NATIONAL RESEARCH UNIVERSITY
HIGHER SCHOOL OF ECONOMICS

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IS IT WORTH BEING TRANSPARENT? EVIDENCE FROM THE RUSSIAN BANKING SYSTEM

BASIC RESEARCH PROGRAM

WORKING PAPERS

SERIES: FINANCIAL ECONOMICS
WP BRP 51/FE/2015

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Information disclosure is considered as an important prerequisite for the efficient functioning of a financial system. Costs and benefits of information disclosure in the banking system have been extensively theoretically and empirically investigated. However, the effect of voluntary transparency on bank market power and market share is still empirically unexplored. Our paper fills this gap in the literature, examining two hundred of the largest Russian banks in the period 2004-2013. The findings confirm that voluntary transparency – absolute and relative - affects a bank's market power and market shares. Moreover, this relation depends on the bank's asset quality.
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Keywords: banking system, voluntary information disclosure, market power, Lerner index

JEL classification: G21, D22, D80

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[3] This Working Paper was prepared within the framework of the Basic Research Program at the National Research University Higher School of Economics (HSE) and supported within the framework of a subsidy granted to the HSE by the Government of the Russian Federation for the implementation of the Global Competitiveness Program

[4] The authors are grateful to the Faculty of the Russian Summer School on Institutional Analysis 2015 and to the participants of the 5th Annual CInSt Banking Workshop "Banking in Emerging Markets: Challenges and Opportunities" for their precious comments and suggestions. The financial support from the Government of the Russian Federation within the framework of the implementation of the 5-100 Programme Roadmap of the National Research University Higher School of Economics is acknowledged.

1. Introduction

Information disclosure plays an important role in the effective functioning of any market. It is no less necessary for the efficient performance of a banking system which is prone to information asymmetry. The opacity of financial institutions can foster financial instability (Jones et al., 2012). This is particularly evident during crisis periods when financial institutions' lack of transparency can impede the implementation of timely and efficient policy measures (Rosengren, 1998).

In order to increase the transparency of the banking system, regulators devise disclosure requirements that can enhance market discipline (see, for example, (BCBS, 2006)). However, before implementing appropriate disclosure policies it is necessary to understand banks' incentives to be more/less transparent (Darrough, 1993). This can help ascertain what types of banks are more likely to avoid disclosure strategies and how to regulate them more efficiently (Leuz, Wysocki, 2008).

The costs and benefits of information disclosure for non-financial firms have been substantially researched[5]. Higher transparency is connected with lower cost of capital (Merton, 1987), (Francis et al., 2005), higher liquidity of the firm's stocks (Leuz, Verrecchia, 2000) and higher firm value (Leuz, Wysocki, 2008).

The effect of and motivation for information disclosure within financial system frameworks have also been extensively examined. On the one hand, greater transparency is associated with lower corruption levels regarding lending (Barth et al., 2009), lower levels of bank stock volatility (Baumann, Nier, 2004), higher bank efficiency (Refait-Alexandre et al., 2012), greater trust and confidence of investors (Oliviera et al., 2011) and lower levels of concentration in a banking system (Andrievskaya, Semenova, 2014). On the other hand, greater transparency leads to higher risk-taking by banks when the transparency is around or above its optimal level (Moreno, Takalo, 2012), to a higher probability of bank runs (Chen, Hasan, 2005) and to lower competitive advantages and higher reporting costs (Hyytinen, Takalo, 2002). At the same time, banks with lower equity levels tend to under-report their risk information in order to fulfill capital requirements set by the regulator (Begley et al., 2015).

We have augmented existing research by analyzing an additional effect of information disclosure by banks. In particular, we studied whether voluntary disclosure affects their market share and market power.

The interrelation between market share and power and voluntary information disclosure is not unambiguous. According to game theory, information disclosure can be considered to be a part

[5] A detailed review of the corresponding literature is presented in (Leuz, Wysocki, 2008).

of the strategic interaction of a firm with its competitors – both current and potential (Claessens, Laeven, 2004), (Burks et al., 2013). The effect of information disclosure depends on whether the information revealed corresponds to the expectations of potential entrants to the market. Disclosure of negative information (a decrease in revenues, for example) can prevent potential competitors from entering the market and, therefore, can add to the market power of existing firms. Nevertheless, investors also monitor the disclosed information. As a result, they can react to such a negative signal by selling out the securities of the transparent firms and, therefore, damaging their market share and power (Scott, 1994). At the same time, revealing positive information adds to investor trust. Therefore, according to industrial organization theory, greater transparency can entice investors away from the less transparent organizations and, thus, can contribute to rising market power of the more transparent ones (Fishman, Hagerty, 1989). However, positive signals can also increase the probability of new entrants to the market. This is called the *proprietary cost hypothesis*, which means "firms' decisions to disclose information to investors is influenced by concern that such disclosures can damage their competitive position in product markets." (Healy, Palepu, 2001, p.424). According to this hypothesis, firms do not have incentives to disclose information as it can lower their market power due to revealing some strategic information (Darrough, 1993), (Hayes, Lundholm, 1996). For a banking system in particular, the disclosure of financial information leads to higher asset quality competition and reduces price competition (Cordella, Levy Yeyati, 2002).

The link between market share and power and information disclosure also depends on the type of competition in the market and the type of private information. This is discussed in detail (Darrough, 1993). The author considers a duopoly with Bertrand and Cournot, competition and private information about demand or cost. According to the findings of the paper, in a Cournot-type game when a firm receives a positive signal about its output, nondisclosure of this information leads to increased profit and market share of this firm. Therefore, the dominant strategy of the firm will be nondisclosure as disclosure leads to the loss of its market share and profit. On the other hand, in a Bertrand-type game with a positive signal about a firm has output the dominant strategy will be full disclosure as profits for both firms will be higher when the information is disclosed. The results are the opposite when the private information is about the firm's costs.

Despite the fact that theoretical analysis with respect to the link between market competition and information disclosure already exists in literature, there is little if any empirical evidence that can confirm or reject the existence of a link between market power and voluntary information disclosure, in the banking system in particular.

Therefore, our contribution is twofold. First, we have contributed to existing research on voluntary information disclosure by studying whether voluntary bank transparency affects a bank's market share and market power. Second, we have contributed to research on market discipline by analyzing whether the link between the market share and disclosure strategy of a bank depends on its asset quality. According to market discipline principles, higher transparency enables investors and depositors to better assess a bank's financial and operating condition and adjust their investment correspondingly (BCBS, 2006). Our results shed some light – though, indirectly - on whether transparency indeed improves market discipline on banks.

We used the yearly data of the two hundred largest Russian banks for the period. 2004-2013. our results confirm the existence of a link in banking between transparency and market shares (in terms of deposits and loans to the economy) and market power. Interestingly, in the deposit market in particular, an important role is played not only by the absolute level of information disclosure, but also by its relative value (as compared to the average level of disclosure in the sample). We also found a positive effect of information disclosure on market discipline in the retail deposits market.

This paper is organized as follows: Section 2 is devoted to our methodology and data. Section 3 describes the major findings as well as the robustness check. Section 4 concludes.

2. Methodology and data

In order to study the link between voluntary transparency and market share and power, we used the following econometric model:

$$Y_{it}=\alpha_i + \beta VD_{it-1} + \gamma NPL_{it-1} + \delta Crisis + \mu VD_{it-1} * Crisis + \eta VD_{it-1} * NPL_{it-1} + \nu Z_{it} + \varepsilon_{it} \qquad (1)$$

Dependent variables (Y) include proxies for market share in terms of deposits (retail and corporate), loans to the economy and a proxy for bank market power.

Banks' market share in terms deposits are calculated as the ratio of a particular type of deposit (retail or corporate) of a bank *i* over the total value of the corresponding deposits of our sample. Banks' market share in terms of lending to the economy is calculated as the ratio of total loans (retail plus corporate) of a bank *i* over the total value of the loans of the sample. We consider deposits markets – retail and corporate – separately as the perception of and reaction to disclosed information significantly differs between retail and corporate depositors.[6] In the loan market, in turn, the behaviour of agents – retail or corporate – with respect to the disclosed information should not differ significantly.

Banks' market power is expressed using the Lerner index (*Lerner*). The index is calculated

[6] Retail depositors can be relatively less financially educated and, therefore, can be more interested in the quantity of the disclosed information, while corporate depositors can pay more attention to the quality of the disclosed data.

as follows (Lerner, 1934):

$$Lerner = \frac{P - MC}{P}, \quad (2)$$

Where P – price of output of a firm, MC – marginal costs of a firm.

