Anatomy of a bank run in opaque banking sector: who sees what why.

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Abstract

In this paper we analyze the connection between bank malfeasance and bank run in the presence of an exogenous regulatory shock. We use a rare policy shock that triggered information-induced bank panic in Russia in 2004 when Central Bank unexpectedly closed one of the banks and announced plans to close down banks for involvement in suspicious offshore operations and money laundering activities. In particular, we analyze what kind of bank-level information is determining a run on a particular bank and by what type of depositors. We find that after the bank run other banks are likely to decrease dealings with suspicious banks: i.e. with banks doing a lot of offshore and/or cash-only operations. We do not find any evidence that such bank suspicious operations are visible to non-financial companies and individuals. We further explore heterogeneity with respect to deposit-owner banks' characteristics and find that it is more transparent banks that are likely to stop doing business with (by withdrawing their deposits from) suspicious banks as a results of Central Bank announcement. Overall these results provide a rare glimpse in the anatomy of a bank run in the economy riddled with agency and regulatory compliance problems.

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1. Introduction

Financial panics and contagious bank runs, in particular, are not very common phenomena but their impacts tend to be quite severe for the affected banks and countries, which makes it critical to understand their nature and determinants. Studying the effects of bank runs empirically is challenging since usually a bank run is caused or at least accompanied by some macroeconomic financial shock. In this regard it is quite difficult to disentangle the impact of bank run per se from that of the underlying macroeconomic shock.

In this paper we study a rare natural experiment when bank panic was caused by improper release of information by the Central Bank of Russia (CBR). Namely, in May 2004 CBR revoked the license of one midsize bank for alleged money laundering and announced plans to close several more banks for such activities but stopped short of providing the actual list of banks under consideration. An ensuing panic obliterated deposits and created liquidity problems in many private banks in Russia. Even the third largest private Russian bank, Alpha-Bank, came under attack. This was a clear case of information-induced bank panic. There were little concerns about individual banks' fundamentals such as loans portfolios or securities holdings, there were no aggregate macroeconomic shocks to the banking system. Another notable feature of this experiment is that all deposits during this episode (interbank, corporate, and household) were completely uninsured. Thus, our results are less likely to be contaminated by the moral hazard effects associated with the presence of the deposit insurance.

In our paper we use this unique shock to analyze the behavior of different groups of depositors during the bank panic. We are interested to analyze whether suspicious bank operations are visible to different types of depositors. More generally we want to understand which bank characteristics are taken into account and by what group of depositors in their decision to run on a bank. We look separately at the impact on demand deposits held in a given bank by the following three groups of depositors that are likely to differ in their access to and correct interpretation of bank level information: other banks, non-financial companies, and households.

In our analysis we rely on several novel administrative datasets from Russia to collect detailed information about deposit holding banks. Namely, we utilize Central Bank of Russia data to construct measures of bank suspicious offshore and money laundering operations. We also use information from Central Bank database and Banks-Rate agency to construct measure of bank financial performance such as liquidity, return on assets, size, etc. We then relate these measures

with behavior of different groups of depositors to see which deposit-holding bank's characteristics make it more likely to experience a run.

We find that other banks seem to be the savviest investors: they are likely to decrease their dealing with suspicious banks (i.e. banks likely conducting offshore and money laundering operations) after the Central Bank announcement. Non-financial companies and households, on the other hand, do not seem to observe that information. We also see evidence of flight to safety for banks and non-financial companies, as after the Central Bank announcement propensity to hold deposits in banks with higher capital increases. Individual depositors seem to run to more profitable banks, albeit evidence is somewhat weak in statistical sense.

We further look at characteristics of depositors to study the heterogeneity of their response to this shock. Here we utilize unique Russian wire transfer database to construct a measure of bank-to-bank transfers to assess the financial flows between the banks after the Central Bank announcement. We find that flight from suspicious banks by other banks seems to be driven by the banks that are more transparent (less likely to engage in suspicious operations) themselves. For example, we find that banks which do not conduct any offshore operations are likely to cease operations with offshore dealing banks by withdrawing deposits from them; however, such relationship is not observed for deposits owned by offshore active banks. Similarly, banks that have higher money laundering scores are less likely to withdraw deposits from money laundering banks than the banks that have lower money laundering scores.

