Information acquisition by institutional depositors during bank panic

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Motivation

- Bank panics are rare but very disruptive phenomena
  - Were thought to be extinct but came back during the Great Recession
- Crucial to analyze informational determinants of depositors' behavior during bank panics
  - What kind of information depositors have access to
  - How information is transmitted etc
  - What information is available to the market
- Empirical challenges
  - Contamination from concurrent macroeconomic shock
  - Lack of detailed data on individual depositor

This paper:

- Rare reputation-based bank panic in summer 2004, triggered by unexpected CB announcement to crack on bank suspicious offshore operations
  - Not contaminated by an accompanying macroeconomic shock
    - No deposit insurance present
- Weekly data on wire transfers of institutional depositors
  - What kind of information individual institutional depositor base their decision to withdraw funds from the bank
  - Heterogeneity in access to and response depending on depositor type
  - Mechanisms of information transmission: Informational flows between different groups of depositors

Results I

- Depositors with strong business relationship with their bank
  - Seem to observe very confidential and crucial information about their bank regulatory risk and respond to this during the bank panic
    - Given the CBR announcement with use Chernykh, Mityakov (2017) offshore activity measure
    - Heterogeneity: Depositors who are likely to be the beneficiaries of offshore operations increase their transfers, all others cut down ties with offshore-active banks

- Tend to respond less to publicly information about banks: e.g. capital, rumors
  - Depositor-companies in addition provide liquidity for their banks in case those banks get into trouble

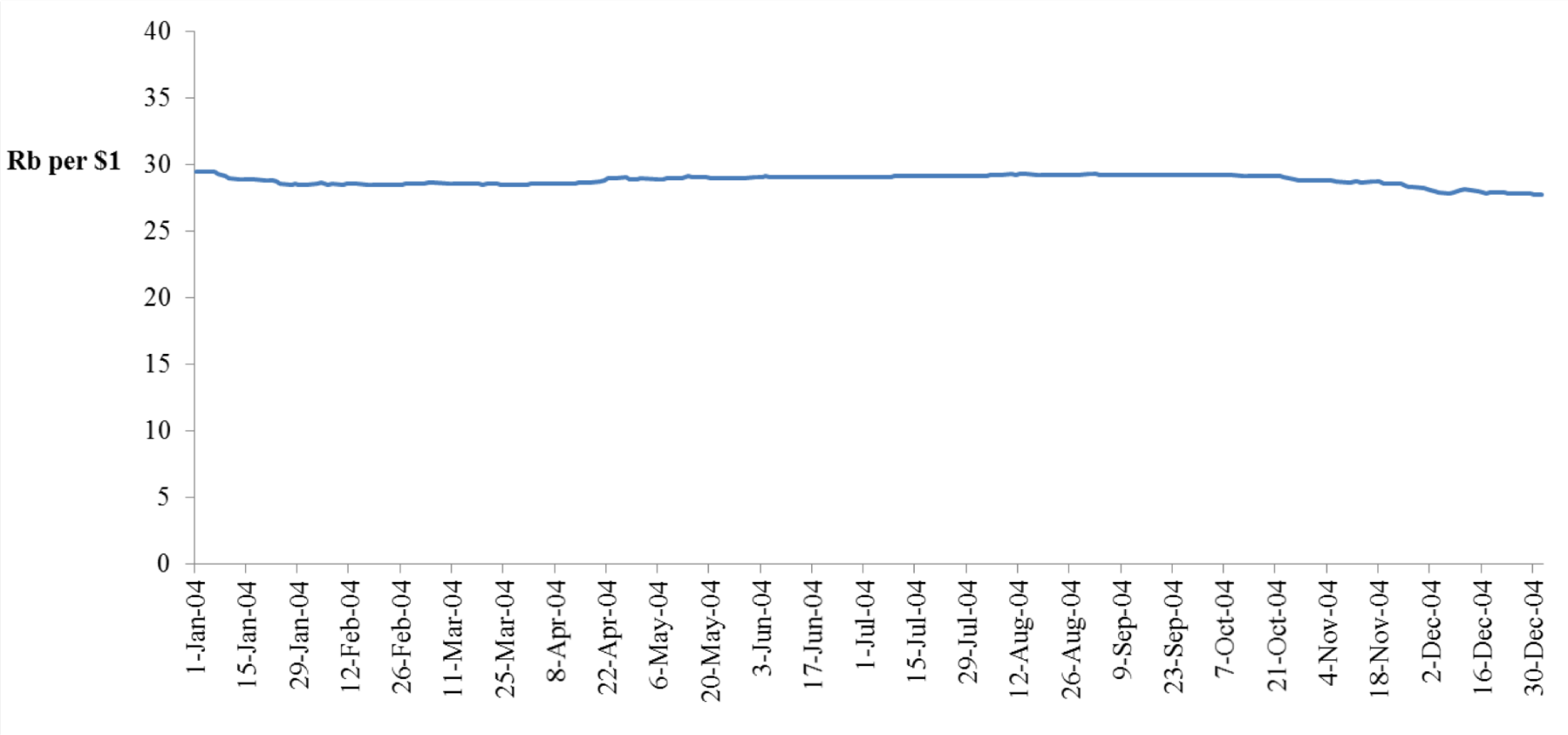
Results II

- Depositors without strong business relationship with their bank ("non-connected" depositors)
  - Seem to be uninformed about bank offshore activities
  - Tend to respond to observed measures such as pre-crisis bank capital adequacy, bank size, bank liquidity, portfolio risk, or even rumors in the banking community
  - There seems to be an information spillover from more informed to less informed depositors
    - Both(?) for depositor-banks and depositor-companies