We followed the approach proposed in (Demirgüç-Kunt, Martínez Pería, 2010) in order to estimate Lerner index within a financial system framework. In particular, for each bank i in each period t we estimated the price P as the ratio of operating income over total bank assets. Marginal costs are derived using the translog cost function from (Demirgüç-Kunt, Martínez Pería, 2010, p. 9-10) with slight modification:

$$Ln(C_{it}) = a_i + b_0 \ln(Q_{it}) + b_1 0.5[\ln(Q_{it})]^2 + a_1 \ln(W_{1it}) + a_2 \ln(W_{2it}) + a_3 \ln(W_{3it}) + b_2 0.5 \ln(Q_{it}) * \ln(W_{1it}) + b_3 0.5 \ln(Q_{it}) * \ln(W_{2it}) + b_4 0.5 \ln(Q_{it}) * \ln(W_{3it}) + a_4 \ln(W_{1it}) * \ln(W_{2it}) + a_5 \ln(W_{1it}) * \ln(W_{3it}) + a_6 \ln(W_{2it}) * \ln(W_{3it}) + a_7 0.5 [\ln(W_{1it})]^2 + a_8 0.5 [\ln(W_{2it})]^2 + a_9 0.5 [\ln(W_{3it})]^2 + \beta Year + u_{it} \quad (3)$$

In this function total costs (C) are represented by total operating expenses of a bank i in time period t, while total output Q equals the bank's total assets. Explanatory variables include the price of deposits W_1 (calculated as the ratio of interest expenses over total deposits), the price of labour W_2 (calculated as the ratio of personnel expenses over total assets) and the price of fixed capital W_3 (calculated as the ratio of other expenses over total assets). *Year* represents the vector of year dummies (instead of *Trend* variables used in (Demirgüç-Kunt, Martínez Pería, 2010)).

Marginal costs are calculated by multiplying the derivative of the translog cost function with respect to the output by the ratio of total costs over total assets:

$$MC = \frac{\partial Ln(C_{it})}{\partial Ln(Q_{it})} \cdot \frac{C_{it}}{Q_{it}} \quad (4)$$

Higher values of Lerner index indicate higher levels of market power.

An explanatory variable of our main interest is a proxy for voluntary disclosure of information. It is expressed as an information disclosure index (*VD*) which we constructed employing a set of questions proposed by Standard and Poor`s (S&P, 2007). We selected 20 disclosure items, which captured different aspects of bank transparency. The initial set included 107 questions. We reduced the dimensionality of the index due to the fact that 1) some questions repeat each other and, therefore, do not add any valuable information to the assessment of bank

transparency 2) some items are disclosed (or not disclosed) by all banks and, thus, can be excluded from the index. As a result, our index fully describes the disclosure level of a bank.

Our disclosure index consists of three major blocks:

- *Ownership and group structure* includes a set of questions about the identity of the most important shareholders, affiliating companies and information about prices and the total amount of ordinary shares:
    - The identity of the largest shareholder
    - The number and identity of all shareholders holding more than 10%
    - The existence of a review of the last shareholders meeting (e.g., general presentation of voting results)
    - Detailed press releases covering the latest corporate events
- *Financial and operational information* covers the questions about publishing annual and interim financial reports and their content (information about revenues and costs, risks, reserves, etc.), auditors' notes and information about the auditor themself:
    - Annual financial statements according to the internationally recognized accounting standard (IFRS/U.S. GAAP) without notes
    - Notes to annual financial statements according to IFRS/U.S. GAAP
    - An independent auditor's report with regard to annual financial statements according to IFRS/U.S. GAAP
    - Disclosure of related-party transactions (RPTs): sales to/purchases from, payables to/receivables from related parties
    - Transactions with companies within the same group
    - Interim financial statements according to the internationally recognized accounting standard (IFRS/U.S. GAAP)
    - Notes to the financial statements
    - Whether these financial statements are audited or simply reviewed
    - A segment analysis (results broken down by line of business)
    - Indicators of concentration (industry, client/shareholder, insider, and so on)
    - Analysis of the bank`s risks (list of risks, their description, and how they may affect the bank)
    - Risk management policy
- *Board and management structure and process* consists of information about top-management and board personalities and their salaries:
    - The list of board members (names/titles)

- The list of senior managers not on the board of directors
- Existence of an audit committee
- Annual presentation to shareholders is disclosed

Each question receives 1 point if the answer for this question is positive (in other words, if the appropriate information is disclosed). Otherwise, the question receives 0 points. The maximum score for the first block is 4, for the second one is 12, and for the third one is 4. The total maximum value of the index is 20.

These data are collected manually. In order to do this, we check webpages of all the banks in our sample, examine bank information published on the website of the Central Bank of Russia and study issuers' reports. Moreover, we manually collect information about bank ownership tracking the last owners of the bank. The criteria for ownership assessment is described later in this section.

In our estimations we employ total index as well as its three major blocks separately in order to understand which index dimension is the most important for the bank's market share and market power.

It is necessary to mention that transparency of a single bank may affect not only its own market share and power, but also the market share and power of other banks. A below average disclosure level can be considered by investors and depositors as a negative signal indicating that the bank is concealing some important information. The result can be the loss of market share and power by the bank. Therefore, we examine whether transparency of a bank relative to the average transparency level in the sector has any effect on a bank's market power and market share.

The relative transparency is calculated as the following:

$$VD\_relative_{it} = \frac{VD_{it}}{VD\_mean_t} \quad (5)$$

where *VD* is the level of voluntary disclosure of a bank *i* in time period *t, VD_mean* is the average level of disclosure in the market (excluding bank *i*) in time period *t*.

Moreover, the change in the transparency level can affect a bank's market share and power as well. A reduction in the transparency level can be negatively interpreted by investors and depositors and can lead to the loss in a bank's market share and power. In order to study this possible effect, we employed the one-period change of the disclosure index as an explanatory variable. The change in the transparency level is calculated in the following way:

$$VD\_delta_{it} = VD_{it} - VD_{it-1} \quad (6)$$

We also examined whether the link between a bank's market power and its level of information disclosure changes during a crisis by including the interaction term *VD*Crisis*. During periods of instability, the perception of the disclosed information can be different. If a bank discloses more information during turbulent times it can be considered by investors as a positive signal indicating that a bank has no bad information to conceal. At the same time, during difficult periods banks most probably bear additional losses. If this information is disclosed, it can prevent potential competitors from entering the market. Therefore, the bank's market power will probably increase. The crisis period is set to be[7] 2008-2009.

To test whether a bank's asset quality affects the link between information disclosure and a bank's market share and power, we introduced the interaction variable between the voluntary disclosure index and bank credit risk (*NPL*VD*). Bank credit risk is measured by the ratio of non-performing loans over loan portfolio (*NPL*). This will help us to understand whether banks with lower asset quality lose their market share and power when they disclose the corresponding information, thus, indirectly indicating in favor of a positive effect of transparency on market discipline.

It is important to mention that as we include NPL together with disclosure variables, there is scope for encountering the multicollinearity problem. The decision of a bank to disclose information can depend on the quality of its loan portfolio leading to substantial interdependence of these variables. This is especially relevant for the disclosure of financial data. However, the appropriate statistical diagnostics (see Table A9 in Appendix) do not reveal the existence of the multicollinearity among the variables.

Our control variables (*Z*) consist of bank size (calculated as a natural logarithm of bank total assets), deposit rate[8] (for the model where the dependent variable is represented by the bank's market share in the retail deposit market as retail depositors can be rather sensitive to this indicator) ownership structure dummies[9] (*government* and *foreign*), year dummies for a non-crisis period in order to take into account the macroeconomic environment[10] and interaction variables of bank size and bank state ownership with *Crisis* in order to control any implicit government support and a too-big-to-fail effect.

For the purpose of our analysis, we manually collected data based on banks' annual reports, web-based disclosures and public regulatory reporting. The bank-specific financial indicators (total

[7] According to IMF, the crisis in Russia occurred in 2008-2009, while in 2010 Real GDP already increased by 4% (IMF, 2011, p. 8).

[8] It is calculated as the ratio of total interest expenses on retail deposits over total amount of retail deposits of a bank.

[9] A bank is considered as foreign-owned if a foreign investor controls more than 50% of the bank`s shares or when an investor with 50%+1 shares is a firm, whose main beneficiary is not a Russian citizen. A bank is considered as state-owned if the majority of its shares (50%+1) are owned by a government body directly or through affiliated firms (that are controlled by governmental bodies).

[10] We skip the results for the year dummies in order to avoid overloading the tables.

assets, non-performing loans and others) are taken from the "Mobile" database. Our sample includes the two hundred largest banks in terms of assets. These banks represent about 80 % of the banking system in terms of assets. The period under consideration is 2004-2013.

The descriptive statistics of the variables are presented in Table 1 below.

