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The Interplay between Payout Policies and Debt inside Banking Firms

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Abstract

The paper studies the interplay between the payout policies and the leverage structures of financial firms. For a large sample of United States commercial banks we find that our firms are more likely to pay dividends and have larger payout ratios when they rise in non-deposit leverage. Conversely, when banks increase in deposit leverage they pay out less of their earnings. By receiving huge dividends equityholders shift some of their risk towards the non-deposit creditors. This pattern reveals in the data after the crisis of 2007-2008. Banks started to rely more strongly on deposit funding, while the same depositors were viewing their funds more "at risk." Commercial banks avoided expropriating retail creditors from the dividend value in order to preserve stability. We do not observe a significant interplay between leverage and the payout associated to share repurchases.

Keywords: Banks, Dividends, Leverage

JEL Classification: G21, G35

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1. Introduction

During the global crisis of 2007-2009 financial firms experienced severe shocks on their funding, which had implications on other corporate decisions.

One rather controversial aspect in the behavior of financial firms during the recent crisis concerns their dividend policies. Acharya et al. (2012) show that, while huge credit losses were depleting the common equity of banks, the same firms continued to pay out large dividends. Dividends benefit owners in violation of the priority of debt over equity. Indeed, when losses can be anticipated, dividends represent an "extraction" (or "expropriation") of value from debtholders.

Several papers sustain that, by paying out earnings firms do intensify moral hazard, and shareholders might leave debtholders with an "empty shell" (Black (1976), Myers (1977), Smith and Warner (1979), Easterbrook (1984), and Leuz, Deller, and Stubenrath (1998), Akerlof and Romer (1993), Haq and Heaney (2012), and Kanas (2013)).

The moral hazard of banks might be amplified also by changes in the capital structure. Acharya et al. (2012) argue that, during the crisis banks were bringing severe agency costs by assuming higher leverage (measured as total assets over common equity).[1] The high dividends observed in their sample are affirmed to reflect a form of risk shifting (or, asset substitution) from equityholders to debtholders.[2]

We depart from the discussion of Acharya et al. (2012) and inspect more deeply the relationship occurring between leverage and dividends inside banks. The two policies carry some agency costs which might juxtapose, ultimately affecting stability.[3] The focus on the banking industry makes the discussion and the empirics of the paper relatively articulated,

[1] A high leverage makes the cost of the financial distress more expensive, as well. The costs of bankruptcy might be larger for financial firms because of the following two facts. First, bankruptcy deters the bank from issuing new liabilities, such as demand deposits and lending commitments, so that it is unable to provide critical services to customers as credit, payments, and market timing. Secondly, given the interconnectedness among banking institutions, the failure of one bank may weaken other banks which have exposures to the failed one (Thomas F. Huertas, LSE Financial Markets Group Seminar on Modigliani - Miller in Banking, 18 January 2010).

[2] In a subsequent paper Acharya, Le, and Shin (2013) propose a model which can explain this behavior. The argument relies on the franchise value of banks. The argument predicts that when the bank leverage is sufficiently high and the franchise value of the firm is below a certain critical level, equityholders have larger benefits from receiving cash today through the dividend, rather than maintaining the equity option on the franchise value. Our empirical results would be consistent with this prediction in what regards the effect estimated on the non-deposit debt, which the type of debt for which we affirm to have higher agency costs and higher dividend expropriation.

[3] According to Admati et al. (2013) bank capital regulation can enhance social benefits to the economy. Better capitalized (i.e. less levered) banks have more retained earnings and can expand their lending at lower costs, whereas when leverage is excessive equityholders ask for huge dividends, since they will get larger gains from a certain payout over equity.

contributing to a better understanding on the decisions taken by financial firms. One feature which characterizes our approach with respect to previous empirical studies is that we relate dividend choices to banks´ leverage distinguishing effects from deposit and non-deposit leverage. Thus, we give emphasis to the layered composition of debt structures, which is specific to banking firms as compared to non-financial firms. We further note that moral hazard problems can be more acute for banks given the presence of implicit and explicit guarantees such as deposit insurance (Bhattacharya and Thakor (1993)) and the ease of risk manipulation (Myers and Rajan (1998)).

The article of Acharya et al. (2012) is a purely descriptive study. The authors present several statistics on capital raises and dividends from 25 financial institutions, out of them 13 firms are from the United States, including both investment and commercial firms. We instead examine a large sample of United States commercial banks during 2000-2011 and perform several types of regression analyses.

We measure dividend policies by looking at the probability that firms pay dividends during the quarter, and at the relative dividend payout ratio. We study how these two variables change with both deposit leverage (retail funding) and non-deposit leverage (wholesale funding), computed as the book value of deposit and non-deposit debt as ratio over total assets, respectively.[4]

We estimate a significant pattern after October 2008, while during the previous time frame the estimated coefficients are not statistically important. More precisely, when banks raise in non-deposit leverage they are more likely to pay out earnings and have also larger payout ratios. Oppositely, when banks have more deposits they are also more restrictive in their dividend policies. We interpret this pattern arguing that, dividends allow owners to accomplish some risk-shifting on non-deposit creditors, while we cannot argue to get evidence of some dividend "expropriation" against depositors.

Besides performing OLS regressions, we show outputs where the model for the dividend payout is estimated following, alternatively, the method of Arellano and Bond (1991) for dynamic panel data (DPD), and the approach of Honoré (1992) for censored normal regression (Tobit) models with fixed effects. To our knowledge we are among the first to

[4] A standard classification distinguishes between wholesale and retail debt funding. In general, the former includes central bank liquidity, interbank loans, other short-term debt, most notably repurchase agreements (repos) and commercial paper (CP), and longer-term debt. Retail debt funding is essentially funding through customer deposits, such as current, savings and term deposits (Martel, Van Rixtel, and González Mota (2012)). Note that the measures we employ for the banking leverage are based on balance sheet data and do not include effects from positions on derivative contracts.

implement the procedure of Honoré (1992) on a sample of financial corporations. We further report estimates from a simultaneous system of equation where banks determine jointly dividends and capital structures. These latter techniques are helpful for the attenuation of potential endogeneity in our baseline outcomes.

In the final part of the paper we characterize the total payout policy of our firms analyzing share repurchases. In general, we do not see a strong linkage between shares repurchase activities and leverage.

We interpret the reasons why see a tighter interplay between dividends and debt policies during the turmoil and in the aftermath. The global financial crisis revealed the risk in using certain wholesale debt instruments (as repos), so that banks had often to adjust their funding models. In the United States firms were observed raising equity capital and replacing with deposits other secured and unsecured wholesale debt securities (Oura et al. (2013)).[5] At the same time, the crisis affected the behavior of depositors, as long as they started to perceive some risk in the availability of their funds, despite the presence of deposit insurance schemes (Mora (2010)). Depositors were no longer net suppliers of liquidity and firms were active in soliciting deposits (Acharya and Mora (2012)). The amount of deposits above the deposit insurance limit was high, and the FDIC fund dramatically fell by August 2009.

These facts help to explain the estimated pattern. During the freeze of credit in the markets, banks which could raise in deposit leverage preferred to smooth and/or reduce their dividends, so to avoid potential withdrawals from depositors. The same did not happen with non-deposit creditors. When the share of non-demandable debt was increasing, owners violated the priority of debt over equity by receiving larger dividends. Huge dividends eroded the common equity of the firms and the consequences from the distress were shifted on non-deposit creditors.

With this paper we provide an explanation to the so-called "dividend puzzle" sustaining that banks pay dividends in response to the contrasting interests among their stakeholders.[6]

[5] Since the 1990s, banks have increasingly used wholesale funding to supplement retail deposits (Feldman and Schmidt (2001)). Before the crisis researchers retained it was advantageous that banks had sophisticated business models (Calomiris and Kahn (1991), Rochet and Tirole (1996), Flannery (1998), and Calomiris, (1999)), yet the outbreak of the crisis revealed that wholesale funding was a severe source of instability. Evidence has showed that banks funded more by wholesale funding fared worse during the crisis (Huang and Ratnovski (2009), Shin (2009), Demirgüç-Kunt and Huizinga (2010), Goldsmith-Pinkham and Yorulmazer (2010), Beltratti and Stulz (2012), and Vazquez and Federico (2012)), and most of United States and European banks shifted their funding structures towards a larger use of deposit funding, in order to face the freezing of liquidity on financial markets (among others, see Oura et al. (2013), and Martel, Van Rixtel, and González Mota (2012)).

[6] The seminal paper on the "dividend puzzle" is Black (1976).

In particular, we have put emphasis on the heterogeneity among banks´ debtholders, since we show that different sources of debt imply differently on payouts. This result can be of interest also for more theoretical research, when interested in modelling banks´ behaviours.

The outcomes are discussed in relation to the recent crisis, contributing to the understanding of the reaction of firms towards the turmoil. In the conclusion of the paper we address policy implications where we relate our findings to the debate about sanctions of dividends during crises.