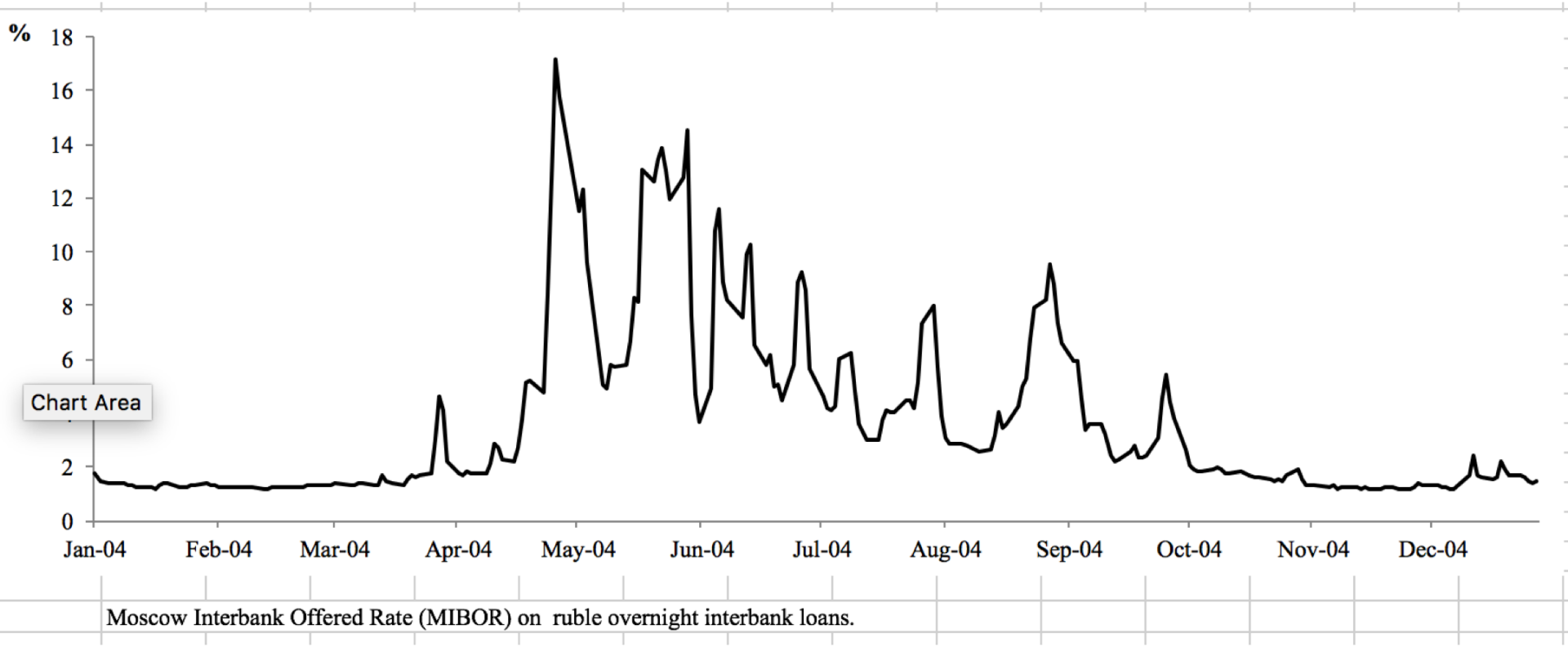
Crisis timeline

- On May 12 2004 “SodBusinessBank” (57th place by asset size) was closed for suspicious offshore and money laundering operations
  - Quite unexpected decision as it was not supported by fundamental factors: ROA, capital etc.
  - CBR announced plans to close at least 10 more banks for suspicious activities
- June 2, “CreditTrustBank” was closed due to run on its deposits
  - It was widely believed that it had the same owners as SodBusinessBank
- Panic for most of June, mid July
  - Larger banks under attack: Alpha Bank (4th by size), Guta Bank (26th)
  - Guta bank was eventually purchased by state-owned bank VTB, Alpha bank survived due to massive injections of capital by owners and 10% fee on withdrawal of deposits
- Central bank revisited its policy stance in mid July, provided liquidity and introduced some DIS provisions
- Repercussions felt until early October

“Unusual” crisis: Macroeconomic stability



MIBOR on ruble overnight loans



Moscow Interbank Offered Rate (MIBOR) on ruble overnight interbank loans.