Overall these results provide a rare glimpse in the anatomy of a bank run in the economy riddled with agency and regulatory compliance problems.

The rest of the paper proceeds as follows: in Section 2 we describe institutional background behind our study, Section 3 provides description of datasets used and measures constructed, Section 4 contains empirical results, Section 5 concludes.

2. Background: Reputation-based panic in the Russian banking sector in the summer of 2004.

The focus of our study, a reputation-based bank confidence crisis in the Russia, was triggered by the regulatory attempt to clean out the banking system from financial intermediaries involved in suspicious, semi-legal or outright illegal operations, mostly in the area of capital flight to offshore jurisdictions and/or money laundering facilitation operations.

The clean-up attempt was closely associated with the initial stages of the *de novo* deposit insurance system introduction in Russia. Following the final adoption of the DIS legislation in December 2003, the regulator initiated a number of supervisory measures to enhance prudency and compliance in the banking sector in an attempt to reduce risk exposures of the newly established insurance fund and to screen out banks for mandatory deposit insurance membership[2]. Under the original DIS legislation, banks had to apply for the DIS system acceptance by July 1, 2004 and, following the rigorous on-site examinations, the regulators planned to start issuing deposit insurance acceptance decisions in the early fall of 2004, on the case-by-case basis.

Before the application deadline, the central banks began to enforce the anti-money laundering legislation by closing down Sodbiznesbank, a privately-controlled domestic bank, in May 2004. Notably, this was the very first incidence of closing seemingly solvent bank solely due to the violation of the anti-money laundering legislation. Shortly after that, another bank, Credittrustbank, was promptly closed down for similar accusations. Furthermore, a high-ranked representative of the Central Bank made a public statement on a regulatory intent to proceed with a policy of closures of banks involved in suspicious activities. Since no specific list of such banks was announced, the depositors began to guesstimate the probability of their banks' closures and to withdraw funds from banks they deemed as suspicious. The mass media outlets draw additional public attention to these events thus further triggering the rapidly expanding cascade of bank runs.

Since the DIS was not in effect at that time – all types of depositors, including interbank corporate and retail fund providers - start panicking and preemptively withdrawing their deposited funds. Available macro-level evidence suggests that interbank market was the first to react: as banks start to reevaluate their counterparty risk exposures and the probability of specific banks' closures, the interbank lending rate jumped and the banks' liquidity drained quickly. As early as in May, the turnover on the Russian interbank market dropped by 12.2% and then by another 13.3% in June. Simultaneously, the overnight ruble-denominated interbank lending rate jumped from 2% to 3% APR in the first quarter of 2004 to a volatile 10% to 20% in the second quarter. {GRAPH and refined description of interest rates HERE}

[2] For mode details of the DIS introduction in Russia, see empirical studies by Chernykh and Cole (2011) and Karas, Pyle and Schoors (2013). Tompson (2004) discusses institutional and legislative details of the process. The 2004 CBR Annual Banking Sector Report included a special Appendix that describes the situation in the Russian banking sector in May – July 2004.

The retail depositors' run started in June in some Moscow banks. Excluding Sberbank and VTB (two major state-controlled banks), the net withdrawals amounted to RUB 5.2 billion in June and RUB 18.1 billion in July. Starting from July, the runs contagion spread to regional banks. In July, aggregate net withdrawals in regional banks amounted to RUB 6.3 billion. The situation was recognized as dangerous when in early July the Guta-bank, a privately-controlled Moscow bank with a large regional branches network, suspended all repayments to retail depositors. Notably, the traditional macro-level deposit market indicators did not signal any turbulence as the total volume of deposits in the banking system remained relatively stable, suggesting the flight to safety and reallocation flows within this troubled deposit market. Overall, by various estimates from 20 to 27 banks have failed during this crisis episode due to bank run, regulatory closure and illiquidity issues.