The paper develops as follows. In Section 2 we present the most relevant research on firms´ dividends, with a focus on those papers which deal with the dividends of financial firms. Section 3 analyzes a large panel of United States commercial banks. Econometric techniques relate the dividend policies of our firms to their leverage structures. We distinguish between deposit and non-deposit leverage, and further separate the sub-sample of relative stability (before 2006) from the period of financial turmoil (after Summer 2007). This split allows discussing the way in which the financial crisis might have driven the estimated pattern. Section 4 and Section 5 perform several other tests in order to verify the plausibility of the interpretation. Section 6 implements econometric methods in order to verify that endogeneity problems are not severely affecting our results. Section 7 explores decisions on share repurchases. Section 8 concludes the paper.

2. Related Literature

The article deals with corporate dividend policies. So far academic research has largely concentrated on non-financial firms and several theories have attempted to explain the reasons inducing firms to pay dividends. Among the most diffused there are signaling arguments, free cash flow hypothesis, agency-based models, and other opinions emphasizing issues on taxes and transaction costs. A huge empirical literature tests whether these theories are consistent with empirical evidence. Surveys on this type of research include Allen and Michaely (2003), DeAngelo, DeAngelo, and Skinner (2008), Baker (2009), and Farre-Mensa, Michaely, and Schmalz (2014). Ben-David (2010) integrates these surveys reviewing the behavioural theories of dividends. Despite the numerous contributions, there is still no consensus among researchers on the interpretation of dividends, which remain a “puzzle” (Black (1976)).

Our paper concentrates on the dividend policies of financial firms. There is little knowledge on how financial firms decide on their dividends. Dickens, Casey, and Newman

(2002) and Kleff and Weber (2005) identify the factors which explain the decisions on dividends for samples of banks. These factors are found to be size, risk and profitability. Casey and Dickens (2000) study effects on banks´ dividends from tax changes. Finally, Basse et al. (2014) and Boldin and Legget (1995) ask on the signaling properties of dividends.[7]

The knowledge on banking dividends is relatively scarce and lot of issues remain unsolved. Our paper contributes to this topic, examining the type of interplay existing between the dividend policies of banks and their debt levels, more precisely questioning whether the leverage of a bank is a driver of primary order for the choice of the firm on dividends.

We get hints on the type of correlation existing between banks´ dividends and debt from the following papers.[8] Gropp and Heider (2010) survey the determinants of the capital structures inside United States and European banks during 1991-2004 using a model similar to Frank and Goyal (2009) on industrial firms. The effect from a dummy variable denoting the payment of an annual dividend is to reduce banks´ market and book leverage, consistently with the findings from Frank and Goyal (2009). Differently than Gropp and Heider (2010), Octavia and Brown (2010) find that for banks in developing countries during 1996-2005 the payment of dividends tend to raise the book leverage.

In the final part of the paper we analyze the share repurchases of our sample. This completes our study characterizing the entire payout policy of our firms. Among others, we send to Grullon and Ikenberry (2000) and Allen and Michaely (2003) for some stylized facts on stock repurchases, and for a review of recent research on the topic. Academics have often attempted to explain stock buybacks and have compared them to dividends (among others, see Grullon and Michaely (2002)). Little attention has been given to the share repurchases inside banks. One example is Hirtle (2004),who shows that by repurchasing stocks bank holding companies can improve their financial performance. With our results we can offer new and recent evidence on banks´ share repurchases.

[7] Eriotis, Vasiliou, and Zisis (2007) look at the dividends of Greek banks during 1997-2001. Hirtle (1998) describes the pattern in United States banks during 1997, when financial firms were seen to dramatically fall in capital while simultaneously increase in dividend payouts. Banks were returning to shareholders the earnings accumulated during the previous years of high profitability and cash holding.

[8] More papers give suggestions on the interplay between dividends and debt inside non-financial firms. In Jensen (1986) dividends and debt can reduce agency costs of free cash flows. Articles which relate dividends to funding policies are Dhrymes and Kurz (1967), Fama (1974), McCabe (1979), and Jensen, Solberg, and Zorn (1992). Finally, dividends are affected by debt maturity in Barclay and Smith (1995) and by creditors´ rights in Brockman and Unlu (2009).

3. Empirical analysis

3.1 Data

We use data from SNL Financial LC.[9] We collect balance sheet information and market data on all the United States publicly listed institutions classified as "bank," which SNL Financial defines as "a company whose primary business is to accept deposits and make loans." The sample includes operating independent banks and bank holding companies, while acquired or defunct companies are excluded. We inspect the time horizon which goes from the first quarter of 2000 till the third quarter of 2011 (2000q1-2011q3). In every quarter we have data on 981 institutions and our sample is built by a total of 46,107 bank-quarter observations.

3.2 Variables for the Bank Dividend Policy

The task is to relate the dividend policies of our banks to the leverage of the same firms, conditional on further aspects which we think can importantly influence dividends. We identify the dividend policy of our banks with the following two decisions: (i) paying or not some dividends during the quarter, and (ii) the amount to pay out via dividends with respect to the available resources.

Decision (i) is measured by a dummy variable (*DIVIDEND_DUMMY*) assuming value one if the firm has reported to have paid positive dividends during the year-quarter, while is zero if during the same time period the reported dividends are zero. Two alternative measures capture the decision (ii). The first measure is the so-called dividend payout ratio (*DIVIDEND_EARNINGS*), defined as dividends in percentage to earnings per share. This is the same dividend payout ratio employed by Rozeff (1982) and Braggion and Moore (2010). The second measure divides dividends by the average common equity per share (*DIVIDEND_EQUITY*). Onali (2012) focuses on this same quantity and argues that *DIVIDEND_EQUITY* is a more reliable payout measure, given the importance of equity capital in banking.[10]

[9] SNL Financial LC is a financial information firm headquartered in the United States, which covers more than 50,000 private and public international companies operating in the most relevant market sectors. See http://www.snl.com/.

[10] The quality of results we get on *DIVIDEND_EQUITY* is very similar to the empirical output we get when we run the same regression on the so-called dividend yield, defined as the most recent dividend, annualized and expressed as a percent of the security´s price. The dividend yield is used as dependent variable in the studies of Barclay and Smith (1995) and Mercado-Mendez and Willey (1995). We do not report in the paper the outcomes on the dividend yield for not overloading the set of results.

Table 1 reports means, standard deviations and various percentiles of the variables mentioned so far.[11] Note that *DIVIDEND_EARNINGS* is much more volatile than *DIVIDEND_EQUITY*, and this is likely to be due to the larger volatility of earnings. Table 2 computes the same statistics for the dividend declaring banks, i. e. those banks which were paying some dividends to their shareholders. On average, those firms have distributed more than the half of their profits to owners, given that *DIVIDEND_EARNINGS* for the dividend declaring banks is about 54.4%, while on the entire sample the value is about 35.3%.

In order to detect some patterns in the behavior of dividends along time, Table 3 shows for each year of the sample the percentage of banks which are paying dividends and the associated average payout ratio. The vast majority of our banks are seen to distribute dividends during the very first years of the sample. Till 2008 the proportion of dividend paying banks is above the 65%. During 2010-2011 instead, this number goes below 55%. In 2009 we observe the peak in *DIVIDEND_EARNINGS*, when half of the earnings were allocated to dividends, while it drops during the last two years of the sample. *DIVIDEND_EQUITY* is more stable and is progressively decreasing along time.[12]

3.3 Variables for the Bank Leverage

The bank leverage is alternatively measured by the following four variables. The total leverage is *DEP&NONDEP_TA*, computed as the sum of deposits and non-deposits normalized by total assets. We disentangle the two separate contributions on leverage from deposit and non-deposit debt with the variables *DEPOSITS_TA* and *NONDEPOSITS_TA*. We also compute the ratio of non-deposits over the total amount of deposit plus non-deposit liabilities (*NONDEPOSITS_TL*).[13]

Deposit liabilities are almost the 79% of total assets and largely overcome the non-deposit leverage, which is almost the 9% of total assets (see Table 1). Table 2 shows that the dividend declaring banks have a slightly larger fraction of non-deposit liabilities, given that *NONDEPOSITS_TA* and *NONDEPOSITS_TL* are on average 11.3% and 12.7%, respectively,

[11] Our data source reports only the positive values of *DIVIDEND_EARNINGS* and *DIVIDEND_EQUITY*, in the sense that the two payout ratios are not computed for banks reporting negative earnings and/or negative equity. The banks of our sample which report negative earning are about the 16% of the total year-quarter observations with not missing reported earnings, while the banks of our sample which report negative equity are about the 0.53% of the total year-quarter observations with not missing reported equity.

[12] On the entire sample *DIVIDEND_EQUITY* is 4.02% in 2000 and decreases to 1.42% in 2011q3. By deeply inspecting the data, we see that the average equity of our banks is increasing along time, and this might partially determine the downward path of *DIVIDEND_EQUITY*.

[13] We consider as "liabilities" what banks include in the difference between the assets and the equity capital of the balance sheet.

while on the entire sample the values are 9.4% and 10.5%, respectively. Table 4 reports the pair-wise correlation between the variables for dividends and for leverage. In general, dividends are positively correlated with non-deposit leverage while negatively correlated to deposit leverage. This correlation in absolute terms goes never above 0.223.