Outline of empirical approach

- Goals:
  - Understand what types of information depositors have access to and act upon during a bank panic
  - How/whether different depositors respond to the same information
  - What are the flows of information between depositors groups
- Need to measure 3 things
  - 1. Depositors response
  - 2. Bank level information
  - 3. Depositors characteristics

1. Measuring depositor's response

- Banking wire transfers data for institutional depositors in 2004.
  - Transaction level dataset for each wire transfer in 2004
  - Contains sender, receiver, senders bank, and receivers bank

- Dependent variable: normalized net transfer
  - For each depositorXbank pair calculate total funds sent and received within a week
  - Net (weekly) transfer to a given bank by a given company relative to total company turnover within a week (total sent+received through all banks)

2. Bank characteristics

- Public bank-level information
  - Bank capital adequacy ratios measured in 2003
  - Online rumors about bank being on the “blacklist” of the Central Bank
  - Bank size, bank liquidity etc

- Private bank-level information:
  - Offshore fraction From Chernykh, Mityakov (2017)
  - Central bank data on Russian banks accounts in foreign countries: 2000-2003
    - Every bank every month discloses this info to the CB
    - Volume of annual transactions, and balances
  - List of offshore countries and localities published by Central Bank in 2003

BACKUP: Measuring offshore banking II

- Calculate offshoring as a fraction of total (annual) transactions through offshore zones relative to total foreign

Variable	obs	Mean	Std. Dev.	Min	Max
Offshoring using flows					
Offshore fraction tier 1 (flows)	1464	0.011	0.080	0.000	1.000
Offshore fraction tier 2 (flows)	1464	0.003	0.040	0.000	0.845
Offshore fraction tier 3 (flows)	1464	0.096	0.218	0.000	1.000
Offshore fraction (tier 2+3 flows)	1464	0.099	0.221	0.000	1.000
Log foreign transactions (flows)	1447	6.600	3.684	-7.775	14.084
Foreign transactions (flows)	1464	22325	98543	0	1308464
Offshoring using end-of-month balances					
Offshore fraction tier 1 (balances)	1464	0.017	0.102	0.000	1.000
Offshore fraction tier 2 (balances)	1464	0.004	0.051	0.000	1.000
Offshore fraction tier 3 (balances)	1464	0.100	0.227	0.000	1.000
Offshore fraction: (tier 2+3 balances)	1464	0.104	0.233	0.000	1.000
Log foreign transactions (balances)	1464	4.014	3.033	-7.000	12.303
Foreign transactions (balances)	1464	1251	10117	0	220443

3. Depositor's heterogeneity

- 1. Depositor that are themselves bank vs non-financial companies
- 2. Measuring depositor connection to their bank
  - For depositor-banks use dummy for correspondent account relationship present: connected vs non-connected depositor-banks
  - For depositor-companies 3 groups:
    - Insiders: whether the company was a large borrower in a given bank
    - Outsiders: company has low pre-crisis turnover with a given bank
    - (NEW results Informed: whether company has high pre-crisis turnover in a given bank (>50%))
- 3. Depositors' own involvement/benefit from suspicious offshore operations: "sound" vs "suspicious" depositors
  - Use finding from Chernykh and Mityakov (2017) that banks conduct offshore operations to facilitate tax evasion of their clients
  - Use Braguinsky, Mityakov (2015) tax evasion measure
    - Use Russian IRS data on reported incomes and Russian DMV data on cars
    - Idea: you can hide your income but not your car

Back up: How large is tax evasion in banks?

Variable	Obs	Mean	Std. Dev.	Min	Max
		Domestic private			
Car values	37122	5061	8834	5	291741
Incomes	37122	3068	7956	0	99929
		Domestic state owned			
Car values	5427	4744	7621	5	139442
Incomes	5427	6988	11279	0	98950
		Foreign owned			
Car values	2802	5066	6246	5	66783
Incomes	2802	10760	14967	0	98205