To stabilize the situation and to calm down the bank run, liquidity crisis and depositor confidence crisis, the CBR introduced a number of emergency measures, including drastic reduction of the required reserve ratio from 7% to 3.5% (to improve banks' liquidity position) and the regulator-assisted acquisition of a failing private bank, Guta-bank, by a state-controlled VTB bank, thus sending a signal to the market that the central bank is ready to step in for any further required bails out. Most importantly, the original DIS legislation was promptly changed and the CBR issued temporal insurance guarantees for retail deposits in all active commercial banks during the period of the DIS introduction. The revised DIS law guaranteed deposit coverage for depositors of all banks, including those that would not become DIS members and that lost their license after December 27 2003, i.e. after initial DIS law was adopted. Following these nonconventional measures, the bank confidence crisis was essentially resolved. Since August 2004, the interbank market and the retail deposit market were back to normal and exhibited growth.

3. Data description

Our main question is to understand the determinants of a bank run by different groups of depositors. To accomplish this we bring together several novel datasets from Russia to analyze the interplay between banks financial and non-financial characteristics and probability of the run on the bank from different groups of depositors.

We consider the following groups of bank level characteristics: a) measures of suspicious banking operations, b) bank financial indicators, c) bank non financial indicators. Below we describe the construction and sources for each of the variables in each group.

3.1 Measures of suspicious banking activity.

We consider two indicators of bank suspicious operations. One is based on bank financial operations through opaque offshore financial centers. We utilize offshore fraction indicator developed by Chernykh and Mityakov (2015). This measure is based on mandatory bank reports to the Central Bank about balances and turnover on correspondent account of all Russian banks in all foreign countries. For a given Russian bank Chernykh and Mityakov (2015) define their offshore activity measure as a ratio of total turnover through correspondent accounts located in offshore jurisdictions to the total turnover through all foreign accounts.

In this paper we also consider an alternative measure of bank malfeasance: ratio of cash turnover through bank teller windows to total bank assets, the idea being that cash is more likely to be used for semi- and illegal activities by bank's clients, and as a result bank itself. We interpret this score as the measure of bank involvement in money laundering activities. To calculate this cash activity measure we utilize information from bank balance sheets monthly turnovers data (Forms 101 with turnovers) which are also reported to the Russian Central Bank by all Russian banks.

These two measures are available over 1999-2003, so in our study of the bank panic of 2004 we use means of those over 2003 as fixed characteristics of a given bank.

3.2 Bank financial indicators

We take bank financial indicators from Banks-Rate database as well as from mandatory bank reports to the Central Bank. We consider measures of bank profitability (ROA), solvency (capital over assets ratio) and bank size in 2003. (we also control for contemporaneous bank size in all regressions).

We have two datasets to measure deposits by different groups of depositors: aggregated bank-level monthly data and wire transfer data.

Aggregated bank-level data are taken from Banks-Rate agency and contain information about balances on deposits by three groups of depositors: individuals and households, non-financial companies, other banks. This dataset can be used to analyze the behavior of each of groups of depositors as a whole at monthly frequencies.

Second dataset is based on the population of all wire transfers that happened in Russia over 1999-2004. In this dataset we have information about individual wires with specific fields for the sender, sender's banks where the wire originates, receiver, and the bank where receiver receives the wire.

From this dataset we can construct measures of flow of funds for individual companies and banks deposits in a particular bank. Namely, to construct a measure of bank deposits flows we consider a subpopulation of all wire transfers where sender and receiver are the same bank. This data allows us to calculate at any frequency (weekly data currently) the withdrawal/addition of funds by a given bank to its deposit account in another bank. Similar dataset can be calculated for individual non-financial companies (currently in progress).

This dataset contains information about flows of funds at the deposit holding bank X deposit holder level. As a result, it allows investigating not only how a particular group of depositors behave, but also allows for differential response to deposit-holding bank characteristics by depositors from the same group on the basis of their own characteristics.

4. Results

4.1 Bank-level analysis.

As was discussed in the historical background section above the bank panic was caused by the unexpected Central Bank announcement to fight money laundering and other suspicious offshore banking activities. The main question we ask is which bank-level characteristics make a bank prone to experiencing a bank run and by what group of depositors.

We consider three groups of depositors a given bank might have: individual households, non-financial companies, and other banks. These groups are likely to differ in their access to bank-level information. It could be argued that other banks might be the most sophisticated deposit holders: interacting with a given bank on a regular basis they might have the best knowledge of its exposure to suspicious operations. Individual households, on the other hand, might be less informed of these two broad groups of depositors.