Table 1. Descriptive statistics

Variable	Description	Obs	Mean	Std. Dev.	Min	Max
DFL	Market share of a bank in terms of retail deposits, %	1865	0.536	4.226	0.000	70.289
VDUL	Market share of a bank in terms of corporate deposits, %	1838	0.544	1.964	0.000	19.958
KE	Market share of a bank in terms of loans to economy (includes retail and corporate lending), %	1930	0.518	2.832	0.000	44.636
Lerner	Lerner index (direct measure of market power of a bank), %	1754	55.364	20.744	0.200	100.000
VD_total	Information disclosure index	2000	6.057	5.443	0.000	20.000
VD_own	Score for the 1st block of the disclosure index "Ownership and group structure"	2000	1.141	1.263	0.000	4.000
VD_finop	Score for the 2nd block of the disclosure index "Financial and operation information"	2000	3.754	3.669	0.000	12.000
VD_corpgov	Score for the 3rd block of the disclosure index "Board and management structure and process"	2000	1.162	1.473	0.000	4.000
Relative_VD	Ratio of individual bank`s transparency level over the average level of transparency in the market	2000	1.093	1.195	0.000	8.122
Relative_VD_own	Ratio of individual bank's 1st block transparency over the average level of the 1st block transparency in the market	2000	0.817	1.465	0.000	10.205
Relative_VD_finop	Ratio of individual bank's 2nd block transparency over the average level of the 2nd block transparency in the market	2000	1.169	1.393	0.000	8.068
Relative_VD_corpgov	Ratio of individual bank's 3rd block transparency over the average level of the 3rd block transparency in the market	2000	1.065	1.575	0.000	8.747
VD_total_delta	Change of bank's transparency index over one period	1600	0.972	2.870	-11.000	14.000
VD_own_delta	Change of bank's 1st block transparency index over one period	1600	0.181	0.617	-2.000	4.000
VD_finop_delta	Change of bank's 2nd block transparency index over one period	1600	0.636	2.187	-9.000	11.000
VD_corpgov_delta	Change of bank's 3rd block transparency index over one period	1600	0.156	0.720	-3.000	4.000
NPL	Ratio of bank's nonperforming loans over total loan portfolio	1788	0.035	0.053	0.000	0.992
Size	Natural logarithm of bank`s total assets	1934	16.821	1.810	3.912	23.567
DepRate	Deposit rate	1801	0.062	0.032	0.000	0.816
Government	Dummy-variable for government owned banks	2000	0.088	0.283	0.000	1.000
Foreign	Dummy-variable for foreign owned banks	2000	0.182	0.386	0.000	1.000

We estimated using a fixed-effect panel data model. The choice (among fixed effects, random effects and OLS models) is made based on the results of the appropriate tests (the Hausman test, the Breusch-Pagan test and the test for differing group intercepts).

Explanatory variables, except for the ownership dummies, are taken with a one-year lag due to the fact that banks disclose most of the information (IFRS and etc.) at the end of the period and investors as well as competitors need time to analyze it.

3. Results

It is important to mention that over the period under consideration the transparency index is not consistent, neither over the time period nor among the banks. The dynamics of the index for the largest twenty banks are presented in Figure 1 below.

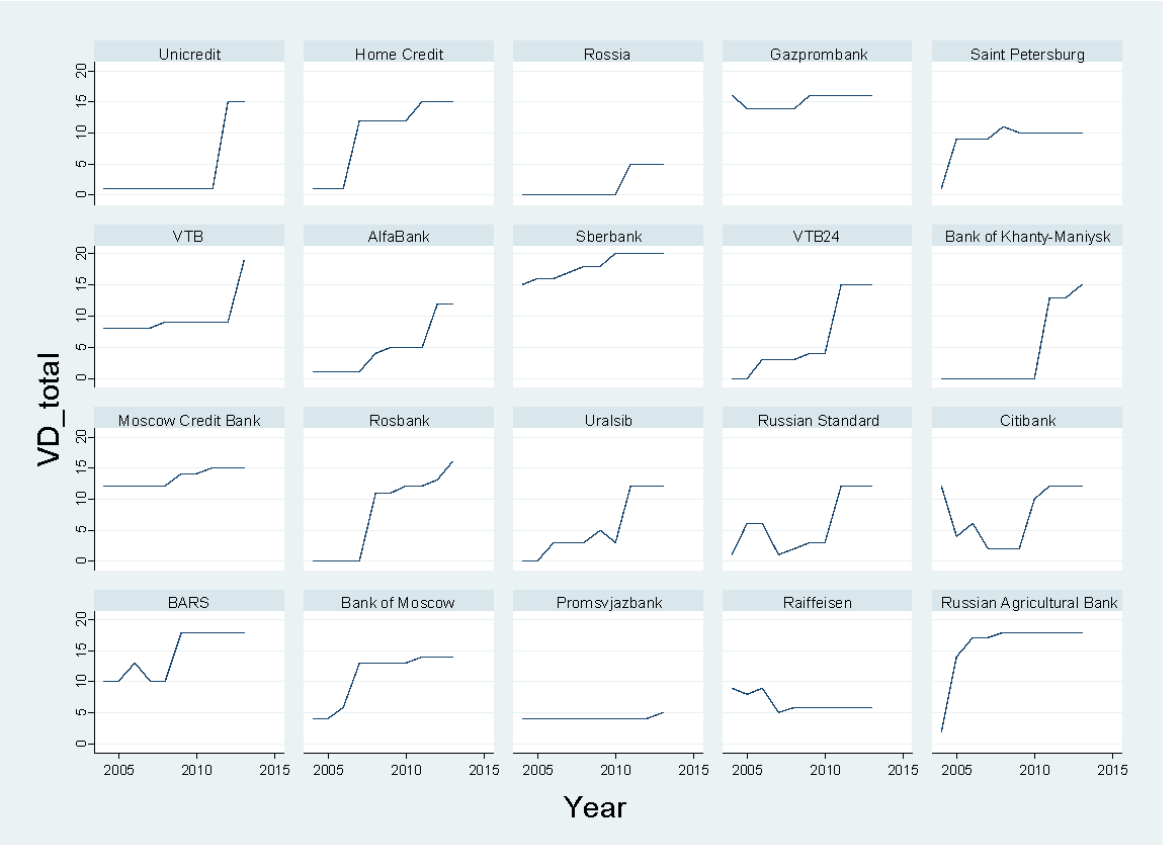

Figure 1. Dynamics of the transparency index

The first results of our estimation are presented in Table 2 and Table 3 below. As can be seen from Table 2, voluntary transparency indeed affects a bank's market share in retail and corporate deposit markets. Higher transparency is considered by retail depositors as a positive signal and is associated with a higher market share for banks in this sector. This is evident from the statistically significant link between the market share variable on the left hand side and the information disclosure index on the right hand side. Interestingly, it is not only the absolute levels

of information disclosure which appear to be relevant for retail depositors, but also the relative values. Again the link is positive.

Moreover, there is a statistically significant negative link between the interaction term of the transparency index and the nonperforming loans and bank share in the retail deposit market. Therefore, bank asset quality does indeed affect the link between information disclosure and a bank's market share in this sector of the market. This result can be also considered as an indirect indication that transparency has some effect on market discipline on banks from the retail depositors. However, this issue should be investigated more profoundly.

The effect of information disclosure is slightly weaker when we consider the corporate deposits market. The effect of transparency on a bank's market share in this market is the opposite. Specifically, higher levels of relative bank transparency are associated with a lower market share in terms of corporate deposits. This is probably due to the proprietary costs when disclosure of information leads to the loss of competitive advantage. This can also happen due to the fact that when a bank discloses information there is a risk that some indirect information about corporate clients, including depositors, is revealed. In such a situation corporate clients can decrease their interaction with a bank, including the withdrawal of deposits.

Among control variables, the most relevant one appears to be bank size. Specifically, larger banks have a larger market share in both the retail and corporate deposit markets.

When we consider a bank's market share in terms of loans and overall market power proxied by the Lerner index (see Table 3 below), we again find evidence in favor of the importance of voluntary disclosure of information. In particular, higher levels of bank transparency are associated with higher levels of market share regarding lending to the economy. However, during a crisis this link becomes negative, indicating in favor of the proprietary cost hypothesis when banks, revealing certain strategic information, lose out to their competitors. Among control variables, the size of a bank is again positively associated with its market share in terms of lending to the economy.

Information disclosure also affects a bank's overall market power. Higher levels of absolute and relative transparency are associated with lower levels of market power, thus, indicating in favor of the proprietary cost hypothesis.

State ownership seems to be no less important for the bank's market power. Banks with state ownership have higher values in the Lerner index. The size of a bank is also positively linked with its market power but only during a crisis, while during periods of normality (non-crisis) the link becomes negative. However, this result is not consistent with all model specifications.

Interestingly, a change in information disclosure levels has no effect on a bank's market share or market power at all.

Table 2. Effect of information disclosure on banks' market share in the retail and corporate deposit markets (standard errors in parentheses)