3.4 Additional Control Variables

The estimated specifications include a set of regressors which controls for other bank characteristics which might be linked to dividends.

Two relevant features are size and profitability, which we measure by the natural logarithm of total assets (*SIZE*) and by the return on assets (*ROA*), respectively. We expect that both sort a positive effect on dividends, because larger and more profitable organizations should have larger flows of funds which can be partially diverted to shareholders. Consistent with this view are the papers from Jensen, Solberg, and Zorn (1992), Barclay and Smith (1995), and Kleff and Weber (2010).

Investment opportunities are proxied by the market-to-book-ratio (*MTBV*): growth options would bid up the market value of the firm relative to its book value, and we would see *MTBV* increasing in investment opportunities. If profits are largely employed to finance prospective investments, then a higher *MTBV* goes together with lower payouts. This argument is sustained by Barclay and Smith (1995) and Theis et al. (2010).

We control for equity (*EQUITY_TA*) and cash (*CASH_TA*), both normalized by total assets. The prediction on these two variables is relatively mixed, as in DeAngelo, DeAngelo, and Stulz (2006). We further consider the business model of the bank by including loans over assets (*LOANS_TA*), and the ratio of risk weighted assets over total assets (*RWA_TA*). Issues on taxation enter the specification via *INCOME_TAX_TA*, which divides income tax payments by total assets. Employees´ compensation might matter, as well. Our data provider includes an index for compensation (*EMPL_COMP*), calculated as the ratio of the employees´ compensation and benefits over the average full-time equivalent employees.[14] Regulatory capital requirements affect the activities of financial firms. *CAPRATIO* denotes the risk adjusted total capital ratio, namely the sum of tier 1 and tier 2 capital over risk

[14] Compensation and benefits include salaries, wages, bonuses, commissions, changes in reserve for future stock option expense, and other employee benefit costs, also related to employment or retirement benefits, whether paid or deferred, recognized during the period. If the company does not report the average full-time equivalent employees for the period, this is calculated by SNL Financial.

weighted assets.[15] If capital requirements force banks to retain much of their earnings, then we should observe that they are inversely associated to dividends.

3.5 Empirical Strategy

We estimate a separate univariate model for the three variables on dividends, where each of them is explained by leverage and by the other covariates presented in the two previous sub-sections. The specification for *DIVIDEND_DUMMY* is the following logit model in (1):

$$
\begin{aligned}
&Prob\left(DIVIDEND\_DUMMY_{i,t} = 1\right) \\
&\quad = F\Bigg(\alpha_1 LEVERAGE_{d,i,t} + \alpha_2 SIZE_{i,t} + \alpha_3 ROA_{i,t} + \alpha_4 EQUITY\_TA_{i,t} \\
&\quad + \alpha_5 CASH\_TA_{i,t} + \alpha_6 MTBV_{i,t} + \alpha_7 LOANS\_TA_{i,t} + \alpha_8 RWA\_TA_{i,t} \\
&\quad + \alpha_9 INCOME\_TAX\_TA_{i,t} + \alpha_{10} EMPL\_COMP_{i,t} + \alpha_{11} CAPRATIO_{i,t} \\
&\quad + \sum_i bank_i + \sum_t quarter_t + \varepsilon_{i,t}\Bigg) \qquad (1)
\end{aligned}
$$

$$
where\ d = DEP\&NONDEP\_TA, NONDEPOSITS\_TA, DEPOSITS\_TA, NONDEPOSITS\_TL
$$

We are pooling data over time and across firms, therefore we include quarter and bank fixed effects. Standard errors are clustered at the bank level, since observations might be correlated across time. The logit model allows interpreting the coefficients on the regressors as the impact from the associated variables on the probability that the bank is paying some positive dividends. We run four versions of equation (1) which differ only in the variable measuring the bank leverage.[16] The Panel A of Table 5 reports the results.

For the two variables measuring the relative dividend payout we estimate the following generalized partial adjustment model in (2):[17]

[15] The mean capital ratio for our sample is 16.497%, hence above the minimum required capital ratio of 10% established under the Basel II agreement. The tendency of banks in holding capital buffers higher than the regulatory minimum is commented, among others, by Berger et al. (2008).

[16] Note that *NONDEPOSITS_TA* and *DEPOSITS_TA* are highly negatively correlated. As reported in Table 4 the correlation on the entire sample is about -0.76. The same correlation on the time-frame 2007q4-2008q3 is about -0.68, while on the time-frame 2008q4-2011q3 is about -0.82. In order to overcome that potential multicollinearity might spoil the results, the specifications are estimated including the leverage variables in a separate way.

[17] In the seminal paper of Lintner (1956) dividends follow a partial adjustment model.

$$DIVIDEND\_PAYOUT_{p,i,t}$$
$$= \alpha_0 + \alpha_1 DIVIDEND\_PAYOUT_{p,i,(t-1)} + \alpha_2 LEVERAGE_{d,i,t} + \alpha_3 SIZE_{i,t}$$
$$+ \alpha_4 ROA_{i,t} + \alpha_5 EQUITY\_TA_{i,t} + \alpha_6 CASH\_TA_{i,t} + \alpha_7 MTBV_{i,t}$$
$$+ \alpha_8 LOANS\_TA_{i,t} + \alpha_9 RWA\_TA_{i,t} + \alpha_{10} INCOME\_TAX\_TA_{i,t}$$
$$+ \alpha_{11} EMPL\_COMP_{i,t} + \alpha_{12} CAPRATIO_{i,t} + \sum_i bank_i + \sum_t quarter_t$$
$$+ \varepsilon_{i,t} \qquad (2)$$

$$where\ p = DIVIDEND\_EARNINGS, DIVIDEND\_EQUITY$$

$$where\ d = DEP\&NONDEP\_TA, NONDEPOSITS\_TA, DEPOSITS\_TA, NONDEPOSITS\_TL$$

The set of covariates stays the same as in equation (1); time and bank fixed effects are included, and standard errors are clustered at the firm level. The Panels B-C of Table 5 display results where the leverage variable is made changed.

Both model (1) and model (2) are estimated across three sub-samples, differing in their time length. The first sub-sample goes from 2000q1 till 2007q3. We regard this time frame as a relative stable period for the United States banking industry. The quality of results stay the same also if we drop from the sub-sample the quarters of 2007. From the end of 2007 onwards instead, the effects from the crisis of 2007-2008 is involving our banks. The second sub-sample extends from 2007q4 till 2008q4, namely after the first disorders due to the collapse of the subprime mortgage market till the failure of Lehman Brothers in September 2008. Finally, the third sub-sample spans from 2008q3 till 2011q3, namely includes the peak of the crisis in fall 2008 and its progressive reabsorption. During this period some big investment banks were re-organized and the United States Government decided to intervene through provisions as the Troubled Asset Relief Program (TARP). All the Panels of Table 5 distinguish the estimated results across the three sub-samples.

3.6 Results

We look at Table 5 and focus on the coefficients estimated on the variables for leverage across the three sub-periods of each panel. From 2000 till 2006 there are no significant coefficients on the two payout measures, while there is weak evidence of a positive effect from non-deposit leverage on *DIVIDEND_DUMMY*. Between 2007 and 2008 we never encounter relevant signs.

In statistical terms our outputs are more evidently interesting during the last part of the sample, namely from the end of 2008 till the end of 2011. During and in the aftermath of the crisis banks are deciding on their dividends in accordance to their debt structures. We observe that the effect sorted from the bank leverage is heterogeneous. In general, after a marginal increase in non-deposit leverage our banks are more likely to pay out dividends and tend to pay out more of the available resources. Deposit leverage instead has got negative sign on the dependent variables. On *DIVIDEND_EARNINGS* the negative effect from *DEPOSITS_TA* is stronger than the effect from *NONDEPOSITS_TA*, which is instead positive although not significant. On *DIVIDEND_EQUITY* we register a similar and more significant pattern. In economic terms, a one-standard-deviation increase in *DEPOSITS_TA* reduces *DIVIDEND_EQUITY* by almost 44%.[18]

Concerning the other regressors, the main findings are shortly summarized as follows. The variability in the two payout measures is largely captured by their values the period before, given the high and significant coefficients on the first lags.[19] This holds till end of 2008. In general, investment opportunities favor the distribution of dividends. Finally, after fall 2008 there is a more pronounced size effect which improves the dividend payout.[20]

3.7. Interpretation of the Results

We now interpret our empirical results. As already stressed, by paying dividends shareholders can extract value from debtholders. In our sample this seems to occur with respect to non-deposit debtholders, given that the estimated sign on dividends from non-deposit leverage is positive. On the other side instead, the estimated coefficient on deposit

[18] Since the standard deviation of *DEPOSITS_TA* is around 9.685, the impact on *DIVIDEND_EQUITY* would be equal to (9.685)*(-0.045) = 43.583%.