Among bank characteristics we consider the several financial and non-financial bank level variables. Of primary importance to use are the the two measures of bank involvement in suspicious operations described above: offshore banking fraction, which measure the intensity of bank interaction through offshore financial centers and bank exposure to cash transactions measure as the ratio of cash transactions to total bank assets. We conjecture that these measures being calculated from confidential bank reports to the Central Bank might serve as the basis of the regulatory action by the Central Bank to fight money laundering and offshore operations in general. Among other variables we consider standard measures of bank financial positions such as profitability (ROAA) and solvency (capital ratio). Finally, we include easily observable measures

of bank quality (not necessarily immediately related to suspicious bank operations): age of the bank, size of bank assets, etc.

We correlate these characteristics (measured in 2003 i.e. before the timeframe of our analysis) with the size of deposits from a given group in three distinct time periods: before the bank run (Dec 2003-Apr 2004), during the bank run (May-Jun 2004)

Namely, we consider the following empirical specification:

$$LogDEP_{i,t}=\alpha+\beta\, BC_i + \gamma RUN_t\ \ BC_i + \delta\, ARUN_t\, BC_i + RUN_t + ARUN_t + logSize_{i,t}+\varepsilon_{i,t} \quad (1)$$

Here Log$DEP_{i,t}$ is the (log) of deposits in bank i held by particular group of depositors in period t. BC_i are bank i characteristics mentioned above, all those variables are measured before 2004. RUN_t and $ARUN_t$ are time dummies for bank run (May-July 2004) and for the period after the bank run (Aug 2008-end of sample period). We also control for bank size measure as log net assets in all regressions. In all regressions we look at private domestic Moscow-headquartered banks only.

Table 1 contains estimation results for demand deposits of other banks. We see that before the bank run other banks are more likely to hold short-term deposits in offshore-active banks. However, after the Central Bank announcement this effect is considerably reduced (though not completely eliminated). Before the bank run other banks are also more likely to hold deposits in banks that have higher share of cash transactions relative to their size. During and after the run this effect is completely eliminated. Finally, during the bank run other banks are more likely to move their demand deposits to banks with higher capital ratios: before the bank run we in fact observe a negative relationship between bank's capital ratio and during-after the run the effect gets completely reversed: i.e. there seems to be flight to safety by other banks after the Central Bank announcement.

Table 2 presents the results of short-term deposits of non-financial companies. They look at bank financial fundamentals such as capital ratio and profitability.

Table 3 contains estimation results for the deposits of households. We see that households are less likely to hold their deposits in offshore-active banks even before the run. This effects gets reinforced during and after the bank run. Among other determinants of households deposits are easily observable characteristics of banks: households are more likely to select larger and older banks, which voluntarily disclose their financial information and have a perceived safety net due

to their service of government budget accounts. However, there is little change in household behavior during and after the bank run depending on any of those characteristics.

4.2 Transaction level evidence.

Above we found that banks engaged in suspicious operations tend to experience a withdrawal of deposits by informed depositors, particularly other banks. In this section we utilize transaction level data on domestic wire transfers in Russia to analyze what types of banks and non-financial companies tend to withdraw their deposits and from which banks.

We start by analyzing the behavior of other banks. Namely, we correlate net transfer of funds from a given bank i by a bank j ($NetTR_{i,j,t}$) with both banks characteristics: . Namely, we consider the following specification:

$$NetTR_{i,j,t} = f_t + \beta RUN_t BC_i + \epsilon_i$$

Here BC_i is bank i characteristic. We estimate (*) for different subsamples of banks j, which is equivalent to putting a interaction between bank j characteristic and a dummy variable for subsample on the basis of bank i characteristics).

Tables 4 contain estimation results for the whole set of bank depositors. As before in bank level data we see that on average other banks tend to (on net) withdraw money from offshore active banks and banks having a higher share of cash transactions relative to their assets. They also seem to deposit money into banks with higher capital ratios.

In Table 5 and 6 we look separately at deposit-owning bank characteristics to see whether those have any differential effect on their decision to withdraw money from the banks engaged in suspicious operations.