VARIABLES	Market share: retail deposits						Market share: corporate deposits					
VD_lagged	0.008*	0.013**					-0.006	-0.010				
	(0.005)	(0.006)					(0.006)	(0.007)				
VD_CRISIS_lagged	-0.004	-0.006					0.005	0.005				
	(0.006)	(0.007)					(0.008)	(0.008)				
VD_NPL_lagged		-0.124**						0.014				
		(0.062)						(0.078)				
Relative_VD_lagged			0.036**	0.057***					-0.046**	-0.066***		
			(0.016)	(0.018)					(0.019)	(0.023)		
Relative_VD_CRISIS_lagged			-0.017	-0.019					0.033	0.032		
			(0.024)	(0.026)					(0.029)	(0.031)		
Relative_VD_NPL_lagged				-0.837**						0.496		
				(0.326)						(0.414)		
VD_delta_lagged					0.002	0.000					-0.005	-0.006
					(0.004)	(0.006)					(0.006)	(0.007)
VD_delta_CRISIS_lagged					-0.001	0.001					0.008	0.009
					(0.009)	(0.010)					(0.012)	(0.013)
VD_delta_NPL_lagged						0.039						0.016
						(0.076)						(0.100)
NPL_lagged		0.707		0.764*		-0.228		-0.929		-1.462**		-0.662
		(0.507)		(0.460)		(0.320)		(0.781)		(0.738)		(0.546)
CRISIS	0.081	0.085	0.058	0.061	-0.157	-0.242	-0.334	-0.481	-0.286	-0.430	-0.436	-0.535
	(0.337)	(0.381)	(0.337)	(0.381)	(0.291)	(0.325)	(0.435)	(0.484)	(0.435)	(0.483)	(0.395)	(0.439)
DepRate	0.002	0.004	0.001	0.004	0.000	0.001						
	(0.021)	(0.023)	(0.021)	(0.023)	(0.018)	(0.020)						
Size_lagged	0.100***	0.125***	0.100***	0.129***	0.091***	0.105***	0.132***	0.140***	0.134***	0.138***	0.096***	0.103***
	(0.024)	(0.028)	(0.024)	(0.028)	(0.025)	(0.029)	(0.031)	(0.035)	(0.031)	(0.035)	(0.032)	(0.037)
Government	-0.062	-0.055	-0.065	-0.057	-0.033	-0.017	0.024	0.056	0.037	0.071	0.074	0.095
	(0.103)	(0.109)	(0.103)	(0.108)	(0.095)	(0.099)	(0.136)	(0.142)	(0.136)	(0.141)	(0.133)	(0.139)
Foreign	-0.053	-0.066	-0.053	-0.070	-0.070	-0.080	-0.012	-0.025	-0.014	-0.019	0.022	0.015
	(0.202)	(0.211)	(0.202)	(0.211)	(0.186)	(0.194)	(0.266)	(0.275)	(0.265)	(0.274)	(0.257)	(0.266)
Gov_Crisis	0.119	0.100	0.117	0.093	0.155	0.145	-0.036	-0.056	-0.036	-0.045	-0.218*	-0.234*
	(0.115)	(0.120)	(0.115)	(0.120)	(0.100)	(0.104)	(0.143)	(0.149)	(0.143)	(0.148)	(0.131)	(0.136)
Size_lagged_Crisis	0.005	0.006	0.003	0.004	0.014	0.019	0.025	0.032	0.023	0.031	0.033	0.038
	(0.020)	(0.023)	(0.020)	(0.023)	(0.017)	(0.019)	(0.026)	(0.029)	(0.026)	(0.029)	(0.023)	(0.025)
Constant	-1.289***	-1.724***	-1.241***	-1.745***	-1.032**	-1.259**	-1.744***	-1.797***	-1.792***	-1.764***	-1.171**	-1.244*
	(0.432)	(0.511)	(0.431)	(0.512)	(0.448)	(0.521)	(0.550)	(0.632)	(0.549)	(0.633)	(0.574)	(0.666)
Observations	1,574	1,480	1,574	1,480	1,392	1,318	1,597	1,494	1,597	1,494	1,423	1,339
R-squared	0.017	0.022	0.019	0.026	0.017	0.020	0.017	0.020	0.020	0.025	0.012	0.015
r2_w	0.0173	0.0224	0.0189	0.0262	0.0172	0.0196	0.0165	0.0200	0.0197	0.0247	0.0124	0.0147
p	0.0636	0.0334	0.0346	0.00811	0.107	0.137	0.0568	0.0515	0.0157	0.00898	0.292	0.323

*** p<0.01, ** p<0.05, * p<0.1

Table 3. Effect of information disclosure on banks' market share in terms of loans and market power (standard errors in parentheses)

VARIABLES	Market share: loans						Marlet power: Lerner index					
VD_lagged	0.005**	0.007**					-0.248*	-0.263*				
	(0.002)	(0.003)					(0.132)	(0.154)				
VD_CRISIS_lagged	-0.007**	-0.008**					0.438**	0.407**				
	(0.003)	(0.004)					(0.185)	(0.191)				
VD_NPL_lagged		-0.052						1.595				
		(0.034)						(1.723)				
Relative_VD_lagged			-0.001	-0.001					-1.073**	-1.101**		
			(0.008)	(0.010)					(0.449)	(0.511)		
Relative_VD_CRISIS_lagged			-0.016	-0.017					1.278*	1.157		
			(0.013)	(0.014)					(0.690)	(0.708)		
Relative_VD_NPL_lagged				-0.110						5.236		
				(0.178)						(8.991)		
VD_delta_lagged					-0.000	-0.002					-0.178	0.001
					(0.002)	(0.003)					(0.140)	(0.178)
VD_delta_CRISIS_lagged					-0.003	-0.002					0.249	0.232
					(0.005)	(0.005)					(0.312)	(0.326)
VD_delta_NPL_lagged						0.038						-3.153
						(0.041)						(2.399)
NPL_lagged		0.058		-0.164		-0.348**		25.732*		30.454**		44.034***
		(0.277)		(0.253)		(0.170)		(14.003)		(12.718)		(10.092)
CRISIS	0.058	0.040	0.057	0.039	-0.010	-0.043	-27.929***	-36.059***	-28.547***	-36.546***	-26.084***	-33.718***
	(0.182)	(0.209)	(0.183)	(0.209)	(0.154)	(0.175)	(9.681)	(10.517)	(9.689)	(10.527)	(9.506)	(10.272)
Size_lagged	0.097***	0.122***	0.099***	0.124***	0.085***	0.104***	-1.936***	-1.599**	-1.918***	-1.572**	-1.836**	-1.234
	(0.013)	(0.015)	(0.013)	(0.015)	(0.012)	(0.015)	(0.691)	(0.785)	(0.691)	(0.786)	(0.817)	(0.913)
Government	-0.054	-0.031	-0.039	-0.014	-0.018	0.004	11.357***	9.497***	11.468***	9.625***	10.442***	8.473***
	(0.057)	(0.060)	(0.057)	(0.060)	(0.051)	(0.054)	(2.959)	(3.004)	(2.954)	(2.997)	(3.088)	(3.138)
Foreign	0.021	0.012	0.029	0.014	0.026	0.015	1.648	-0.132	1.732	-0.033	4.327	2.480
	(0.100)	(0.109)	(0.100)	(0.109)	(0.090)	(0.097)	(5.787)	(5.811)	(5.788)	(5.812)	(6.051)	(6.113)
Gov_Crisis	0.114*	0.101	0.110*	0.103	0.074	0.069	-6.936**	-6.954**	-6.754**	-6.857**	-5.723*	-6.221*
	(0.061)	(0.065)	(0.061)	(0.065)	(0.052)	(0.055)	(3.304)	(3.317)	(3.304)	(3.318)	(3.263)	(3.278)
Size_lagged_Crisis	0.006	0.008	0.003	0.005	0.006	0.008	1.623***	2.171***	1.776***	2.305***	1.715***	2.239***
	(0.011)	(0.012)	(0.011)	(0.012)	(0.009)	(0.010)	(0.584)	(0.631)	(0.581)	(0.628)	(0.552)	(0.596)
Constant	-1.251***	-1.642***	-1.230***	-1.623***	-0.985***	-1.273***	81.518***	73.244***	79.883***	71.518***	77.157***	63.861***
	(0.226)	(0.276)	(0.226)	(0.277)	(0.224)	(0.272)	(12.403)	(14.103)	(12.392)	(14.148)	(14.653)	(16.444)
Observations	1,669	1,539	1,669	1,539	1,479	1,375	1,573	1,479	1,573	1,479	1,391	1,317
R-squared	0.049	0.060	0.047	0.057	0.042	0.052	0.255	0.267	0.255	0.267	0.231	0.250
r2_w	0.0493	0.0597	0.0466	0.0568	0.0416	0.0523	0.255	0.267	0.255	0.267	0.231	0.250
p	3.60e-10	6.59e-11	2.15e-09	3.81e-10	5.75e-07	7.73e-08	0	0	0	0	0	0

*** p<0.01, ** p<0.05, * p<0.1

When we consider the three blocks of information disclosure separately (see Tables A1-A3 in Appendix), we find that for a bank's market share in terms of lending to the economy, the only relevant type of information seems to be financial and operating data. For depositors (both retail and corporate), in turn, all types of disclosed data are relevant, while for the bank's overall market power only the first two blocks appear to be the most important determinants. The signs and magnitude of the links remain the same as they are in the models with the total transparency index.

4. Robustness checks

For the robustness check, we excluded banks that are not independent with respect to their disclosure strategies. In particular, we excluded banks that are under the control of a banking group. For example, if a bank from our sample had another bank as its main shareholder, we excluded the former from our sample. The corresponding descriptive statistics are presented in Table 4 below.