Outline of empirical approach

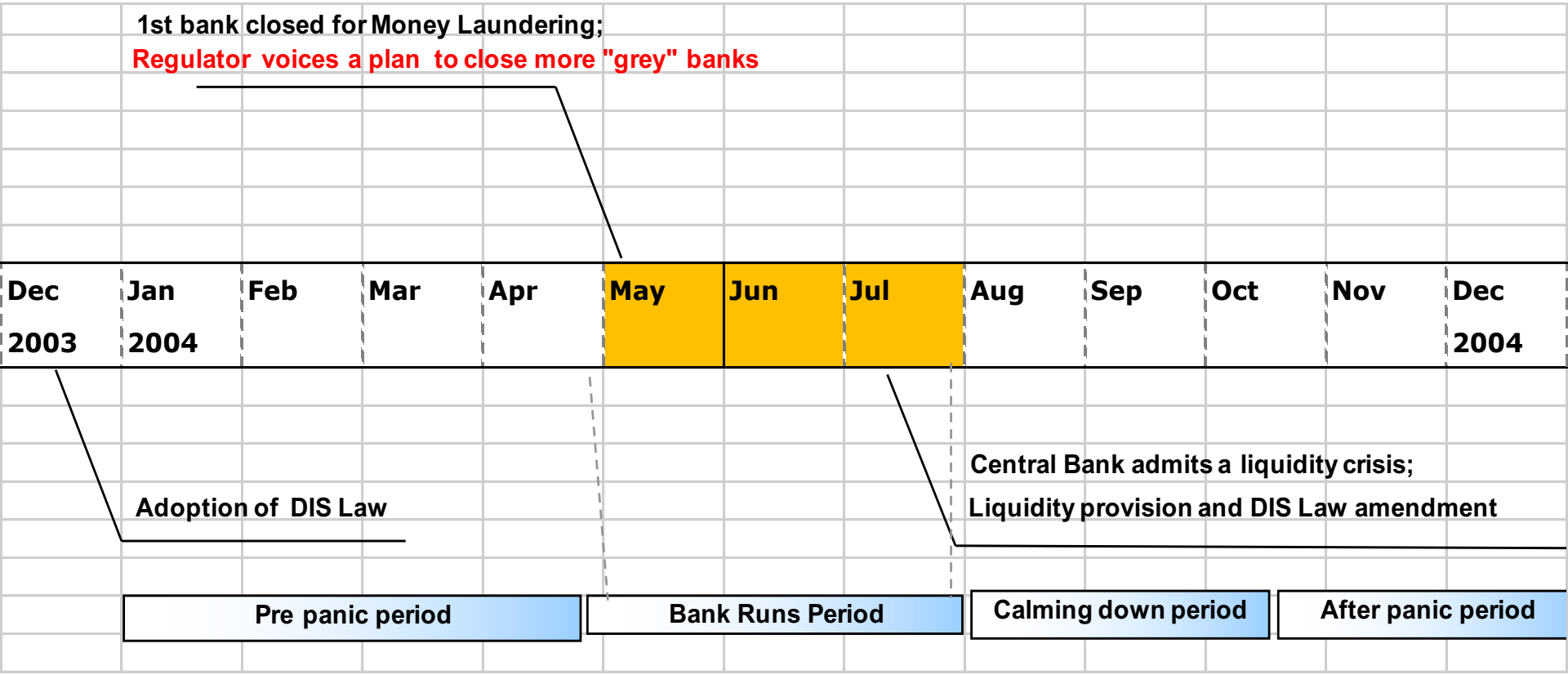
Depositor	Connected		Non-connected	
	Sound	Suspicious	Sound	Suspicious
Publicly observable bank risk				
Privately observable bank risk			No effect?	No effect?

Empirical specification

$$NetTr_{i,b,t} = f_t + f_b + \beta RUN_t BC_b + \gamma X_{i,t} + \varepsilon_{i,t}$$

- $NetTr_{i,b,t}$ is net transfer by company i into bank b in week t
- RUN_t are time period dummies
  - Bank panic: May-July
  - Aftershock: Aug-Sep
  - After bank panic: Oct-Dec
  - Also use monthly dummies specification
- $X_{i,t}$ are depositor/bank controls
- BC_b bank level characteristics of interest
  - Offshore banking, capitalization, withdrawals of other agents

Credibility crisis development



Depositor-companies' response to offshore measure

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Dependent variable: Net transfer into a given bank						
Offshore X 1(After Run)	-0.004	-0.004	0.024	-0.006	-0.044	-0.003	0.053
	(0.007)	(0.007)	(0.027)	(0.007)	(0.039)	(0.008)	(0.033)
Offshore X 1(Aftershock)	0.001	0.000	0.030	-0.002	-0.043	0.002	0.061**
	(0.006)	(0.006)	(0.024)	(0.006)	(0.032)	(0.007)	(0.028)
Offshore X 1(Run)	0.000	0.000	0.011	-0.002	-0.051**	0.002	0.039*
	(0.002)	(0.002)	(0.019)	(0.003)	(0.025)	(0.003)	(0.022)
Observations	11,843,042	11,778,578	64,464	4,918,313	27,525	6,860,265	36,939
R-squared	0.049	0.049	0.208	0.041	0.303	0.059	0.272
Loan relation	Any	No	Yes	No	Yes	No	Yes
Depositor type	Any	Any	Any	Transparent	Transparent	Suspicious	Suspicious
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Week FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes

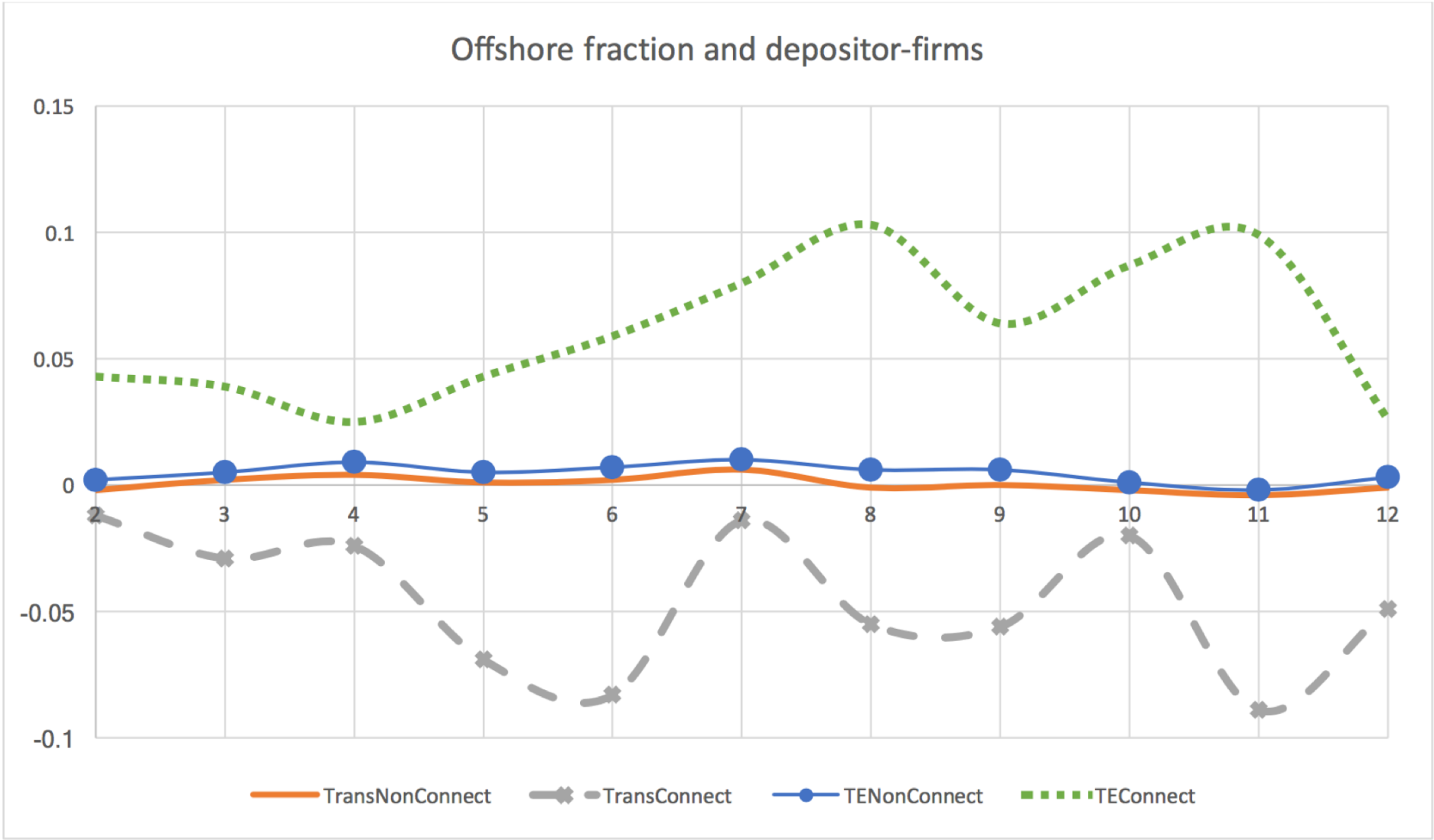
Depositor-banks' response to offshore measure

Table 4: Bank offshore operations and transfers by depositor-banks

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	*Dependent variable: Normalized net transfer into a given bank*						
Offshore activity X	0.005	-0.003	0.014	0.007	-0.013	-0.007	0.023**
1(After Run)	(0.005)	(0.005)	(0.010)	(0.009)	(0.019)	(0.006)	(0.011)
Offshore activity X	0.011*	0.001	0.024**	0.009	-0.012	-0.002	0.034**
1(Aftershock)	(0.006)	(0.005)	(0.011)	(0.008)	(0.016)	(0.006)	(0.015)
Offshore activity X	0.002	-0.005	0.012*	-0.002	-0.004	-0.005	0.017**
1(Run)	(0.003)	(0.003)	(0.007)	(0.005)	(0.013)	(0.004)	(0.008)
Observations	238,230	152,456	85,774	55,076	33,423	97,380	52,351
R-squared	0.075	0.083	0.123	0.103	0.143	0.113	0.156
Correspondent relation	Any	No	Yes	No	Yes	No	Yes
Depositor type	Any	Any	Any	Transparent	Transparent	Suspicious	Suspicious
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Week FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Dependent variable is ratio of weekly net transfer by a given depositor-bank to a particular deposit holding bank divid

Month-by month response to offshore measure



Role of rumors

- Central Bank in May 2004 announced plans to close down banks for suspicious offshore operations and stated that there was a tentative list of 10 more banks that might be closed in the near future
- As a result banking community actively compiled and exchanged those lists on banking community websites at the time, which we were able to download.
- We have 3 partially overlapping lists which contain 37 unique banks
- We use dummy variable for the inclusion in the list as observable bank characteristic