[19] In the seminal adjustment model of Lintner (1956) the coefficient estimated on the lagged dependent payout ratio is informative on the speed of adjustment of dividends towards their target. The main result of Lintner (1956) is that corporations tend to "smooth" their dividends and adjust them towards a long-run target payout level. In our generalized partial adjustment model (2) the speed of adjustment coefficient would be computed as one minus the coefficient estimated on the lagged dependent variable. Given that the lagged *DIVIDEND_EARNINGS* and *DIVIDEND_EQUITY* are negative estimated during the pre-crisis period the speed of adjustment would be larger than one. This suggests that banks were adjusting their dividends relatively quickly and we would not observe a certain stickiness in dividends as was in Lintner (1956).

[20] Some of the control variables have opposite coefficients on the two payout variables which are often of high magnitude. This might be due to how the variables are computed and could be a consequent from the construction of those measures. Indeed, we keep a unique specification for the two alternative dividend payout variables. *ROA* tends to be negative on *DIVIDEND_EARNINGS*, while positive on *DIVIDEND_EQUITY*. Note that the firm´s earnings are at the denominator in *DIVIDEND_EARNINGS*, while at the numerator in *ROA*. We also checked that the same negative effect on *DIVIDEND_EARNINGS* is estimated measuring profitability through the Return On Equity (ROE) or the Return On Capital (ROC). Similarly happens for *EQUITY_TA*, which tends to be negative on *DIVIDEND_EQUITY*, while positive on *DIVIDEND_EARNINGS*. The firm´s equity is at the numerator of *EQUITY_TA*, while at the denumerator of *DIVIDEND_EQUITY*.

leverage is always negative. We cannot say that owners are expropriating value from non-deposit creditors. It appears that demandable debt can limit the moral hazard of owners accomplished by dividends.[21]

This pattern is statistically significant only after fall 2008.[22] During and in the aftermath of the global crisis the funding structure of banks became an important determinant for the dividend policies of the same firms. We interpret this interplay stressing some of the features of the recent crisis which might have induced financial firms to review their funding models, and which might ultimately have driven the observed effect on dividends.[23]

Before the crisis, banks in the United States and in Europe could expand their assets by a large use of wholesale debt. The outbreak of the crisis revealed the risk of certain wholesale debt instruments (as repos), and several large banks experienced distress. If banks wanted to face the consequences of the turmoil and restore more stable conditions they had to adjust their funding models. In particular, companies in the United States were observed raising equity capital and replace secured and unsecured wholesale debt securities with deposits (Oura et al. (2013)).[24]

[21] The properties of debt in terms of agency and liquidity provision are debated. Our results would be more consistent with the view that "senior" deposit debt constrains the type of asset-substitution realized through dividends, as compared to the more "junior" non-deposit debt. Myers (1977) and Stulz and Johnson (1985) say that underinvestment problems might be overcome issuing more senior debt, while according to Smith and Warner (1979) seniority is also beneficial for asset-substitution. In the United States the Federal Deposit Insurance Corporation (FDIC) introduced in 1993 the "depositor preference," claiming the priority of deposits versus non-deposit liabilities. See the Omnibus Budget Reconciliation Act of August 10, 1993, P.L. 103-166, Section 3001. For an opposite view that bank debt cannot relieve agency problems see Admati and Hellwig (2013).

[22] We retain that fall 2008 coincides with the peak of the crisis. The failure of Lehman Brothers in September 2008 was followed by a period of panic and contagion in the markets (Beltratti and Stulz (2012)). Hoggarth, Mahadeva, and Martin (2010) study the reaction of European banks after the collapse of Lehman Brothers. European banks suffered the reduction in lending from United States mutual funds and foreign monetary authorities. They reacted mostly raising local deposits, swapping them into dollars.

[23] The link between financial crises and bank funding may be stronger during banking crises (Van Rixtel and Gasperini). Adrian and Shin (2011) sustain that the phase of the financial cycle reflects on the composition of banks´ balance sheets. Wholesale funding is more diffused during expansions, while reduces during recessions.

[24] Oura et al. (2013) describe the funding structures of banks in the run-up and after the recent crisis, and distinguish the pattern observed in advanced and emerging markets economies. Evidence on the changes in bank funding of European banks can be found in Van Rixtel and Gasperini (2013). Martel, Van Rixtel, and González Mota (2012) analyse the impact of the crisis on the business models of 22 world-wide systemically important financial institutions (SIFIs). Among both the commercial and investment banks of this list, they notice a larger recourse to deposit financing after 2008, mostly at the expenses of short-term wholesale funding. One interesting finding is that the firms with a business model more oriented to commercial banking, thus which had also a greater reliance on deposit funding, proved to be the most resilient institutions. After 2008, the banks more active in investment banking activities were seen to shift towards a more commercial banking model. Figure 1 depicts the behavior of deposits in our sample. Deposit leverage decreases between 2007q1 and 2008q2. In 2009q1 firms recover to the same deposit leverage they had in Summer 2007 (slightly above 78%), progressively increasing till 2011q1, when is more than 82%.

By collecting deposits, banks could hoard the liquidity that was rapidly drying up, especially in the unsecured interbank market (Heider, Hoerova, and Holthausen (2009)).[25] Banks manage their liquidity taking into account of their funding sources, as capital and deposits. Berrospide (2012) studies the determinants for the liquidity hoarding of banks during the recent crisis. Banks that chose to hoard more liquidity at the onset of the crisis were also the firms which had greater inflows of core deposits. For small banks in particular, core deposits are claimed to allow easier purchases of government securities and mortgage-backed securities, since those firms have more restricted access to other funding sources as interbank markets and the central bank´s discount window. During the height of the crisis in fall 2008 though, the liquidity hoarding banks are seen to undergo to a reduction in core deposits. The argument from Berrospide (2012) is that depositors started losing confidence towards banks, and this materialized through withdrawals.

Episodes of turmoil inside financial markets do often affect the behavior of banks´ depositors. Gatev, Schuermann, and Strahan (2007) study the way in which banks managed systematic liquidity risk during 1998. The authors argue that during the crisis of 1998 depositors became net suppliers of liquidity and viewed banks as safe havens, replacing other investment opportunities for depositing funds in the *equally safe* banks. Martinez Peria and Schmuckler (2001) examine how banking crises interact with market discipline and deposit insurance. Financial disorder may act as *wake-up* for depositors, which perceive higher risk of their deposits. Moreover, financial crises can bring to a depletion of deposit insurance funds. These two facts end up in raising the market discipline of depositors, and this is confirmed by finding higher levels of withdrawals and deposit interest rates during the crises experienced by Argentina, Chile, and Mexico during the 1980s and 1990s.

The sample we analyze includes the global crisis of 2007-2009. The turmoil departed from the banking sector and the fragility exhibited by several important institutions led deposits to be seen as a risky. Banks were no more regarded as *safe heavens* and passive recipient of funds as it was during previous crises, but were rather active in seeking deposits (Mora (2010) and Acharya and Mora (2012)).[26] Acharya and Mora (2012) point out the following facts on deposit funding during the latest crisis. First, there was a high amount of

[25] Boyson, Helwege, and Jindra (2014) sustain that banks can avoid fire sales of assets due to liquidity shocks suffered during crises by deposit funding and cutting dividends.

[26] Funding illiquidity may arise for two main reasons. One is that the liquidity providers have to withdraw resources for their own needs, and the second is that depositors withdraw money since they perceive an increase in the firm solvency risk. This latter is the more frequent and severe source of funding illiquidity (Calomiris and Kahn (1991) and Calomiris (2012)).

deposits above the deposit insurance limit, hence not explicitly guaranteed in case of failure. Second, the drop of the FDIC ratio of reserves to insured deposits made depositors more uncertain about the availability of their money. Furthermore, we note that during 2008 and onwards, the FDIC took control over an increasing number of failing institutions, to the extent that banks were asked to make additional payments to the fund in order to insure their deposits.[27]

These facts convey the idea that it was important for banks to have a strong basis of deposits in order to remain solid during the crisis. We retain that this had implications on the dividend policies of the same firms, thus is something that our estimated pattern is reflecting. If banks were willing to attract new depositors and didn´t want to trigger huge withdrawals from the existing depositors, then they also preferred to retain earnings and avoid impairing liquidity by paying out cash.

On the other side the estimated coefficient on dividends from the non-deposit leverage is positive. Owners were asking for larger dividends when firms were issuing more non-deposit type of debt. Namely, dividends reduce the value and shift risk on non-deposit creditors. We retain that, for our sample of commercial banks the majority of the liquidity needs rely on deposit financing.[28] As already remarked, the crisis led both commercial and investment banks to more largely resort on retail funding.[29] There is ample evidence that banks funded more by non-deposit liabilities fared worse during the crisis (Huang and Ratnovski (2009), Shin (2009), Demirgüç-Kunt and Huizinga (2010), Goldsmith-Pinkham and Yorulmazer (2010), Beltratti and Stulz (2012), and Vazquez and Federico (2012)). Our paper is now showing that inside those firms funded more by non-deposit debt, there was also lower retention of earnings.

[27] Due to bank failures during 2008-2009, the FDIC fund fell to $0.648 billion by August 2009. Subsequent failures of financial firms almost bankrupted the FDIC, so that it demanded a 3 year pre-payment from banks to shore up its capital. At the close of 2009, a total of 140 banks became insolvent. This is the largest number of bank failures in a year since 1992, when 179 institutions failed.