We look at the two dimensions of heterogeneity. In Table 5 we contrast the behavior of deposit-owning banks depending on the degree if their involvement in offshore operations themselves. We find that banks which do not conduct offshore operations themselves are likely to abruptly cut their deposit holdings in offshore active banks after the Central Bank announcement. We see some effect for banks with positive offshore exposure, but it is much smaller in magnitude. Similar pattern is observed for the depositing bank response to the money laundering score of their deposit holding bank. Banks which do not conduct offshore operations are also likely to withdraw their deposits from banks having higher money laundering scores. At the same time depositors that conduct positive offshore operations themselves are more likely to tolerate higher money laundering scores of the banks holding their deposits.

In Table 6 we compare the deposit holding patterns of banks depending on their exposure to money laundering operations. In specifications 1-3 we look at the banks below 75th percentile of money laundering score. We find that such banks are likely to considerably reduce their deposit holdings in banks that have higher exposure to money laundering, while banks which have higher money laundering scores themselves are more likely to be lenient to money laundering done at the banks they hold their deposits in.

Overall these results illustrate an interesting dichotomy in responses between banks involved in suspicious operations and those not involved. Bank that are more transparent are likely to be more demanding to their deposit holding banks after the Central Bank announcement to clean the banking system.

Our next steps would be to look at the similar heterogeneity in behavior of non-financial companies [in progress]

5. Conclusion

In this paper we look at a unique regulatory shock: pure information induced bank panic which was triggered by unexpected Central Bank closure of one bank and announcement to clean the system of money laundering and offshore active banks.

Using unique administrative data we are able to provide a very detailed view of the ensuing bank panic. We find that other banks seem to be the most informed group of investors they correctly perceive the regulatory problems other banks might face due to their involvement in suspicious offshore and money laundering schemes. Other depositors such as non-financial companies and individuals seem to take into account other more readily available measures of perceived quality of their deposits holding bank: profitability, capital adequacy etc.

We are also able to explore heterogeneity in responses depending on deposit owning banks' characteristics. We find that more transparent banks are less likely to tolerate suspicious behavior of the bank they hold deposits in after the Central Bank announcement.

Tables and Figures

Table 1: Bank run by other banks and bank characteristics.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES			*Dependent variable is: Log other banks short-term deposits*					
			Panel A: Multiple regressions coefficients					
Interaction of	Offshore activity	Cash activity	ROA	Capital/ Assets	Bank size	Voluntary disclosure	Bank Age	Budget Account
Bank Run dummy	-0.987*	-0.227**	-1.095	1.910**	0.033	0.233	0.037	-0.016
	(0.529)	(0.110)	(1.069)	(0.806)	(0.069)	(0.226)	(0.044)	(0.249)
After Bank Run dummy	-1.555**	-0.226	-1.811	3.636***	-0.052	-0.032	0.044	-0.227
	(0.716)	(0.139)	(1.562)	(0.958)	(0.082)	(0.274)	(0.057)	(0.274)
Level of variable	3.046***	0.281***	3.614*	-2.066**	0.359	0.033	-0.037	-0.287
	(0.739)	(0.099)	(1.858)	(0.979)	(0.365)	(0.344)	(0.059)	(0.396)
Observations	4,671	5,289	5,409	5,409	5,409	5,409	5,409	5,409
R-squared	0.367	0.338	0.338	0.342	0.338	0.337	0.337	0.338
			Panel B: Single regression coefficients					
Interaction with	Offshore activity	Cash activity	ROA	Capital/ Assets	Bank size	Voluntary disclosure	Bank Age	Budget Account
Bank Run dummy	-1.022*	-0.179	-1.434	2.687**	-0.149	0.080	-0.005	0.144
	(0.535)	(0.142)	(1.014)	(1.111)	(0.104)	(0.240)	(0.043)	(0.272)
After Bank Run dummy	-1.732**	-0.136	-2.547**	4.695***	-0.141	-0.153	0.017	-0.036
	(0.714)	(0.178)	(1.196)	(1.272)	(0.139)	(0.295)	(0.061)	(0.317)
Level of variable	3.119***	0.094	3.091**	-2.782**	-0.161	0.128	-0.037	-0.143
	(0.762)	(0.102)	(1.537)	(1.248)	(0.511)	(0.355)	(0.066)	(0.404)
Observations	4,653	4,653	4,653	4,653	4,653	4,653	4,653	4,653
R-squared	0.376	0.376	0.376	0.376	0.376	0.376	0.376	0.376