Bank characteristics and blacklist probability

Table 10: Blacklist probability and bank characteristics.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Dependent variable: Dummy for bank being in one of the four black lists							
Offshore fraction	0.062***	0.063**	0.028	0.076*	0.115***	0.119***	0.092**	0.099*
	(0.024)	(0.025)	(0.019)	(0.044)	(0.036)	(0.039)	(0.040)	(0.054)
Log total foreign transactions	0.005**	0.006**	0.004**	0.008**	0.005**	0.006**	0.005**	0.009**
	(0.002)	(0.002)	(0.002)	(0.004)	(0.002)	(0.002)	(0.002)	(0.004)
Log net assets	0.005	0.004	0.001	0.005	0.008	0.008	0.005	0.007
	(0.005)	(0.005)	(0.004)	(0.010)	(0.006)	(0.007)	(0.007)	(0.011)
Regulatory capital		0.125	0.037	0.062		0.102	0.042	-0.013
		(0.109)	(0.078)	(0.199)		(0.132)	(0.133)	(0.209)
Regulatory capital -squared		-0.130	-0.058	-0.107		-0.100	-0.074	-0.019
		(0.112)	(0.079)	(0.196)		(0.126)	(0.127)	(0.192)
Moscow dummy			0.045***				0.049***	
			(0.012)				(0.016)	
Observations	845	797	796	478	845	797	796	478
Estimation	Probit	Probit	Probit	Probit	OLS	OLS	OLS	OLS
Sample	All	All	All	Moscow	All	All	All	Moscow

Depositor-banks' response to blacklist dummy

Table 11: Rumors during banking crisis and transfers of depositor-banks.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Dependent variable: net transfer into a given bank normalized by total depositor's weekly turnover						
Blacklist X	0.000	-0.002	0.002	-0.000	0.005	-0.003	-0.002
1(After run)	(0.004)	(0.005)	(0.007)	(0.005)	(0.009)	(0.005)	(0.009)
Blacklist X	0.000	0.002	-0.000	0.003	-0.009	-0.000	0.003
1(Aftershock)	(0.005)	(0.004)	(0.007)	(0.005)	(0.009)	(0.006)	(0.009)
Blacklist X	-0.000	0.001	-0.001	0.001	0.001	-0.001	-0.004
1(Run)	(0.003)	(0.003)	(0.005)	(0.003)	(0.010)	(0.003)	(0.005)
Offshore fraction X	0.005	-0.002	0.013	0.007	-0.014	-0.007	0.023**
1(After run)	(0.005)	(0.005)	(0.010)	(0.008)	(0.019)	(0.006)	(0.011)
Offshore fraction X	0.011*	0.000	0.024**	0.008	-0.010	-0.002	0.034**
1(Aftershock)	(0.006)	(0.005)	(0.011)	(0.008)	(0.016)	(0.006)	(0.014)
Offshore fraction X	0.002	-0.005	0.012*	-0.002	-0.004	-0.005	0.017**
1(Run)	(0.003)	(0.003)	(0.007)	(0.005)	(0.012)	(0.004)	(0.008)
Observations	238,230	152,456	85,774	55,076	33,423	97,380	52,351
R-squared	0.075	0.083	0.123	0.103	0.143	0.113	0.156
Correspondent relation	Any	No	Yes	No	Yes	No	Yes
Depositor type	Any	Any	Any	Transparent	Transparent	Suspicious	Suspicious
Deposit-holding bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Week FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Depositor-companies' response to blacklist dummy

Table 12: Rumors during banking crisis and transfers of depositor-firms.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Dependent variable: net transfer into a given bank normalized by total depositor's weekly turnover						
Blacklist X	-0.003	-0.003	0.021	-0.004	0.030	-0.003	0.004
1(After run)	(0.003)	(0.003)	(0.018)	(0.003)	(0.024)	(0.003)	(0.019)
Blacklist X	-0.002	-0.002	0.040**	-0.005**	0.052***	-0.001	0.025
1(Aftershock)	(0.002)	(0.002)	(0.016)	(0.002)	(0.014)	(0.002)	(0.022)
Blacklist X	-0.001	-0.001	-0.003	-0.002**	0.002	-0.000	-0.009
1(Run)	(0.001)	(0.001)	(0.011)	(0.001)	(0.016)	(0.001)	(0.016)
Offshore fraction X	-0.003	-0.003	0.021	-0.004	-0.048	-0.002	0.053
1(After run)	(0.007)	(0.007)	(0.028)	(0.006)	(0.039)	(0.007)	(0.033)
Offshore fraction X	0.001	0.001	0.024	-0.000	-0.050	0.002	0.057**
1(Aftershock)	(0.006)	(0.006)	(0.024)	(0.005)	(0.031)	(0.006)	(0.029)
Offshore fraction X	0.001	0.001	0.012	-0.001	-0.051**	0.002	0.041*
1(Run)	(0.002)	(0.002)	(0.019)	(0.003)	(0.025)	(0.002)	(0.022)
Observations	11,843,042	11,778,578	64,464	4,918,313	27,525	6,860,265	36,939
R-squared	0.049	0.049	0.208	0.041	0.304	0.059	0.272
Loan relation	Any	No	Yes	No	Yes	No	Yes
Depositor type	Any	Any	Any	Transparent	Transparent	Suspicious	Suspicious
Deposit-holding bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Week FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Information spillovers

- Look at the possibility of information spillover from “informed” to “uninformed” agents

$$NetTr_{i,b,t} = f_t + (f_b) + \alpha Withdrawal_{b,t} + \beta RUN_t Withdrawal_{b,t} + \gamma X_{i,t} + \varepsilon_{i,t}$$

- $Withdrawal_{b,t}$ is total withdrawal performed by “informed” depositors (banks or companies) divided by total bank assets
- α shows the effect of withdrawals before the bank panic
- β shows the change during the panic panic

Information spillover for depositor-banks'

Table 9: Withdrawals by connected depositor-banks and transfers by non-connected depositor-banks.