[28] In our sample the weight of non-deposit debt over the total banking liabilities (*NONDEPOSITS_TL*) declines progressively. It is around 12.9% in the second quarter of 2008 and then decreases till about 7.7% at the beginning of 2011.

[29] The claim holds for those investment banks which have regulatory authorization to collect deposits. Martel, Van Rixtel, and González Mota (2012) note that, the five United States investment banks which existed before the crisis - Goldman Sachs, Morgan Stanley, Merrill Lynch, Lehman Brothers and Bear Stearns - did not have deposit taking business. Goldman Sachs and Morgan Stanley changed their official status from investment bank to traditional bank holding companies in October 2008.

4. Testing Two Other Arguments for the Interplay between Dividends and Leverage

The interpretation of results in the previous section is based on an agency argument, where by paying dividends firms exacerbate the conflict of interests between shareholders and debtholders. In this section we test whether some other theories motivating the interplay between dividends and leverage, have some residual explanatory power in our data. We formulate two arguments. The first argument is based on signaling, while the second argument relies on disciplining effects.

4.1 Arguments Based on Signaling

Dividends and debt are both ascribed of having signaling properties.[30] If managers are asymmetrically more informed on future prospects than outside investors, they might want to signal future profitability by paying out cash or by raising debt. One interpretation for the interplay between dividends and debt can be that firms use the two policies as substitutes for signaling actions. In that case we would expect that the estimated sign of leverage in the dividend equation would be negative.

We can debate whether the argument is plausible. We can accept that inside a standard non-financial firm a high leverage might convey information about good prospects. This might be less evident for a bank, whose business is by far based on the issuance of short-term demandable debt.

We verify whether our data exclude that such interpretation has still some residual power. As already stressed, we observe a different effect on dividends from different types of liabilities. The signaling hypothesis would predict a negative sign on leverage which we obtain only on the deposit leverage. On the other side the non-deposit leverage has got positive sign, and we have no valid arguments to motivate different signaling properties between the two debt types.

Table 6 includes among the set of regressors the product between the leverage variable and the profitability indicator. The interaction term reveals whether there are some cross-relationships from the two variables in their effects on dividends, namely whether the leverage effect changes when the profitability indicator is marginally changing as well. The interactions are never significant. We do not improve our previous interpretations by considering actions of signaling.

[30] Signalling models for dividends have been developed, among others, by Bhattacharya (1979), Miller and Rock (1985), and John and Williams (1985). The idea of debt signalling goes, among others, to Ross (1977), Leland and Pyle (1977), Heinkel (1982), Myers and Majluf (1984), and Harris and Raviv (1991).

4.2 Arguments Based on Disciplining

There is a second circumstance in which we could admit that dividends and leverage are negatively related. This is the case in which debt can replace dividends in disciplining managers. The argument departs from the existence of a "free cash flow problem" to the firm. Managers might be tempted to use the exceeding funds for pursuing their own objectives. Issuing debt might be a way to concentrate managers in running the firm more efficiently, since they will have to put effort in keeping the firm solvable without destroying value. In alternative, the exuberant cash might be returned to shareholders through dividends.[31] If dividends and debt are substitutes in disciplining managers we expect a negative coefficient on the leverage variable.

As in the previous sub-section, we first discuss the plausibility of the argument. It would be arguable whether banks experience problems of "free cash flow" in the same measure of non-financial firms.[32] Admati et al. (2013) and Admati and Hellwig (2013) say that financial firms are more concerned by theft and risk management rather than by episodes of management wasting resources, which are instead more frequent inside non-financial firms. In addition, we note that bankers do often receive equity-based compensation (like stock options and share grants) or retention schemes, which can incentivize them to work efficiently.

To test whether issues on managerial discipline are involved in our results, we look at the share of insider ownership. When managers own a substantial fraction of the firm, they should be more aligned with the interest of equityholders and might prefer to use earnings in order to create value rather than wasting resources. We look at the sample starting from 2008q4 and use the information on insider ownership as measured on 2011q3.[33] *LOW_INSIDER_DUMMY* is a dummy variable denoting with value one whether the bank has insider ownership below the mean (which equals 18.2%). Banks with low insider ownership should be more likely in experiencing agency problems and might need a stronger monitor of managers. We let interact *LOW_INSIDER_DUMMY* with deposit and non-deposit leverage. Table 7 shows that the interaction terms are never statistically relevant. Inside those banks where managers might be less disciplined, dividends are not significantly related to leverage.

[31] Jensen (1986) explains how debt can substitute dividends in reducing agency costs of free cash flows.
[32] This type of agency problem would be more likely to interest so-called "cash cow" firms as in Jensen (1986).
[33] Our data source provides data on insider ownership in relation to the only last date of observation, hence we assume that firms did not change significantly their property structure.

Surveying the governance structure of our banks does not improve our previous interpretations.

5. Additional Tests

5.1 Disentangling Effects on Dividends from Different Type of Deposits

In this sub-section we disentangle the contribution on dividends from various layers of deposits. From Table 8 we see that our banks cover more than the 50% of assets through "time deposits" (*JUMBOTIMEDEP_TA* and *RETAILTIMEDEP_TA*) and current accounts (*CURRENTACC_TA*). These are followed by money market accounts (*MONEYMKTACC_TA*) and saving accounts (*SAVINGACC_TA*). Foreign deposits (*FOREIGNDEP_TA*) and other unclassified deposits (*OTHERDEP_TA*) have marginal weight. With "time deposits" we mean deposited funds which can be withdrawn only after a contractually specified date, typically ranging from three months to six years. "Time deposits" of "jumbo" type have balance of at least $100,000 and do not have the FDIC insurance protection, hence entail higher investment risk. "Retail time deposits" instead are FDIC protected in full.

In Table 9 we estimate models (1) and (2) replacing the single variable for the deposit leverage with the disentangled layers of deposits. Except very few exceptions, we see that all types of deposits have important negative effects on both *DIVIDEND_DUMMY* and the two payout measures. Note that the insured "retail time deposits" are not sorting a weaker effect in constraining dividends as compared to "jumbo time deposits," which do not offer the same degree of protection in case that the institution fails.[34] In general, our results suggest that the presence of deposit insurance is not enough for encouraging bankers to pay larger dividends once that funds are deposited to the firm.[35]

5.2 Disentangling the Effect on Dividends from the Change in Deposits

Depositors can withdraw funds upon demand. For the banks of our sample we compute the change in deposits across quarters, termed as "delta" in Table 9, Columns 3-4. A firm with a negative delta might have experienced some withdrawals which have reduced the

[34] Martinez Peria and Schmuckler (2001) sustain that deposit insurance schemes are not always fully credible and do not decrease market discipline, especially during crises. Both insured and uninsured deposits can be sensitive and respond to banks´ risk-taking.

[35] Our view is closer to the opinion of Calomiris and Kahn (1991) the possibility of early withdrawals helps to solve the "incentive" problem between bankers and depositors, since depositors can "vote with their feet" and force more prudent actions from managers.

aggregate deposits from one quarter to the other. A dichotomous variable assumes value one if delta is negative and is included as regressor in (1) and (2) in place of the variable for deposit leverage. The sign estimated on the dichotomous variable is negative, although relevant only on *DIVIDEND_DUMMY*.

We get more important outputs as soon as we consider bank deposits subtracted from time deposits. Thus, we create a dummy variable based now on the change in deposits different than time deposits, namely current accounts, money market accounts, saving accounts, foreign and other type of deposits. We now get significantly negative coefficients from the dummy on both *DIVIDEND_DUMMY* and *DIVIDEND_EQUITY*. We can understand this evidence noting that non-time deposits can be withdrawn more easily from customers than time deposits, consequently quickly subtracting liquidity from the firm. This might explain why our data show that changes in non-time deposits are more strictly correlated to dividends.

5.3 Disentangling Effects on Dividends from Non-Deposit Debt of Short-Term

The short-term financing of banks can rely on some non-deposit liabilities of short duration. We test effect on dividends from non-deposit debt of short-term. We want to see whether the rolling-over of the non-deposit short-term debt would ultimately contain the distribution of dividends.[36]

For this purpose we construct the following two measures. *SHORTTERM_NONDEP_TA* computes the ratio of short-term borrowings over total assets. It includes claims with a maturity of one year or less and does not include repurchase agreements (repos). In practice though, in the short-term banks do often finance through repos; for this reason *REPOS_TA* disentangles the contribution from repurchase agreements over total assets. In Table 10 we add these two latter variables to the models for dividends. Both have positive estimated sign, although it is never statistically significant. Controlling for short-term debt is not adding much information on our study.