Notes: Dependent variable if log of demand deposits of other banks held in a given bank in a given month. Sample period covers Dec 2003-Jan 2005. Bank run dummy is dummy for (May 04-July 04). After bank run is a dummy for (Aug 2008-). Table reports interactions of a given variable with these two dummies as well as levels of different variables. Panel A coefficients are estimated from separate regressions for each of the explanatory variables, while Panel B contains single regression estimation results. All specifications are estimated by OLS with robust standard errors, clustered at the deposit-holding bank level. ***, **, And * indicate statistical significant at 1%, 5%, and 10% respectively.

Table 2: Bank run on firm deposits and bank characteristics.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	*Dependent variable is: Log non-financial companies deposits*							
	Panel A: Multiple regressions coefficients							
Interaction of	Offshore activity	Cash activity	ROA	Capital/ Assets	Bank size	Voluntary disclosure	Bank Age	Budget Account
Bank Run dummy	0.075	0.013	0.774	0.267	-0.014	-0.070*	0.007	-0.042
	(0.060)	(0.008)	(0.678)	(0.237)	(0.016)	(0.040)	(0.016)	(0.040)
After Bank Run dummy	0.041	0.003	-0.923	0.956***	-0.051**	-0.126***	-0.000	0.000
	(0.098)	(0.013)	(1.251)	(0.233)	(0.024)	(0.046)	(0.015)	(0.058)
Level of variable	-0.389**	0.020	0.983	-3.107***	-0.156	0.102	0.007	0.095
	(0.162)	(0.021)	(1.358)	(0.272)	(0.110)	(0.086)	(0.017)	(0.097)
Observations	6,071	7,728	8,360	8,360	8,360	8,360	8,360	8,360
R-squared	0.806	0.772	0.748	0.811	0.749	0.747	0.747	0.747
	Panel B: Single regression coefficients							
Interaction with	Offshore activity	Cash activity	ROA	Capital/ Assets	Bank size	Voluntary disclosure	Bank Age	Budget Account
Bank Run dummy	0.093	-0.015	1.141**	0.391***	-0.010	-0.045	0.010	-0.005
	(0.062)	(0.015)	(0.561)	(0.136)	(0.016)	(0.033)	(0.006)	(0.035)
After Bank Run dummy	0.105	-0.030	0.115	0.682***	-0.001	-0.041	0.001	0.078
	(0.098)	(0.025)	(0.540)	(0.186)	(0.023)	(0.044)	(0.008)	(0.049)
Level of variable	-0.424***	0.087***	-0.358	-2.602***	-0.589***	0.010	-0.014	0.052
	(0.117)	(0.032)	(1.209)	(0.219)	(0.098)	(0.060)	(0.011)	(0.072)
Observations	5,978	5,978	5,978	5,978	5,978	5,978	5,978	5,978
R-squared	0.861	0.861	0.861	0.861	0.861	0.861	0.861	0.861

Notes: Dependent variable if log of demand deposits of non-financial companies held in a given bank in a given month. Sample period covers Dec 2003-Jan 2005. Bank run dummy is dummy for (May 04-July 04). After bank run is a dummy for (Aug 2008-). Table reports interactions of a given variable with these two dummies as well as levels of different variables. Panel A coefficients are estimated from separate regressions for each of the explanatory variables, while Panel B contains single regression estimation results. All specifications are estimated by OLS with robust standard errors, clustered at the deposit-holding bank level. ***, **, And * indicate statistical significant at 1%, 5%, and 10% respectively.

