposure}_{b,2014}^{YEB} \times \text{post2014}$	−0.377***	−0.377**	−0.260	−0.347**
	(0.136)	(0.148)	(0.181)	(0.148)
Adjusted R-squared	0.978	0.978	0.978	0.978
Mean of depvar.	6.056	6.056	6.056	6.056
Panel B: Y = Corporate Deposit (log scale)				
$\text{Exposure}_{b,2014}^{YEB} \times \text{post2014}$	−0.000	0.105	0.208	0.132
	(0.108)	(0.121)	(0.156)	(0.120)
Adjusted R-squared	0.983	0.983	0.982	0.983
Mean of depvar.	6.745	6.745	6.745	6.745
All Panels				
Observations	1,059	1,060	1,060	1,060
Controls	YES	YES	YES	YES
Bank F.E.	YES	YES	YES	YES
Year F.E.	YES	YES	YES	YES