	(1)	(2)	(3)	(4)	(5)	(6)
	Dependent variable: Net transfer into a given bank					
Withdrawals by connected banks/bank assets X	0.006	0.016	0.002	-0.023***	-0.022**	-0.023*
1(After run)	(0.012)	(0.015)	(0.014)	(0.008)	(0.011)	(0.012)
Withdrawals by connected banks/bank assets X	-0.001	0.012	-0.006	-0.024*	-0.026**	-0.024
1(Aftershock)	(0.016)	(0.016)	(0.020)	(0.012)	(0.011)	(0.018)
Withdrawals by connected banks/bank assets X	0.013	0.039***	-0.002	-0.023***	-0.016**	-0.028**
1(Run)	(0.012)	(0.015)	(0.013)	(0.008)	(0.008)	(0.011)
Withdrawals by connected banks/bank assets	-0.042***	-0.050***	-0.039***	0.013*	0.012	0.013
	(0.014)	(0.015)	(0.014)	(0.007)	(0.008)	(0.010)
Observations	138,773	50,311	88,462	138,773	50,311	88,462
R-squared	0.008	0.007	0.011	0.067	0.093	0.085
Deposit-holding Bank FE	No	No	No	Yes	Yes	Yes
Depositor tax evasion	Any	Transparent	Suspicious	Any	Transparent	Suspicious
Week FE	Yes	Yes	Yes	Yes	Yes	Yes
Correspondent account	No	No	No	No	No	No

Information spillover: insiders as a signal

Table 8: Withdrawals by connected depositor-firms and transfers by non-connected depositor-firms.

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	*Dependent variable: Net transfer into a given bank*					
Withdrawal by connected depositor-firms/bank assets X	-0.035	-0.023	-0.045	0.013	0.014*	0.011
1(After run)	(0.028)	(0.023)	(0.032)	(0.010)	(0.007)	(0.011)
Withdrawal by connected depositor-firms/bank assets X	-0.085**	-0.057*	-0.105**	0.009	0.011	0.007
1(Aftershock)	(0.040)	(0.031)	(0.047)	(0.009)	(0.008)	(0.009)
Withdrawal by connected depositor-firms/bank assets X	-0.110*	-0.073	-0.135*	0.010	0.012	0.008
1(Run)	(0.062)	(0.048)	(0.071)	(0.008)	(0.008)	(0.008)
Withdrawal by connected depositor-firms/bank assets X	-0.044*	-0.035*	-0.049*	0.002	0.001	0.002
	(0.023)	(0.019)	(0.026)	(0.002)	(0.002)	(0.002)
Observations	11,271,131	4,703,754	6,567,377	11,271,131	4,703,754	6,567,377
R-squared	0.005	0.005	0.006	0.046	0.038	0.056
Bank FE	No	No	No	Yes	Yes	Yes
Depositor type	Any	Transparent	Suspicious	Any	Transparent	Suspicious
Offshore and capital controls	Yes	Yes	Yes	Yes	Yes	Yes
Loan relation	No	No	No	No	No	No
Week FE	Yes	Yes	Yes	Yes	Yes	Yes

Role of bank ownership

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	*Dependent variable: normalized net transfer*						
Foreign X	0.010***	0.011***	-0.008	0.020***	-0.015	0.002	0.009
1(after-run)	(0.002)	(0.002)	(0.010)	(0.003)	(0.013)	(0.003)	(0.024)
Foreign X	0.008***	0.008***	0.002	0.013***	0.001	0.003	0.024
1(aftershock)	(0.002)	(0.002)	(0.010)	(0.002)	(0.012)	(0.003)	(0.028)
Foreign X	0.004***	0.004***	-0.021*	0.008***	-0.020*	-0.002	0.004
1(Run)	(0.001)	(0.001)	(0.011)	(0.002)	(0.012)	(0.002)	(0.022)
State X	-0.005**	-0.004*	0.021	-0.000	0.025	-0.017***	-0.045
1(after-run)	(0.002)	(0.002)	(0.027)	(0.002)	(0.032)	(0.004)	(0.056)
State X	-0.003	-0.002	0.005	-0.000	0.009	-0.010***	-0.054
1(aftershock)	(0.002)	(0.002)	(0.030)	(0.002)	(0.035)	(0.002)	(0.066)
State X	-0.002	-0.001	-0.015	0.001	-0.013	-0.007***	-0.030
1(Run)	(0.001)	(0.002)	(0.011)	(0.002)	(0.013)	(0.001)	(0.058)
Observations	16,579,323	16,495,165	84,158	6,865,901	37,432	20,960,558	82,632
R-squared	0.053	0.053	0.220	0.046	0.302	0.043	0.198
Loan relationship	Any	No	Yes	No	Yes	No	Yes
Depositor type	Any	Any	Any	Transparent	Transparent	Suspicious	Suspicious
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Conclusion