Table 4. Descriptive statistics, reduced sample

Variable	Obs	Mean	Std. Dev.	Min	Max
DFL	1600	0.561	4.538	0.000	70.289
VDUL	1588	0.566	2.060	0.000	19.958
KE	1656	0.549	3.041	0.000	44.636
Lerner	1507	0.549	0.207	0.002	1.000
VD_total	1724	5.979	5.459	0.000	20.000
VD_own	1724	1.134	1.271	0.000	4.000
VD_finop	1724	3.694	3.662	0.000	12.000
VD_corpgov	1724	1.150	1.471	0.000	4.000
VD_total_delta	1552	0.911	2.853	-13.000	14.000
VD_own_delta	1552	0.164	0.623	-4.000	4.000
VD_finop_delta	1552	0.606	2.185	-9.000	11.000
VD_corpgov_delta	1552	0.142	0.701	-3.000	4.000
Relative_VD	1724	1.089	1.209	0.000	8.122
Relative_VD_own	1724	0.828	1.495	0.000	10.205
Relative_VD_finop	1724	1.165	1.402	0.000	8.068
Relative_VD_corpgov	1724	1.061	1.588	0.000	8.747
NPL	1520	0.034	0.043	0.000	0.495
Size	1661	16.816	1.833	3.912	23.567
Government	1724	0.056	0.230	0.000	1.000
Foreign	1724	0.201	0.401	0.000	1.000
DepRate	1551	0.063	0.033	0.000	0.816

The results of the robustness check (see Tables A4 and A5 in Appendix) confirmed the major findings from our previous estimations. In particular, voluntary information disclosure

positively affects bank market share in the retail deposit market. The results emphasize the importance of relative information disclosure: only the relative disclosure index appears to influence a bank's market share. Again, we see an indirect indication that information disclosure is important for market discipline. When banks with higher levels of NPL disclose relatively more, compared to the average disclosure level in the sector, they lose their market share in the retail deposit market.

Relative disclosure seems to be the most relevant determinant for the market share in the corporate deposit market as well. And again the link is negative.

For a bank's market share in terms of lending to the economy and for a bank's overall market power, the most important type of disclosure appears to be absolute disclosure. Specifically, during a crisis period a higher level of transparency is associated with lower market shares in terms of lending and with higher levels of overall market power represented by the Lerner index.

Additionally, we eliminated fifty of the largest banks from our sample. The results remain similar to what we have discussed above and are presented in the Appendix (Tables A6-A8).

5. Conclusion

Information disclosure plays an important role in dealing with market failures due to information asymmetry in the financial system. However, the effect of higher transparency is not unambiguous and before imposing the appropriate regulation policies, it is necessary to understand the effects of and motivation for the voluntary reporting of information by financial institutions.

In this paper we examined an additional incentive of banks to report or underreport their financial and operating information. In particular, we studied whether there is a link between bank transparency, market share and power. Revealing more information can attract more depositors and investors, thus, improving the market power of a bank. On the other hand, disclosed information can attract new entrants due to positive signaling, thus, impeding the market power of existing banks.

Our results confirm the importance of information disclosure for the banks' market share and market power. Higher bank transparency – in particular relative transparency - is associated with lower levels of market power during normal times and greater market power during a crisis. At the same time, voluntary information disclosure positively affects banks' market share in terms of retail deposits and in terms of lending to the economy. For the loan market this link becomes negative during a crisis, while when we consider the corporate deposit market the link remains negative both during normal periods and during the crisis.

Importantly, a bank's asset quality indeed affects the link between bank transparency and market share in the retail market. This indirectly points to the fact that information disclosure has some effect on the market discipline of retail depositors. However, this issue should be examined in more detail.

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Appendix

Table A1. Effect of disclosure of *ownership structure* on banks' market share and market power (s.e. in parentheses; only statistically significant regressions are presented)

VARIABLES	Market share: retail deposits				Market share: corporate deposits				Marlet power: Lerner index			
VD_lagged	0.034*	0.052**			-0.023	-0.040			-0.553	-0.353		
	(0.019)	(0.023)			(0.024)	(0.029)			(0.559)	(0.646)		
VD_CRISIS_lagged	-0.021	-0.031			0.007	0.005			1.888**	1.800**		
	(0.028)	(0.030)			(0.034)	(0.036)			(0.799)	(0.825)		
VD_NPL_lagged		-0.444*				0.185				1.173		
		(0.241)				(0.309)				(6.665)		
Relative_VD_lagged			0.041***	0.058***			-0.041***	-0.057***			-1.060***	-1.293***
			(0.013)	(0.015)			(0.015)	(0.018)			(0.362)	(0.407)
Relative_VD_CRISIS_lagged			-0.025	-0.032			0.023	0.023			1.379**	1.474**
			(0.020)	(0.021)			(0.024)	(0.026)			(0.565)	(0.580)
Relative_VD_NPL_lagged				-0.561***				0.440				8.510
				(0.217)				(0.279)				(5.992)
NPL_lagged		0.632		0.411		-1.121		-1.370**		34.163**		28.785***
		(0.510)		(0.380)		(0.724)		(0.627)		(14.070)		(10.497)
CRISIS	0.048	0.018	-0.003	-0.046	-0.361	-0.531	-0.273	-0.421	-25.286**	-32.393***	-25.481**	-32.369***
	(0.345)	(0.391)	(0.345)	(0.390)	(0.444)	(0.495)	(0.444)	(0.494)	(9.913)	(10.795)	(9.903)	(10.781)
DepRate	0.002	0.004	0.002	0.003								
	(0.021)	(0.023)	(0.021)	(0.023)								
Size_lagged	0.099***	0.122***	0.098***	0.124***	0.132***	0.140***	0.136***	0.138***	-1.963***	-1.634**	-1.876***	-1.564**
	(0.024)	(0.028)	(0.024)	(0.028)	(0.031)	(0.035)	(0.031)	(0.035)	(0.693)	(0.785)	(0.690)	(0.781)
Government	-0.060	-0.036	-0.065	-0.056	0.020	0.051	0.031	0.059	10.892***	8.865***	11.308***	9.512***
	(0.103)	(0.109)	(0.102)	(0.108)	(0.136)	(0.142)	(0.136)	(0.141)	(2.960)	(3.005)	(2.944)	(2.983)
Foreign	-0.048	-0.058	-0.014	-0.022	-0.011	-0.026	-0.053	-0.068	1.694	-0.038	0.813	-1.012
	(0.202)	(0.211)	(0.202)	(0.211)	(0.266)	(0.275)	(0.266)	(0.274)	(5.789)	(5.812)	(5.787)	(5.805)
Gov_Crisis	0.116	0.096	0.116	0.099	-0.030	-0.049	-0.030	-0.044	-6.418*	-6.570**	-6.457**	-6.503**
	(0.115)	(0.120)	(0.115)	(0.119)	(0.143)	(0.148)	(0.143)	(0.148)	(3.298)	(3.312)	(3.291)	(3.299)
Size_lagged_Crisis	0.006	0.010	0.005	0.009	0.028	0.037	0.026	0.033	1.532**	2.018***	1.647***	2.089***
	(0.021)	(0.023)	(0.021)	(0.023)	(0.027)	(0.030)	(0.026)	(0.029)	(0.597)	(0.648)	(0.594)	(0.644)
Constant	-1.258***	-1.663***	-1.176***	-1.628***	-1.765***	-1.805***	-1.856***	-1.822***	80.585***	72.123***	78.258***	70.734***
	(0.432)	(0.510)	(0.431)	(0.510)	(0.550)	(0.630)	(0.550)	(0.631)	(12.396)	(14.087)	(12.392)	(14.084)
Observations	1,574	1,480	1,574	1,480	1,597	1,494	1,597	1,494	1,573	1,479	1,573	1,479
R-squared	0.017	0.022	0.023	0.030	0.016	0.020	0.020	0.026	0.255	0.266	0.257	0.271
r2_w	0.0173	0.0221	0.0226	0.0301	0.0162	0.0199	0.0204	0.0259	0.255	0.266	0.257	0.271
p	0.0635	0.0380	0.00748	0.00169	0.0648	0.0546	0.0113	0.00558	0	0	0	0

*** p<0.01, ** p<0.05, * p<0.1

Table A2. Effect of disclosure of *financial and operating information* on banks' market share and market power (s.e. in parentheses; only statistically significant regressions are presented)