5.4 Controlling for Regulatory Interventions during the Recent Financial Crisis

Some of the banks in the sample were involved by the Troubled Asset Relief Program (TARP) pursued by the United States Government starting from October 2008, with the task

[36] Among others, short-term debt is a stronger monitoring device than long-term debt according to Diamond (1991), Datta, Iskandar-Datta, and Raman (2005), and Kisgen (2006).

of giving strength to the financial sector which was gravely hit by the consequences of the subprime mortgage crisis. The banks participating to the TARP Capital Purchase Program were imposed to have some restrictions on their dividends. More specifically, they could neither pay nor increase their dividends before having completed the other payments on the senior preferred stock held by the United States Department of Treasury (UST), while for other payments of dividends the decision had to be approved by the UST itself.[37]

In this section we want to verify whether there are some TARP effects on our outcomes. The TARP funds restored the capitalization of banks reducing their leverage. At the same time participating banks had to contain their dividends.

In Table 11 we focus on the sample starting from 2008q4. In the regressions (1) and (2) we add several controls for the TARP provisions: Column (1) includes the amount of equity issued under the TARP normalized by total assets (*TARPEQUITY_TA*); Column (2) includes a dichotomous variable denoting with one that the bank has obtained some TARP equity (*TARPEQUITY_DUMMY*); finally Column (3) interacts *NONDEPOSITS_TA* with *TARPEQUITY_DUMMY*. We observe that only *DIVIDEND_DUMMY* is changing with the TARP. As expected, firms taking part to the program and receiving more TARP equity were less likely to pay out dividends. On the dividend payout we do not see significant effects from none of the three TARP controls. We claim that the TARP influence on our outcomes is not very strong.

We finally check whether the empirical pattern so far stays the same also for the so-called "too-big-to-fail" institutions. In Table 12 leverage is interacted with a dummy variable (*TOOBIGTF_DUMMY*) denoting with value one whether the bank is one of the eight United States headquartered banks defined by the Financial Stability Board as "systemically important financial institutions."[38] The interaction terms are never significant on dividends, and the marginal effect from the bank leverage remains the same of Table 5.

6. Tests for the Robustness of the Results towards the Type of Econometric Modeling

6.1 Simultaneous System of Equations

[37] On the TARP Capital Purchase Program see http://www.treasury.gov/initiatives/financial-stability/TARP-Programs/bank-investment-programs/cap. Millon Cornett, Li, and Tehranian (2013) provide results relating the health of banks in the pre-crisis to the probability of missing dividends on the TARP funds.

[38] We consider the list from the Financial Stability Board dated November 4, 2011. Among the 29 worldwide banks defined as "systemically important financial institutions" we select the following United States headquartered institutions: Bank of America, Bank of New York Mellon, Citigroup, Goldman Sachs, JPMorgan Chase, Morgan Stanley, State Street, and Wells Fargo.

There might be some endogeneity in our results due to simultaneity. The firm might determine jointly dividends and capital structure. This means that not only the flow of causality goes from leverage to dividends, but changes in dividends determine changes in leverage, as well. In this case the error term in equations (1) and (2) would not be uncorrelated with the right-hand side variables. We now estimate a bivariate system of equation which model the simultaneous choice on dividends and leverage as follows:

$$
\begin{aligned}
&DIVIDEND\_EQUITY_{i,t} \\
&\quad = \alpha_0 + \alpha_1 DIVIDEND\_EQUITY_{i,(t-1)} + \alpha_2 LEVERAGE_{d,i,t} + \alpha_3 SIZE_{i,t} + \alpha_4 ROA_{i,t} \\
&\quad + \alpha_5 EQUITY\_TA_{i,t} + \alpha_6 CASH\_TA_{i,t} + \alpha_7 MTBV_{i,t} + \alpha_8 LOANS\_TA_{i,t} \\
&\quad + \alpha_9 RWA\_TA_{i,t} + \alpha_{10} INCOME\_TAX\_TA_{i,t} + \alpha_{11} EMPL\_COMP_{i,t} \\
&\quad + \alpha_{12} CAPRATIO_{i,t} + \sum_i bank_i + \sum_t quarter_t + \varepsilon_{i,t}
\end{aligned}
$$

$$
\begin{aligned}
LEVERAGE_{d,i,t} &= \alpha_0 + \alpha_1 DIVIDEND\_EQUITY_{i,t} + \alpha_2 SIZE_{i,t} + \alpha_3 ROA_{i,t} + \alpha_4 MTBV_{i,t} \\
&+ \sum_i bank_i + \sum_t quarter_t + \vartheta_{i,t} \qquad (3)
\end{aligned}
$$

$$where\ d = DEP\&NONDEP\_TA, NONDEPOSITS\_TA, DEPOSITS\_TA$$

The dependent variable in the dividend equation is the dividend payout *DIVIDEND_EQUITY*.[39] Similarly to what we did in the previous univariate analyses, we estimate across two separate time horizons three different systems of equations, which differ in the leverage equation. We distinguish the total leverage of the firm, from deposit, and non-deposit leverage. The time horizons are 2000q1-2008q2 and 2008q3-2011q1, respectively. The set of covariates in the dividend equation is the same as in equation (2). The regressors in the leverage equation are dividends, size, profitability, and investment opportunities.[40] We include quarter and firm dummies and fit each system of equation

[39] The same type of simultaneous equations systems are estimated using, alternatively, *DIVIDEND_EARNINGS* and *DIVIDEND_DUMMY* as dependent variables for the dividend equation. These results are not reported in the paper for not overloading the results. In particular, we verify that the not-reported outputs are similar to the outputs of Table 13 in what concerns sign and statistical significance of the leverage variable in the dividend equation during the last part of the sample.

[40] Similar characteristics are used by Gropp and Heider (2010) as explanatory factors for both book and market leverage of banks.

following the approach implemented by Zellner (1962), Zellner and Huang (1962), and Zellner (1963).[41]

Table 13 displays results. Till 2008q2 the three leverage measures entering the payout equation across the systems have not important coefficients. In most of the cases the Breusch-Pagan test suggests that the two equations are independent, namely that their respective error terms are not importantly correlated. During 2008q3-2011q4 instead, the Breusch-Pagan test rejects the null hypothesis of no correlation and we get significant signs on debt, where the pattern is similar to the same pattern we had in the previous section. The dividend payout decreases with deposit leverage, while increases in non-deposit leverage. Thanks to the split of the two leverage components we discovered an important linkage in the way in which firms take simultaneously decisions on debt and cash payments.

To conclude, the approach of using simultaneous equations confirms the existence of a relevant although heterogeneous interplay between dividends and leverage.

6.2 Use of Lagged Values of Leverage

One very mild way which can help in attenuating endogeneity on our outcomes can be to use lags of the leverage variables in the equations (1) and (2). Thus, dividends at time *t* are related to leverage computed at time *t-1*. When the bank decides on dividends at time *t*, it can no longer modify the structure of balance sheet from the previous time.

In Table 14 the first and the second lag of *NONDEPOSITS_TA* and *DEPOSITS_TA* replace the corresponding contemporaneous values in (1) and (2). The quality of the results is similar in sign and magnitude as when we used the contemporaneous variables. Although this exercise might have only mild power towards the endogeneity concern, we think it can still offer a further piece of evidence that the main outcomes of this paper are not seriously compromised by endogeneity troubles.

6.3 Alternative Estimation Methods for the Dividend Payout

6.3.1 Model for Dynamic Panel Data

The dividend payout in the equation (1) follows a dynamic panel data (DPD) model. In the context of DPD there is a serious difficulty arising in the estimation of fixed effects

[41] We follow the approach for fitting so-called seemingly-unrelated regression (SUR) models developed with Zellner (1962). The estimation is performed according to the one-way random effect estimation of seemingly-unrelated regressions implemented by Nguyen (2010). We also check that results are similar if we estimate the systems according to the approach from Biorn (2004) for the estimation of seemingly-unrelated regressions in unbalanced panel data sets.

models, especially in the case of panels with a large number of units and few periods. Nickell (1981) shows that the presence of the lagged dependent variable determines a bias in the coefficients estimated on both the lagged dependent variable as well as on other regressors included in the model. Arellano and Bond (1991) popularized the work from Holtz-Eakin, Newey and Rosen (1988) and propose a method offering more efficient estimates of DPD models which is based on a Generalized Method of Moments (GMM) approach.

Table 15 (Columns 1-2) estimates the effect from deposit leverage on the dividend payout using the procedure of Arellano and Bond (1991). While we are taking care of the dynamic structure of the payout equation, we still continue to observe a statistically significant negative coefficient on the banks´ deposit leverage. For brevity, we do not report the output for the non-deposit leverage and the output on the previous sample period. This latter set of results remains in line with Table 5.[42]

6.3.2 Tobit Model

We change the type of econometric modeling for the payout measure. The dividend payout follows now a corner solution model, which we estimate via a censored normal regression (or Tobit model).[43] The reason is that for some banks the optimal payout coincides with the corner solution of paying zero dividends. The use of a Tobit model on Panel data is not straightforward. The estimation of censored regression models with fixed effects remains an issue not entirely solved, since there is no sufficient statistic allowing the fixed effects to be conditioned out of the likelihood. For this reason we adopt the same approach of Honoré (1992), which is based on a semiparametric estimator for fixed-effect Tobit models.