Table 3: Bank run on household deposits and bank characteristics.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	*Dependent variable is: Log HH deposits*							
	Panel A: Multiple regressions coefficients							
Interaction of	Offshore activity	Cash activity	ROA	Capital/ Assets	Bank size	Voluntary disclosure	Bank Age	Budget Account
Bank Run dummy	-0.247	-0.003	0.550	-0.185	-0.007	-0.096	-0.011	0.001
	(0.442)	(0.016)	(0.448)	(0.245)	(0.019)	(0.073)	(0.028)	(0.052)
After Bank Run dummy	-0.509	0.004	-0.488	-0.275	-0.017	-0.083	0.011	0.114
	(0.494)	(0.015)	(1.313)	(0.394)	(0.028)	(0.097)	(0.035)	(0.081)
Level of variable	-0.768*	0.084***	0.831	-3.086***	0.785***	0.537***	0.362***	0.800***
	(0.463)	(0.019)	(1.850)	(0.500)	(0.203)	(0.170)	(0.036)	(0.159)
Observations	5,979	7,512	7,936	7,936	7,936	7,936	7,936	7,936
R-squared	0.481	0.503	0.508	0.549	0.516	0.513	0.618	0.519
	Panel B: Single regression coefficients							
Interaction with	Offshore activity	Cash activity	ROA	Capital/ Assets	Bank size	Voluntary disclosure	Bank Age	Budget Account
Bank Run dummy	-0.239	0.048	0.089	0.047	-0.011	-0.097	-0.020	0.053
	(0.401)	(0.075)	(0.255)	(0.308)	(0.023)	(0.074)	(0.037)	(0.055)
After Bank Run dummy	-0.416	0.069	0.606*	0.329	0.042	-0.089	0.010	0.029
	(0.429)	(0.071)	(0.367)	(0.416)	(0.043)	(0.091)	(0.046)	(0.075)
Level of variable	-0.717*	0.026	0.378	-2.952***	-0.087	0.135	0.336***	0.157
	(0.384)	(0.108)	(2.707)	(0.587)	(0.229)	(0.141)	(0.044)	(0.142)
Observations	5,888	5,888	5,888	5,888	5,888	5,888	5,888	5,888
R-squared	0.624	0.624	0.624	0.624	0.624	0.624	0.624	0.624

Notes: Dependent variable if log of deposits of households held in a given bank in a given month. Sample period covers Dec 2003-Jan 2005. Bank run dummy is dummy for (May 04-July 04). After bank run is a dummy for (Aug 2008-). Table reports interactions of a given variable with these two dummies as well as levels of different variables. Panel A coefficients are estimated from separate regressions for each of the explanatory variables, while Panel B contains single regression estimation results. All specifications are estimated by OLS with robust standard errors, clustered at the deposit-holding bank level. ***, **, And * indicate statistical significant at 1%, 5%, and 10% respectively.

Table 4: Net flows to a given bank.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	Dependent variable: Log net transfers to other banks' account in a given bank						
1(Bank Run +)X	-3.850*						-2.892
Offshore activity	(2.335)						(2.452)
Offshore activity	-0.719						-0.592
	(1.819)						(1.957)
1(Bank Run +)X		-0.561					-0.652*
Cash activity		(0.373)					(0.386)
Cash activity		0.384					0.201
		(0.412)					(0.539)
1(Bank Run +)X			3.861				1.423
ROAA 2003			(8.672)				(9.593)
ROAA 2003			-6.850				2.134
			(9.559)				(10.739)
1(Bank Run +)X				2.311			6.067**
Capital 2003				(2.488)			(2.567)
Capital 2003				-0.660			3.311
				(2.999)			(3.813)
1(Bank Run +)X					0.133		0.834
Financial disclosure					(0.552)		(0.643)
Financial disclosure					1.109**		0.898
					(0.525)		(0.765)
1(Bank Run +)X						-0.051	0.269*
Bank age						(0.117)	(0.146)
Bank age						0.177	0.156
						(0.116)	(0.164)
1(Bank Run +)X	0.189**						0.201**
Log foreign transactions	(0.089)						(0.089)
Log foreign transactions	-0.127						-0.091
	(0.120)						(0.106)
Log size	0.249	0.199	0.243	0.262	0.127	0.196	0.161
	(0.305)	(0.182)	(0.171)	(0.199)	(0.161)	(0.160)	(0.267)
Constant	-5.681	-1.787	-2.307	-2.590	-2.887	-4.369	-6.042
	(4.659)	(2.765)	(2.572)	(3.360)	(2.711)	(3.442)	(5.958)
Observations	22,739	41,035	41,282	41,282	41,282	41,282	22,727
R-squared	0.013	0.004	0.005	0.005	0.007	0.006	0.025

Notes: Dependent variable if ratio of net transfers to a given deposit holding bank by a depositor bank normalized by net assets of depositor bank. Sample period covers Jan 2004-Dec 2004. Data are weekly. 1(Bank Run +) is a dummy variable for (May-Dec) months. All specifications are estimated by OLS with robust standard errors, clustered at the deposit-holding bank level. ***, **, And * indicate statistical significant at 1%, 5%, and 10% respectively.