VARIABLES	Market share: retail deposits				Market share: corporate deposits				Market share: loans				Marlet power: Lerner index			
VD__finop_lagged	0.003	0.007			-0.004	-0.005			0.008**	0.010**			-0.435**	-0.542**		
	(0.006)	(0.008)			(0.008)	(0.010)			(0.003)	(0.004)			(0.179)	(0.210)		
VD_finop_CRISIS_lagged	-0.001	-0.002			0.004	0.003			-0.013***	-0.015***			0.707***	0.690**		
	(0.009)	(0.010)			(0.011)	(0.012)			(0.005)	(0.005)			(0.260)	(0.269)		
VD_finop_NPL_lagged		-0.120				-0.031				-0.082*				3.443		
		(0.081)				(0.119)				(0.044)				(2.227)		
Relative_VD_finop_lagged			0.032**	0.049***			-0.030*	-0.039**			0.012*	0.015*			-1.074***	-1.157***
			(0.013)	(0.015)			(0.016)	(0.019)			(0.007)	(0.008)			(0.367)	(0.420)
Relative_VD_finop_CRISIS_lagged			-0.014	-0.016			0.021	0.017			-0.027**	-0.030***			1.214**	1.094*
			(0.020)	(0.021)			(0.024)	(0.026)			(0.011)	(0.011)			(0.565)	(0.582)
Relative_VD_finop_NPL_lagged				-0.587**				0.242				-0.128				6.787
				(0.256)				(0.358)				(0.140)				(7.037)
NPL_lagged		0.248		0.351		-0.687		-1.124		-0.042		-0.178		26.189**		30.881***
		(0.392)		(0.376)		(0.751)		(0.690)		(0.215)		(0.207)		(10.781)		(10.391)
CRISIS	0.093	0.095	0.063	0.055	-0.357	-0.501	-0.322	-0.451	0.081	0.070	0.053	0.032	-30.354***	-38.659***	-29.514***	-37.475***
	(0.332)	(0.375)	(0.331)	(0.374)	(0.429)	(0.477)	(0.429)	(0.476)	(0.180)	(0.205)	(0.180)	(0.206)	(9.514)	(10.331)	(9.514)	(10.334)
DepRate	0.001	0.003	0.001	0.003												
	(0.021)	(0.023)	(0.021)	(0.023)												
Size_lagged	0.103***	0.127***	0.100***	0.126***	0.130***	0.138***	0.132***	0.138***	0.098***	0.122***	0.098***	0.122***	-1.955***	-1.608**	-1.924***	-1.579**
	(0.024)	(0.028)	(0.024)	(0.028)	(0.031)	(0.035)	(0.031)	(0.035)	(0.013)	(0.015)	(0.013)	(0.015)	(0.690)	(0.780)	(0.690)	(0.782)
Government	-0.045	-0.040	-0.066	-0.061	0.014	0.041	0.030	0.058	-0.051	-0.033	-0.048	-0.026	11.367***	9.773***	11.551***	9.762***
	(0.103)	(0.109)	(0.103)	(0.108)	(0.136)	(0.142)	(0.136)	(0.141)	(0.057)	(0.060)	(0.057)	(0.060)	(2.950)	(2.997)	(2.949)	(2.992)
Foreign	-0.054	-0.064	-0.057	-0.067	-0.007	-0.017	-0.009	-0.017	0.021	0.014	0.025	0.016	1.717	-0.171	1.779	-0.043
	(0.203)	(0.212)	(0.202)	(0.211)	(0.266)	(0.275)	(0.266)	(0.274)	(0.100)	(0.109)	(0.100)	(0.109)	(5.784)	(5.805)	(5.783)	(5.807)
Gov_Crisis	0.114	0.104	0.114	0.098	-0.032	-0.056	-0.031	-0.047	0.114*	0.103	0.111*	0.104	-6.864**	-6.937**	-6.633**	-6.745**
	(0.115)	(0.120)	(0.115)	(0.120)	(0.143)	(0.148)	(0.143)	(0.148)	(0.061)	(0.064)	(0.061)	(0.064)	(3.297)	(3.305)	(3.297)	(3.308)
Size_lagged_Crisis	0.001	0.002	0.003	0.004	0.028	0.035	0.026	0.033	0.005	0.006	0.004	0.007	1.757***	2.303***	1.836***	2.365***
	(0.020)	(0.022)	(0.020)	(0.022)	(0.025)	(0.028)	(0.025)	(0.028)	(0.011)	(0.012)	(0.011)	(0.012)	(0.565)	(0.611)	(0.564)	(0.611)
Constant	-1.267**	-1.679***	-1.244***	-1.678***	-1.747***	-1.813***	-1.774***	-1.798***	-1.257***	-1.650***	-1.223***	-1.608***	82.107***	73.929***	79.986***	71.628***
	(0.433)	(0.510)	(0.431)	(0.510)	(0.550)	(0.631)	(0.549)	(0.632)	(0.226)	(0.274)	(0.225)	(0.275)	(12.395)	(14.042)	(12.378)	(14.067)
Observations	1,574	1,480	1,574	1,480	1,597	1,494	1,597	1,494	1,669	1,539	1,669	1,539	1,573	1,479	1,573	1,479
R-squared	0.015	0.019	0.020	0.026	0.016	0.019	0.018	0.022	0.051	0.063	0.050	0.060	0.257	0.269	0.257	0.269
r2_w	0.0152	0.0193	0.0198	0.0261	0.0158	0.0189	0.0182	0.0216	0.0512	0.0627	0.0501	0.0605	0.257	0.269	0.257	0.269
p	0.132	0.0957	0.0249	0.00850	0.0750	0.0760	0.0289	0.0293	1.04e-10	0	2.16e-10	0	0	0	0	0

*** p<0.01, ** p<0.05, * p<0.1

Table A3. Effect of disclosure of *board and management structure* information on banks' market shares and market power (s.e. in parentheses; only statistically significant regressions are presented)

VARIABLES	Market share: retail deposits				Market share: corporate deposits			
VD_corpgov_lagged	0.062***	0.072***			-0.037*	-0.053**		
	(0.016)	(0.019)			(0.020)	(0.024)		
VD_corpgov_CRISIS_lagged	-0.023	-0.027			0.026	0.031		
	(0.022)	(0.024)			(0.028)	(0.029)		
VD_corpgov_NPL_lagged		-0.242				0.208		
		(0.198)				(0.290)		
Relative_VD_corpgov_lagged			0.038***	0.045***			-0.041***	-0.056***
			(0.012)	(0.014)			(0.015)	(0.017)
Relative_VD_corpgov_CRISIS_lagged			-0.016	-0.018			0.028	0.031
			(0.019)	(0.020)			(0.023)	(0.024)
Relative_VD_corpgov_NPL_lagged				-0.264				0.427
				(0.228)				(0.306)
NPL_lagged		0.396		0.360		-1.109*		-1.357**
		(0.511)		(0.481)		(0.643)		(0.624)
CRISIS	0.010	-0.019	0.023	0.002	-0.261	-0.393	-0.241	-0.380
	(0.337)	(0.380)	(0.338)	(0.380)	(0.438)	(0.488)	(0.437)	(0.487)
DepRate	0.001	0.002	0.001	0.002				
	(0.021)	(0.023)	(0.021)	(0.023)				
Size_lagged	0.099***	0.120***	0.100***	0.125***	0.134***	0.140***	0.134***	0.135***
	(0.024)	(0.028)	(0.024)	(0.028)	(0.031)	(0.035)	(0.030)	(0.035)
Government	-0.069	-0.055	-0.063	-0.054	0.023	0.053	0.030	0.064
	(0.102)	(0.108)	(0.102)	(0.108)	(0.136)	(0.141)	(0.135)	(0.141)
Foreign	-0.032	-0.050	-0.053	-0.074	-0.024	-0.034	-0.009	-0.006
	(0.201)	(0.211)	(0.202)	(0.211)	(0.266)	(0.275)	(0.265)	(0.274)
Gov_Crisis	0.123	0.109	0.120	0.108	-0.040	-0.057	-0.043	-0.055
	(0.115)	(0.120)	(0.115)	(0.120)	(0.144)	(0.149)	(0.144)	(0.149)
Size_lagged_Crisis	0.009	0.012	0.005	0.008	0.021	0.027	0.021	0.028
	(0.020)	(0.023)	(0.020)	(0.023)	(0.026)	(0.029)	(0.026)	(0.029)
Constant	-1.290***	-1.665***	-1.246***	-1.665***	-1.763***	-1.783***	-1.790***	-1.737***
	(0.430)	(0.509)	(0.431)	(0.511)	(0.549)	(0.630)	(0.549)	(0.630)
Observations	1,574	1,480	1,574	1,480	1,597	1,494	1,597	1,494
R-squared	0.025	0.028	0.022	0.025	0.018	0.022	0.021	0.026
r2_w	0.0251	0.0283	0.0220	0.0254	0.0181	0.0222	0.0209	0.0264
p	0.00246	0.00349	0.00991	0.0112	0.0306	0.0242	0.00941	0.00454

*** p<0.01, ** p<0.05, * p<0.1

Table A4. Effect of information disclosure on banks' market share in retail and corporate deposit markets, *reduced sample* (without subsidiary banks, s.e. in parentheses)