The task is to see whether using a censored regression approach we get results consistent to the previous OLS setting. The empirical corporate finance literature has never applied the procedure of Honoré (1992) on some datasets, and we think this improves our set of empirical outcomes. Table 15 presents the results. In this case the estimators are based on

[42] This patter is statistically relevant only after 2008q4. The estimator of Arellano and Bond (1991) was modified later on from Arellano and Bover (1995) and Blundell and Bond (1998). The original estimator is often entitled "difference" GMM, while the expanded estimator is commonly termed "system" GMM. We checked that using the system GMM estimator provides results consistent to the one reported in Table 15 based on the difference GMM estimator.

[43] Among others, for the estimation of Tobit models see Wooldridge (2010). Sigelman and Zeng (1999) sustain that Tobit models should not be used for corner solution applications.

the absolute error loss function and the standard errors are estimated by the bootstrap. Banks´ deposits are found to have a substantial decreasing effect on dividend payouts. The Tobit specification estimated following Honoré (1992) leads also to higher absolute value of the coefficients as compared to the coefficients estimated with OLS (see Table 5).

7. Share Repurchases

7.1 Share Repurchase Activity in the Sample

The company can divert resources to the property not only by paying dividends, but also re-acquiring stocks. In that case, owners tender some of their shares and benefit from the premia at which shares are sold. We send to Allen and Michaely (2003) for a review on the literature about this topic.

To our knowledge, there is no recent paper which gives a quantitative overview on the buyback activity inside banks.[44] In this section we offer new evidence on this. We construct two variables which measure share repurchases and compare their behavior to the behavior of dividends. With this final section of the paper, we can characterize the *entire* payout policies of our firms.

REPURCHASE_DUMMY is a dichotomous variable assuming value one if the bank has bought-back some of its stock during the quarter. The relative repurchase payout is defined as the ratio of the common stock repurchased over net income (*REPURCHASE_INCOME*).[45] Table 16 reports descriptive statistics. Almost the 29% of the banks has re-acquired stock, thus less than half of the banks paying dividends, which are almost 65%. The repurchase payout is on average 19%. Repurchases are highly volatile, a fact which would be consistent with the evidence that corporations smooth dividends rather than repurchases (among others, see Allen and Michaely (2003)). Figure 2 compares the repurchase payout to the dividend payout across the years of the sample.[46] In 2007 there is an evident jump in

[44] Hirtle (1998) describes the payout policy of the largest United States bank holding companies in 1997, commenting the path in their dividend payments and their share repurchases.

[45] With respect to open-market repurchases, Stephens and Weisbach (1998) point out that there might be errors in measuring the reacquired shares, because they cannot be directly observed and measured at the time of the transaction. For this reason Stephens and Weisbach (1998) test alternative measures for open-market share repurchases. Among those alternatives, Allen and Michaely (2003) sustain that using the cash flow spent on repurchases would provide less biased estimates of the effective repurchases. In our analysis we employ data on the common stock repurchased as-reported from the cash flow statement for the period. Banyi, Dyl, and Kahle (2008) compare the accuracy of several procedures for the estimation of firms' repurchases of common stock used in earlier studies. The most accurate measure is found to be the Compustat measure based on the purchase of common stock.

[46] Note that the denominator of the two payout variables is different. *DIVIDEND_EARNINGS* divides by earnings per share, while *REPURCHASE_INCOME* divides by net income. Despite of this, by comparing the

REPURCHASE_INCOME.[47] One interesting feature is that during the three year time 2007-2009 repurchases were diminishing while dividends were rising. Figure 3 is based on the only institutions which were paying dividends and simultaneously were repurchasing shares. For this sub-sample the repurchase payout peaks in 2007, when kit seems to slightly overcome the dividend payout. After 2007 instead, the same firms are always distributing more resources through dividends.

7.2 Interpretation for the Behaviour of Banks´ Share Repurchases and Dividends

The literature has dealt with the interaction between dividends and repurchases and many papers have tried to motivate the preference of firms for dividends. The descriptive statistics in the previous sub-section seems to confirm this tendency. In this sub-section we want to discuss more this attitude, in order to interpret the pattern revealed from the data.

The repurchase of shares might be connected to signalling.[48] Bhargava (2010) says that firms which are regularly paying dividends may be reluctant in lowering dividends for repurchasing shares, since they don´t want to send ambiguous signals to investors. According to Ofer and Thakor (1987), buybacks carry high signaling expenses and companies might want to repurchase stocks only when they suffer from severe undervaluation of their equity. In our sample repurchases decline after 2007. With the disorder brought by the subprime crisis, it might be that banks didn´t want to send further ambiguous signals to the capital markets by repurchasing shares.

Finally, we should consider two more aspects motivating the larger use of dividends with respect to the activity of share repurchases. The first aspect is that dividends are less flexible to adjust in their timing than repurchases, and often are related to clientele preferences. A second fact to note is that repurchases can be sensitive to employees´ stock options plans. When stock prices are high, employees can gain value if they exercise their stock options, while at the same time this has got a dilution effect on the current stock value. If the firm

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two we still think that we can detect some interesting features on the way in which our banks managed their dividends and their share repurchases.

[47] Although not reported, we have inspected the behavior of the variables for repurchases along quarters. The highest values of *REPURCHASE_INCOME* are observed during 2007q2 and 2007q3, when *REPURCHASE_INCOME* is always above 20%. Kahle and Stulz (2010) note a similar trend in the shares repurchased by United States industrial firms. In their sample the ratio of repurchases over assets peaks in the third quarter of 2007, while falls in the first quarter of 2009, which coincide with the highs and the lows of the stock market.

[48] We send to Allen and Michaely (2003) for a more detailed discussion on the interaction between dividends and repurchases. The preference between the two is addressed to adverse selection mechanisms in the articles from Barclay and Smith (1988), Brennan and Thakor (1990), and Allen, Bernardo, and Welch (2000).

repurchases part of its equity though, such dilution can be off-set. Evidences on this behavior inside non-financial firms are documented by Kahle (2002) and Bens et al. (2003). During the recent crisis and the collapse of stock prices, bankers didn't find profitable to exercise any high-strike option.[49] Fahlenbrach and Stulz (2011) show that during the crisis banks´ CEOs suffered losses on their shares and on their option holdings. This might contribute to our observation that the repurchases inside our banks are very low during the last part of the sample.

7.3 Leverage Effects on Share Repurchases

As an ultimate test we verify whether our banks link in a significant way their share repurchases to leverage structures. Models similar to (1) and (2) are now estimated for *REPURCHASE_DUMMY* and *REPURCHASE_INCOME*. Table 17 reports the results. We restrict on the horizon 2008q4-2011q3 and keep the same set of covariates as in the regression models for dividends.

We note a statistically significant effect from leverage only on *REPURCHASE_DUMMY*. Banks are more likely to buy back shares when they have higher non-deposit leverage. The coefficients on the repurchase payout are never significant, although the estimated signs display that the effects from leverage on the repurchase payout has got the same direction as on dividends.[50]

To conclude, the banks´ policies on stock repurchases are less strongly related to leverage, as compared to the policies on dividend payments.

8. Conclusion

The paper proves the existence of an important empirical relationship between the dividend policies of banks and the leverage structures of the same firms. Working on a large sample of commercial banks from the United States, we observe that after fall 2008 our banks pay out larger dividends when they are raising in non-deposit leverage (i.e. the ratio of non-deposit debt over total assets), whereas with deposit leverage (i.e. the ratio of deposits over total assets) the same firms behave in the opposite way and reduce their dividend payments.

[49] Some authors say that banks have lower incentives in paying executives through stocks or options (among others, see Houston and James (1995) and Adams and Mehran (2003)).

[50] We also tested effects from leverage on an alternative payout measure for share repurchases calculated as the ratio of stock repurchases over total equity, although no statistically interesting result emerges from the estimation.

We interpret this pattern claiming that huge dividends allow banks´ owners to shift some of their risk towards the non-deposit creditors. We cannot argue that owners can expropriate also the deposit creditors from the dividend value.

This outcome is statistically significant only for the sub-sample going from fall 2008 till the beginning of 2011, namely during the most acute phases of the global crisis and afterwards. We broadly decompose the debt of our banks into deposits and non-deposits, and interpret how the different debt sources might have impacted dividends. During the turmoil deposit type of funding was crucial for banks in order to face liquidity shocks and freezing of wholesale funding. For this reason we think that firms didn´t want to shift risk on depositors by paying out cash, since they wanted to restrain the risk of withdrawals, or even runs.

The paper discusses several aspects of the crisis and the reaction of banks towards the turmoil. Based on our outputs we derive some suggestions for policy makers in order to handle those reactions. Some commenters assert that during the crisis regulators and governments should have intervened more firmly on troubled financial institutions by limiting huge outflows of dividends (among other, see Admati et al. (2013)). The undesirable nature of dividends during crises has been sustained by Scharfstein and Stein (2008) and Wessel (2008), among others.[51] According to Rosengren (2010) the suspension of dividends should be a first and prompt step for dealing with a banking crisis.[52] Brunnermeier et al. (2009) argue that sanctions on dividends should be part of a "laddered" response in front of a firm which is not satisfying certain capital and liquidity requirements.[53]

In the United States the Prompt Corrective Action introduced in 1991 by the Federal Deposit Insurance Corporation permitted regulators to introduce restrictive measures on the activities of distressed institutions. These measures include limits to dividend distributions.[54]

[51] Scharfstein, D. S., and J. C. Stein, 2008, "This Bailout Doesn't Pay Dividends," The New York Times, October 20; Wessel, D., 2008, "Brainstorming about Bailouts" Wall Street Journal, March 13.