Table 5: Net flows to a given bank from depositors with different exposure to offshore activities.

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	*Dependent variable: net transfers TO a given bank*					
	Depositor with zero offshore activity			*Depositor with positive offshore activity*		
Offshore X 1(BankRun +)	-9.554**		-8.491	-1.242		-0.631
	(4.850)		(5.322)	(2.824)		(3.823)
Money laundering X 1(Bank Run +)		-1.283***	-1.062*		0.187	0.122
		(0.445)	(0.633)		(1.021)	(0.921)
Offshore	-0.820		-0.396	-0.131		-1.076
	(3.360)		(3.543)	(2.723)		(2.737)
Money laundering		0.332	0.416		1.043**	1.045
		(0.641)	(0.790)		(0.456)	(1.095)
Log size	0.247	0.141	0.136	0.657	0.317	0.726
	(0.523)	(0.276)	(0.485)	(0.519)	(0.265)	(0.499)
Constant	-7.654	-2.187	-6.946	-9.173	-4.223	-16.276
	(7.304)	(4.834)	(8.565)	(7.409)	(4.229)	(11.836)
Observations	14,222	25,097	14,213	8,517	15,938	8,514
R-squared	0.015	0.004	0.028	0.016	0.012	0.042
Other fin controls	No	No	Yes	No	No	Yes
Weekly FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Dependent variable if ratio of net transfers to a given deposit holding bank by a depositor bank normalized by net assets of depositor bank. Sample period covers Jan 2004-Dec 2004. Data are weekly. 1(Bank Run +) is a dummy variable for (May-Dec) months. Specifications (1)-(3) are estimated on the sample of depositor banks with no offshore activity, specifications (4)-(6) are estimated for the depositing banks with positive offshore activity. All specifications are estimated by OLS with robust standard errors, clustered at the deposit-holding bank level. ***, **, And * indicate statistical significant at 1%, 5%, and 10% respectively.

Table 6: Net flows to a given bank from depositors with different exposure to money laundering activities.

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	*Dependent variable: net transfers TO a given bank*					
	Low money laundering depositor			*High money laundering depositor*		
Offshore X 1(BankRun +)	-1.889		-1.055	-3.411		-3.401
	(3.023)		(2.565)	(5.304)		(6.559)
Money laundering X 1(Bank Run +)		-0.564	-1.300		-0.337	0.007
		(0.931)	(1.465)		(0.546)	(0.621)
Offshore	-0.084		-0.095	-4.956		-4.196
	(2.685)		(2.698)	(3.164)		(4.203)
Money laundering		0.822	0.362		-0.598	0.185
		(0.533)	(1.223)		(0.597)	(0.650)
Log size	0.020	-0.033	0.002	0.634	0.154	0.510
	(0.270)	(0.236)	(0.263)	(0.476)	(0.341)	(0.495)
Constant	-0.804	1.073	-2.657	-8.456	-0.920	-12.017
	(4.163)	(3.493)	(5.988)	(6.023)	(6.230)	(7.752)
Observations	17,031	31,146	17,021	4,616	8,059	4,614
R-squared	0.005	0.003	0.011	0.040	0.009	0.054
Other fin controls	No	No	Yes	No	No	Yes
Weekly FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Dependent variable if ratio of net transfers to a given deposit holding bank by a depositor bank normalized by net assets of depositor bank. Sample period covers Jan 2004-Dec 2004. Data are weekly. 1(Bank Run +) is a dummy variable for (May-Dec) months. Specifications (1)-(3) are estimated on the sample of depositor banks with low money laundering score (<75th percentile), specifications (4)-(6) are estimated for the depositing banks with high money laundering score (>75th percentile). All specifications are estimated by OLS with robust standard errors, clustered at the deposit-holding bank level. ***, **, And * indicate statistical significant at 1%, 5%, and 10% respectively.