VARIABLES	Market share: retail deposits						Market share: corporate deposits					
VD_lagged	0.005	0.008					-0.009	-0.012				
	(0.005)	(0.006)					(0.006)	(0.008)				
VD_CRISIS_lagged	-0.001	-0.002					0.003	0.002				
	(0.007)	(0.007)					(0.009)	(0.010)				
VD_NPL_lagged		-0.074						0.001				
		(0.068)						(0.091)				
Relative_VD_lagged			0.031*	0.052***					-0.052**	-0.074***		
			(0.016)	(0.019)					(0.022)	(0.026)		
Relative_VD_CRISIS_lagged			-0.010	-0.011					0.025	0.020		
			(0.025)	(0.027)					(0.034)	(0.036)		
Relative_VD_NPL_lagged				-0.756**						0.491		
				(0.345)						(0.458)		
VD_delta_lagged					0.001	-0.001					-0.004	-0.006
					(0.005)	(0.006)					(0.006)	(0.008)
VD_delta_CRISIS_lagged					-0.000	0.001					0.008	0.010
					(0.010)	(0.011)					(0.014)	(0.016)
VD_delta_NPL_lagged						0.035						0.022
						(0.080)						(0.112)
NPL_lagged		0.347		0.778		-0.461		-1.100		-1.722**		-0.893
		(0.648)		(0.624)		(0.470)		(0.875)		(0.842)		(0.654)
CRISIS	0.075	0.064	0.056	0.052		-0.268	-0.448	-0.608	-0.395	-0.558	-0.549	-0.658
	(0.344)	(0.392)	(0.343)	(0.392)		(0.341)	(0.483)	(0.540)	(0.483)	(0.540)	(0.438)	(0.489)
DepRate	0.001	0.002	0.001	0.002	0.000	-0.000						
	(0.020)	(0.022)	(0.020)	(0.022)	(0.018)	(0.019)						
Size_lagged	0.076***	0.089***	0.075***	0.095***	0.068***	0.073**	0.146***	0.152***	0.147***	0.147***	0.109***	0.115***
	(0.025)	(0.029)	(0.025)	(0.029)	(0.026)	(0.031)	(0.034)	(0.040)	(0.034)	(0.040)	(0.035)	(0.042)
Government	0.059	0.071	0.051	0.054	0.047	0.075	0.048	0.125	0.061	0.149	0.072	0.127
	(0.148)	(0.158)	(0.148)	(0.157)	(0.136)	(0.144)	(0.201)	(0.213)	(0.201)	(0.212)	(0.191)	(0.202)
Foreign	-0.022	-0.027	-0.023	-0.034	-0.048	-0.049	-0.014	-0.026	-0.013	-0.016	0.019	0.013
	(0.195)	(0.205)	(0.194)	(0.204)	(0.182)	(0.191)	(0.280)	(0.291)	(0.280)	(0.290)	(0.270)	(0.281)
Gov_Crisis	0.018	0.001	0.017	-0.016	0.190	0.184	0.276	0.263	0.275	0.282	-0.040	-0.054
	(0.141)	(0.148)	(0.141)	(0.148)	(0.124)	(0.129)	(0.192)	(0.200)	(0.192)	(0.200)	(0.174)	(0.181)
Size_lagged_Crisis	0.003	0.005	0.002	0.004	0.016	0.020	0.033	0.040	0.032	0.040	0.041	0.046
	(0.021)	(0.024)	(0.021)	(0.023)	(0.017)	(0.020)	(0.029)	(0.032)	(0.029)	(0.032)	(0.025)	(0.028)
Constant	-0.830*	-1.060**	-0.798*	-1.150**	-0.822*	-0.685	-1.955***	-1.964***	-2.010***	-1.905***	-1.384**	-1.437*
	(0.440)	(0.529)	(0.439)	(0.531)	(0.474)	(0.551)	(0.613)	(0.711)	(0.612)	(0.715)	(0.637)	(0.751)
Observations	1,355	1,265	1,355	1,265	1,200	1,129	1,385	1,287	1,385	1,287	1,237	1,156
R-squared	0.011	0.014	0.013	0.019	0.014	0.016	0.023	0.028	0.026	0.033	0.015	0.018
r2_w	0.0113	0.0136	0.0135	0.0192	0.0140	0.0159	0.0230	0.0281	0.0262	0.0327	0.0147	0.0181
p	0.570	0.597	0.378	0.215	0.412	0.493	0.0137	0.0109	0.00403	0.00214	**0.265**	**0.263**

*** p<0.01, ** p<0.05, * p<0.1

Table A5. Effect of information disclosure on banks' market share in terms of loans and market power, *reduced sample* (without subsidiary banks, s.e. in parenthesis)

VARIABLES	Market share: loans						Marlet power: Lerner index					
VD_lagged	0.003	0.004					-0.189	-0.199				
	(0.003)	(0.003)					(0.139)	(0.168)				
VD_CRISIS_lagged	-0.007*	-0.007*					0.393**	0.341*				
	(0.004)	(0.004)					(0.197)	(0.204)				
VD_NPL_lagged		-0.030						1.785				
		(0.039)						(1.916)				
Relative_VD_lagged			-0.007	-0.011					-0.999**	-0.900		
			(0.009)	(0.011)					(0.475)	(0.548)		
Relative_VD_CRISIS_lagged			-0.016	-0.018					1.187	0.994		
			(0.014)	(0.016)					(0.739)	(0.759)		
Relative_VD_NPL_lagged				0.039						1.663		
				(0.200)						(9.639)		
VD_delta_lagged					-0.001	-0.004					-0.198	0.076
					(0.002)	(0.003)					(0.147)	(0.182)
VD_delta_CRISIS_lagged					-0.003	-0.002					0.306	0.282
					(0.006)	(0.006)					(0.335)	(0.350)
VD_delta_NPL_lagged						0.057						-5.322**
						(0.045)						(2.493)
NPL_lagged		-0.452		-0.704*		-0.805***		44.751**		54.207***		73.510***
		(0.376)		(0.362)		(0.260)		(18.128)		(17.493)		(14.659)
CRISIS	0.065	0.056	0.074	0.067		-0.008	-27.170***	-35.330***	-27.858***	-35.832***		-33.456***
	(0.197)	(0.228)	(0.197)	(0.228)		(0.192)	(10.087)	(10.978)	(10.090)	(10.988)		(10.612)
Size_lagged	0.092***	0.112***	0.094***	0.113***	0.082***	0.097***	-2.483***	-2.184***	-2.456***	-2.109**	-2.437***	-1.819*
	(0.014)	(0.017)	(0.014)	(0.017)	(0.014)	(0.017)	(0.721)	(0.823)	(0.720)	(0.825)	(0.845)	(0.951)
Government	-0.009	0.041	0.001	0.053	0.000	0.044	7.998*	4.171	8.252*	4.445	7.757*	4.258
	(0.087)	(0.093)	(0.087)	(0.093)	(0.077)	(0.082)	(4.345)	(4.416)	(4.343)	(4.419)	(4.418)	(4.491)
Foreign	0.034	0.030	0.041	0.035	0.034	0.027	2.553	0.540	2.661	0.617	5.166	3.004
	(0.102)	(0.112)	(0.102)	(0.112)	(0.092)	(0.100)	(5.699)	(5.705)	(5.697)	(5.705)	(5.914)	(5.940)
Gov_Crisis	0.128	0.122	0.128	0.131	0.104	0.106	-9.413**	-9.650**	-9.047**	-9.579**	-7.512*	-8.853**
	(0.082)	(0.087)	(0.083)	(0.087)	(0.070)	(0.073)	(4.141)	(4.144)	(4.145)	(4.152)	(4.030)	(4.022)
Size_lagged_Crisis	0.005	0.006	0.003	0.004	0.006	0.006	1.605***	2.173***	1.738***	2.281***	1.630***	2.237***
	(0.012)	(0.014)	(0.012)	(0.014)	(0.010)	(0.011)	(0.607)	(0.658)	(0.603)	(0.654)	(0.569)	(0.613)
Constant	-1.126***	-1.408***	-1.121***	-1.394***	-0.920***	-1.111***	90.027***	81.832***	88.746***	79.751***	62.332***	72.620***
	(0.242)	(0.302)	(0.242)	(0.304)	(0.255)	(0.300)	(12.905)	(14.776)	(12.897)	(14.877)	(15.468)	(17.155)
Observations	1,437	1,312	1,437	1,312	1,275	1,174	1,355	1,265	1,355	1,265	1,200	1,129
R-squared	0.042	0.054	0.042	0.054	0.040	0.055	0.290	0.305	0.290	0.306	0.268	0.296
r2_w	0.0422	0.0535	0.0418	0.0537	0.0395	0.0549	0.290	0.305	0.290	0.306	0.268	0.296
p	1.16e-06	2.00e-07	1.45e-06	1.83e-07	2.79e-05	1.04e-06	0	0	0	0	0	0

*** p<0.01, ** p<0.05, * p<0.1

le A6. Effect of information disclosure on banks' market share in retail and corporate deposit markets, *without top 50 banks* (s.e. in parenthesis)