- Market participants (at least those having business relationship with the banks in question) seem to be able to see bank offshore operations and act on this information
  - Heterogeneity in response during bank panic:
    - Agents that are less likely to be beneficiaries of suspicious operations cut down ties with offshore banks
    - Less transparent depositors intensify their transfers into offshore banks

- Depositors without close connection to their deposit holding banks tend to look at observable measures of bank quality (capital, ownership) or even rumors
  - Note that depositors with strong connection actually help their banks when they are erroneously rumored to be "bad"

- There seems to be information spillovers from more informed to less informed agents (albeit with a lag)

- Even in a very opaque banking system crucial information is available to a sizeable minority of depositors and from their actions is transmitted to a wider audience

Another group for depositor-companies

- Use past (first 10 weeks of 2004) volume of transactions to identify companies that are heavily involved with a given bank instead of loan size
  - Use 50% of total transactions as breakpoint
  - Drop these 10 weeks from the analysis to avoid automatic correlation

- These are likely to be informed companies but not insiders (explicitly exclude insider's group – those with loans)
- Sizeable minority – 20 % of total depositors compare to less than 1% for insiders (largest borrowers)
- 3 groups of companies now:
  - Connected - those with loan relation
  - Informed outsiders – those with sizeable turnover over the first 10 weeks
  - Uninformed outsiders – those with small turnover over the first 10 weeks

Depositor companies and offshore activity

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Dependent Variable: Normalized net transfer into a bank						
	Uninformed	*Informed*	*Connected*	*Informed*	*Insiders*	*Informed*	*Connected*
Offshore activity X	0.006	-0.043***	0.027	-0.042*	-0.047	-0.040***	0.059*
1(after crisis)	(0.007)	(0.015)	(0.028)	(0.021)	(0.045)	(0.015)	(0.032)
Offshore activity X	0.010*	-0.028**	0.035	-0.031*	-0.033	-0.024*	0.059**
1(aftershock)	(0.006)	(0.014)	(0.024)	(0.019)	(0.034)	(0.014)	(0.029)
Offshore activity X	0.007*	-0.011*	0.016	-0.024***	-0.044	-0.004	0.042*
1(Panic)	(0.004)	(0.006)	(0.019)	(0.009)	(0.028)	(0.007)	(0.022)
Observations	3,621,309	1,411,037	59,602	444,738	23,855	966,299	35,747
R-squared	0.050	0.156	0.213	0.153	0.313	0.168	0.280
Loan relation	No	No	Yes	No	Yes	No	Yes
Initial turnover	<50%	>50%	Any	>50%	Any	>50%	Any
Tax evasion	Any	Any	Any	Low	Low	High	High

More nuanced story about depositor companies

- Not only bank insiders but also companies that transact often with the bank (before the crisis) tend to respond to offshore fraction
- Response of informed companies is unambiguously negative
- Uninformed companies “run to safety” the transfer funds into Larger banks (results, not shown: they transfer funds into banks with less riskier portfolios, more liquid assets)
- Uninformed companies DO respond to withdrawals of informed agents

Information spillovers OLS: informed depositors as a signal

	(1)	(2)	(3)	(4)	(5)	(6)
	Net transfer normalized by weekly depositor turnover					
	Uninformed	*Uninformed*	*Uninformed*	*Uninformed*	*Uninformed*	*Uninformed*
Flows of informed X	0.026*	0.013	0.032**	-0.019***	-0.023***	-0.018***
1(after crisis)	-0.014	-0.015	-0.014	-0.005	-0.005	-0.006
Flows of informed X	-0.017	-0.026	-0.013	-0.027***	-0.030***	-0.025***
1(aftershock)	-0.017	-0.017	-0.017	-0.005	-0.005	-0.006
Flows of informed X	-0.005	-0.011	-0.003	-0.015***	-0.018***	-0.013***
1(Panic)	-0.012	-0.011	-0.013	-0.004	-0.005	-0.004
Flows of informed	-0.081***	-0.070***	-0.086***	0.011**	0.015***	0.009*
	-0.011	-0.01	-0.013	-0.005	-0.004	-0.005
Observations	1619998	658800	961198	1619998	658800	961198
R-squared	0.022	0.019	0.023	0.07	0.07	0.08
Tax evasion	Any	Low	High	Any	Low	High
Depositor bank FE	No	No	No	Yes	Yes	Yes
Offshore controls	Yes	Yes	Yes	Yes	Yes	Yes

Conclusion

- Market participants (at least those having business relationship with the banks in question) seem to be able to see bank offshore operations and act on this information
  - Heterogeneity in response during bank panic:
    - Agents that are less likely to be beneficiaries of suspicious operations cut down ties with offshore banks
    - Less transparent depositors intensify their transfers into offshore banks

- Depositors without close connection to their deposit holding banks tend to look at observable measures of bank quality (capital, ownership) or even rumors
  - Note that depositors with strong connection actually help their banks when they are erroneously rumored to be "bad"

- There seems to be information spillovers from more informed to less informed agents (albeit with a lag)

- Even in a very opaque banking system crucial information is available to a sizeable minority of depositors and from their actions is transmitted to a wider audience