VARIABLES	Market share: retail deposits	Market share: corporate deposits

VD_lagged	0.043	-0.014					-0.310***	-0.128				
	(0.043)	(0.056)					(0.117)	(0.091)				
VD_CRISIS_lagged	0.027	0.063					0.497***	0.278**				
	(0.070)	(0.076)					(0.189)	(0.122)				
VD_NPL_lagged		1.276						-4.425***				
		(0.825)						(1.348)				
Relative_VD_lagged			-0.010	-0.303					-0.430	-0.079		
			(0.173)	(0.215)					(0.474)	(0.352)		
Relative_VD_CRISIS_lagged			0.211	0.350					1.565**	0.913*		
			(0.270)	(0.290)					(0.728)	(0.471)		
Relative_VD_NPL_lagged				10.824**						-16.348**		
				(4.287)						(7.016)		
VD_delta_lagged					0.082*	0.025					0.051	0.135
					(0.048)	(0.068)					(0.098)	(0.105)
VD_delta_CRISIS_lagged					-0.012	0.058					0.015	0.047
					(0.108)	(0.119)					(0.221)	(0.185)
VD_delta_NPL_lagged						1.034						-2.320
						(1.108)						(1.732)
NPL_lagged		-9.430*		-11.166**		-2.306		-19.763**		-28.233***		-20.035**
		(5.082)		(4.485)		(3.465)		(10.053)		(9.733)		(7.928)
CRISIS	-7.623*	-8.231	-7.269*	-7.965	-2.061	-3.896	11.234	3.305	10.150	2.162	12.097	2.073
	(4.212)	(5.137)	(4.211)	(5.126)	(4.189)	(4.975)	(12.245)	(8.796)	(12.277)	(8.875)	(9.123)	(8.115)
DepRate	-0.164	-0.241	-0.167	-0.248	-0.153	-0.200						
	(0.191)	(0.209)	(0.191)	(0.209)	(0.181)	(0.197)						
Size_lagged	1.463***	1.624***	1.546***	1.675***	2.732***	3.077***	0.962*	1.262***	0.469	0.855**	3.914***	3.145***
	(0.182)	(0.223)	(0.170)	(0.204)	(0.282)	(0.336)	(0.518)	(0.364)	(0.483)	(0.338)	(0.563)	(0.505)
Government	-3.601***	-3.157***	-3.399***	-2.918**	-1.945*	-1.742	-1.551	-1.373	-2.568	-1.884	1.843	1.550
	(1.117)	(1.180)	(1.113)	(1.171)	(1.125)	(1.173)	(3.407)	(2.116)	(3.404)	(2.125)	(2.597)	(2.011)
Foreign	-7.847***	-8.306***	-7.795***	-8.278***	-11.398***	-12.319***	1.771	1.060	1.802	1.017	2.902	1.821
	(2.213)	(2.318)	(2.213)	(2.314)	(2.308)	(2.423)	(6.646)	(4.124)	(6.666)	(4.162)	(5.227)	(4.069)
Gov_Crisis	1.062	0.992	0.987	0.923	0.748	0.698	0.158	-1.077	0.609	-0.774	-0.696	-1.244
	(1.565)	(1.616)	(1.565)	(1.612)	(1.504)	(1.542)	(4.289)	(2.639)	(4.300)	(2.662)	(3.099)	(2.389)
Size_lagged_Crisis	0.456*	0.483	0.423	0.460	0.243	0.361	-1.040	-0.405	-0.912	-0.284	-0.455	0.081
	(0.264)	(0.319)	(0.263)	(0.317)	(0.253)	(0.301)	(0.758)	(0.542)	(0.758)	(0.546)	(0.550)	(0.489)
Constant	-14.514***	-16.514***	-15.627***	-17.192***	-36.567***	-42.143***	-4.000	-10.184*	2.599	-4.469	-61.819***	-47.490***
	(2.828)	(3.476)	(2.701)	(3.265)	(4.858)	(5.804)	(8.162)	(5.730)	(7.784)	(5.450)	(9.765)	(8.758)
Observations	1,139	1,050	1,139	1,050	1,006	936	1,158	1,060	1,158	1,060	1,032	952
R-squared	0.118	0.113	0.117	0.117	0.154	0.153	0.033	0.078	0.027	0.061	0.079	0.084
r2_a	-0.0170	-0.0370	-0.0179	-0.0327	0.00519	-0.00913	-0.121	-0.0813	-0.128	-0.101	-0.0875	-0.0940
p	0	0	0	0	0	0	0.00150	9.27e-10	0.0107	7.75e-07	2.83e-10	3.39e-09

*** p<0.01, ** p<0.05, * p<0.1

Table A7. Effect of information disclosure on banks' market share in terms of loans and market power, *without top 50 banks* (s.e. in parenthesis)

VARIABLES	Market share: loans						Marlet power: Lerner index					
VD_lagged	-0.109**	-0.060					-0.005***	-0.006***				
	(0.044)	(0.052)					(0.002)	(0.002)				
VD_CRISIS_lagged	0.077	0.065					0.006***	0.007**				
	(0.071)	(0.070)					(0.003)	(0.003)				
VD_NPL_lagged		-1.743**						0.051*				
		(0.751)						(0.029)				
Relative_VD_lagged			0.150	0.299					-0.016**	-0.015**		
			(0.178)	(0.202)					(0.007)	(0.006)		
Relative_VD_CRISIS_lagged			0.017	-0.026					0.016	0.017*		
			(0.275)	(0.271)					(0.010)	(0.010)		
Relative_VD_NPL_lagged				-3.374					0.174			
				(3.982)					(0.149)			
VD_delta_lagged					0.089**	0.076					-0.003	-0.001
					(0.041)	(0.054)					(0.002)	(0.002)
VD_delta_CRISIS_lagged					-0.113	-0.073					0.005	0.005
					(0.094)	(0.096)					(0.004)	(0.004)
VD_delta_NPL_lagged						0.350						-0.020
						(0.889)						(0.039)
NPL_lagged		-2.986		-9.186*		-7.196**		0.010	0.124			0.401***
		(4.714)		(4.225)		(2.765)		(0.176)	(0.156)			(0.122)
CRISIS	-1.791	-3.993	-2.575	-5.134	2.946	0.039	-0.384**	-0.574***	-0.598***	-0.409***	-0.206	-0.413**
	(4.272)	(4.768)	(4.282)	(4.797)	(3.596)	(3.953)	(0.151)	(0.178)	(0.179)	(0.151)	(0.151)	(0.176)
Size_lagged	1.212***	1.284***	0.978**	0.964**	2.956***	3.237***	-0.047***	-0.052***	-0.058***	-0.052***	-0.014	-0.012
	(0.180)	(0.204)	(0.168)	(0.189)	(0.225)	(0.258)	(0.006)	(0.008)	(0.007)	(0.006)	(0.010)	(0.012)
Government	-7.475**	-6.971**	-8.109*	-7.551*	-4.439**	-4.001**	0.065	0.054	0.047	0.059	0.095**	0.074*
	(1.166)	(1.117)	(1.163)	(1.118)	(0.995)	(0.948)	(0.040)	(0.041)	(0.041)	(0.040)	(0.041)	(0.041)
Foreign	0.081	0.257	-0.328	-0.104	-0.725	-1.584	0.053	0.025	0.027	0.051	0.084	0.051
	(1.968)	(1.972)	(1.970)	(1.982)	(1.713)	(1.721)	(0.079)	(0.080)	(0.080)	(0.079)	(0.083)	(0.085)
Gov_Crisis	1.622	1.452	1.834	1.773	1.891	1.786	-0.104*	-0.102*	-0.101*	-0.101*	-0.099*	-0.100*
	(1.503)	(1.419)	(1.505)	(1.425)	(1.228)	(1.151)	(0.056)	(0.056)	(0.056)	(0.056)	(0.054)	(0.054)
Size_lagged_Crisis	0.003	0.136	0.075	0.231	0.008	0.177	0.018*	0.030***	0.033***	0.021**	0.014	0.027**
	(0.266)	(0.295)	(0.266)	(0.296)	(0.218)	(0.239)	(0.009)	(0.011)	(0.011)	(0.009)	(0.009)	(0.011)
Constant	-10.121*	-10.963*	-6.913*	-6.293*	-43.197*	-47.343*	1.330***	1.401***	1.471***	1.391***	0.689***	0.623***
	(2.811)	(3.193)	(2.692)	(3.031)	(3.900)	(4.465)	(0.101)	(0.120)	(0.114)	(0.097)	(0.175)	(0.205)
Observations	1,228	1,103	1,228	1,103	1,088	988	1,138	1,049	1,049	1,138	1,005	935
R-squared	0.110	0.141	0.105	0.131	0.224	0.252	0.254	0.265	0.261	0.250	0.260	0.279
r2_w	0.110	0.141	0.105	0.131	0.224	0.252	0.254	0.265	0.261	0.250	0.260	0.279
p	0	0	0	0	0	0	0	0	0	0	0	0

*** p<0.01, ** p<0.05, * p<0.1

Table A8. Descriptive statistics for the sample without the 50 largest banks

Variable	Obs	Mean	Std. Dev.	Min	Max
DFL (in basis points)	1263	8.228	9.495	0.002	63.291
VDUL (in basis points)	1202	7.844	13.769	0.000	173.074
KE (in basis points)	1263	8.047	8.639	0.000	59.996
Lerner	1262	56.038	22.423	0.200	100.000
VD_total	1263	5.369	4.992	0.000	17.000
VD_own	1263	0.972	1.200	0.000	4.000
VD_finop	1263	3.416	3.441	0.000	11.000
VD_corpgov	1263	0.981	1.373	0.000	4.000
Relative_VD	1263	0.954	1.050	0.000	7.071
Relative_VD_own	1263	0.649	1.275	0.000	10.205
Relative_VD_finop	1263	1.033	1.269	0.000	8.068
Relative_VD_corpgov	1263	0.896	1.436	0.000	8.747
VD_total_delta	1135	0.959	2.929	-13.000	14.000
VD_own_delta	1135	0.177	0.656	-4.000	4.000
VD_finop_delta	1135	0.635	2.189	-9.000	11.000
VD_corpgov_delta	1135	0.147	0.729	-3.000	4.000
NPL	1172	0.032	0.048	0.000	0.992
Size	1262	16.232	1.423	10.259	18.969
DepRate	1263	0.064	0.034	0.000	0.816
Government	1263	0.042	0.201	0.000	1.000
Foreign	1263	0.105	0.306	0.000	1.000

Table A9. Collinearity Diagnostics

Variable	VIF	SQRT VIF	Tolerance	R-Squared	Eigenval	Cond Index
Government	1.18	1.09	0.85	0.15	4.18	1.00
Foreign	1.06	1.03	0.94	0.06	1.08	1.97
VD	2.13	1.46	0.47	0.53	0.95	2.10
NPL	2.89	1.70	0.35	0.65	0.87	2.19
Size	1.51	1.23	0.66	0.34	0.82	2.26
Deposit Rate	1.00	1.00	1.00	0.00	0.66	2.52
VD*NPL	3.97	1.99	0.25	0.75	0.35	3.47
VD*Crisis	1.10	1.05	0.91	0.09	0.09	6.88

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