[52] Rosengren, E., 2010, "Dividend Policy and Capital Retention: A Systemic "First Response," speech delivered at the Rethinking Central Banking conference, Washington DC, October 10, available at http://www.bos.frb.org/news/speeches/rosengren/2010/101010/101010.pdf.

[53] Precisely, Brunnermeier et al. (2009) say that when the institution has got capital and liquidity requirements by 2% below the target value, then the firm should be subject to more supervision and it should be forbidden of paying out dividends. Among others, dividend restrictions in bad times are sustained by Acharya, Mehran and Thakor (2010), Goodhart et al. (2010), Admati et al. (2012), Admati et al.(2013), Acharya et al. (2012), and Acharya, Le, and Shin (2013).

[54] "Examples of the restrictions to banks' actions are: limits to dividends payments and compensation to senior managers; increased monitoring; restrictions to asset growth; restrictions to interaffiliate transactions; required authorization for acquisitions and new business lines; required authorization to raise additional capital; limits to credit for highly leveraged transactions; and in the most extreme cases, receivership. A common element of these restrictions is that they are intended to prevent moral hazard by limiting cash diversion and gambling for resurrection increasing asset size or by taking on more risky loans" ((Freixas and Parigi (2008)).

Under the current capital discipline, a bank which is not "adequately capitalized" (assessed when the sum of tier 1 plus tier 2 capital over risk weighted assets is below 8%) has to prepare a capital restoration plan and regulators might impede dividend payments. In the framework of the Basel III accord, the Committee aims at reducing the procyclicality of capital by promoting countercyclical buffers.[55] In order to preserve the buffers in line with the required levels, the Committee discourages the discretion of banks with depleted capital to distribute earnings.

We share the opinion claiming that restrictions on banking dividends would contain the consequences of the distress. This would help firms to remain more strongly capitalized and can ultimate translate into more stable lending and credit growth (Admati et al. (2013)).

Our results do further suggest to policy makers to carefully evaluate the restoration plans submitted by banks, taking into account of the possible interactions which may arise between the instruments which the firm uses for funding, and the future dividends. The reason is the following. Banks can partially restore the depleted capital by issuing certain type of non-deposit debt. The Basel framework allows subordinated debt instruments with at least a five year maturity to be counted as tier 2 capital, where those securities are meant to provide an additional capital buffer for the protection of depositors.

Our results hint the following comment. If all else equal, a bank increasingly issuing non-deposit subordinated debt wants also to distribute more cash through dividends, then the effect from the debt securities of improving the regulatory capital standard could be reduced by the curtailment of common equity due to the dividend. Thus, the funding structure chosen by the firm might reveal certain instability in the future. Our recommendation to regulators is to control that these two combined effects do not ultimately undermine the solidity of the firm.

[55] See the Basel Committee (2010).

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Appendix

In this appendix we list the variables used in our empirical analysis. Some variables are used in the same form as we obtained them from our data source, and we report the KeyField and the definition as provided by SNL Financial LC. Some other variables have been constructed manually. In this latter case we define them sending to the KeyFields of the variables involved in the computation.

CAPRATIO [SNL KeyField: 131990]: Risk-weighted Capital Ratio

CASH_TA: Cash and cash equivalents [SNL KeyField: 131920] as a percent of total assets [SNL KeyField: 131929]

CURRENTACC_TA: Current Accounts [SNL KeyField: 132471] as a percent of total assets [SNL KeyField: 131929]

DEPOSITS_TA: Total deposits from customers [SNL KeyField: 132480] as a percent of total assets [SNL KeyField: 131929]

DEP&NONDEP_TA: Total deposits from customers [SNL KeyField: 132480] plus total debt [SNL KeyField: 131935] as a percent of total assets [SNL KeyField: 131929]

DIVIDEND_DUMMY: Dummy variable assuming value one if the company has got a positive value of regular dividends paid [SNL KeyField: 132933], while zero if the same field is equal to zero

DIVIDEND_EARNINGS [SNL KeyField: 131981]: Dividend payout ratio. Dividends declared per common share during the period as a percent of earnings per share

DIVIDEND_EQUITY [SNL KeyField: 132911]: Dividend/Average Book Value. Dividends declared per common share during the period as a percent of average common equity per share

EMPL_COMP [SNL KeyField: 133387]: Compensation/Average employees. Employee compensation and benefits as a multiple of average full-time-equivalent employees

EQUITY_TA: Total equity [SNL KeyField: 131939] as a percent of total assets [SNL KeyField: 131929]

FOREIGNDEP_TA: Foreign Deposits [SNL KeyField: 132478] as a percent of total assets [SNL KeyField: 131929]

INCOME_TAX_TA: Income taxes paid [SNL KeyField: 132981] as a percent of total assets [SNL KeyField: 131929]

JUMBOTIMEDEP_TA: Jumbo time deposits [SNL KeyField: 132476] as a percent of total assets [SNL KeyField: 131929]

LOANS_TA: Net loans to customers [SNL KeyField: 131923] as a percent of total assets [SNL KeyField: 131929]

LOW_INSIDER_DUMMY: Dummy variable assuming value of one in correspondence of a firm insider ownership [SNL KeyField: 221550] lower or equal than 18.231%

MONEYMKTACC_TA: Principal amounts in money-market accounts in domestic offices [SNL KeyField: 132472] as a percent of total assets [SNL KeyField: 131929]

MTBV [SNL KeyField: 132027]: Price/Book. Price as a percent of book value per share. Book value is calculated using financial period end common equity and common shares outstanding values

NONDEPOSITS_TA: Total debt [SNL KeyField: 131935] as a percent of total assets [SNL KeyField: 131929]

NONDEPOSITS_TL: Total debt [SNL KeyField: 131935] divided by the sum of Total Debt [SNL KeyField: 131935] plus Total Deposits from Customers [SNL KeyField: 132480]

OTHERDEP_TA: Other Deposits [SNL KeyField: 243741] as a percent of total assets [SNL KeyField: 131929]

REPOS_TA: Securities that are sold under a corresponding agreement that those securities will be repurchased by the original holder on a specified future date and at an agreed-upon price [SNL KeyField: 132309]

REPURCHASE_INCOME: Common stock repurchased [SNL KeyField: 133872] as a percent of net income after taxes [SNL KeyField: 142046]. The common stock repurchased is as-reported from the cash flow statement for the period. It includes fractional and dissenting shares redeemed on the cash flow statement. This should include all purchases of company stock for treasury stock, compensation plans, recognition and retention plans and acquisitions of common stock by Employee Stock Ownership Plan (ESOP)

REPURCHASE_DUMMY: Dummy variable assuming value one if the company has got a positive value on shares repurchased [SNL KeyField: 133870] while zero if the same field is equal to zero.

RETAILTIMEDEP_TA: Retail Time Deposits [SNL KeyField: 132475] as a percent of total assets [SNL KeyField: 131929]

ROA [SNL KeyField: 132004]: ROAA. Return on average assets; net profit as a percent of average assets

RWA_TA [SNL KeyField: 226936]: Risk-weighted assets/assets. Risk-weighted assets as a percent of assets

SAVINGACC_TA: Principal amounts in non money-market savings accounts in U.S. offices [SNL KeyField: 132473] as a percent of total assets [SNL KeyField: 131929]

SHORTTERM_NONDEP_TA: Borrowings with a maturity of one year or less, not already included in repurchase agreements, notes payable, or subordinated debt [SNL KeyField: 233865]

SIZE: Natural logarithm of total assets [SNL KeyField: 131929]

TARPEQUITY_DUMMY Dummy variable assuming value one if the company has got a positive value of TARP Preferred Equity [SNL KeyField: 218432], while zero if the same field is equal to zero

TARPEQUITY_TA: TARP preferred equity [SNL KeyField: 218432] as a percent of total assets [SNL KeyField: 131929]

TOOBIGTF_DUMMY: Dummy variable assuming value of one in correspondence of "too-big-to-fail" institutions (classified according to the Financial Stability Board, November 2011)

TOTALTIMEDEP_TA: Total time deposits [SNL KeyField: 132477] as a percent of total assets [SNL KeyField: 131929]

Table 1: Variables for Banks´ Dividend Policy, Leverage, and Additional Control Variables

The table reports the average value of the variables during the sample period 2000q1-2011q3. For *DIVIDEND_EARNINGS* and *DIVIDEND_EQUITY* the value reported in the table is the average positive *DIVIDEND_EARNINGS* and the average positive *DIVIDEND_EQUITY*.

Variable	N (as of 2011q3)	Mean	Median	5%	25%	75%	95%	Std. Dev
Dividend Policy								
DIVIDEND_DUMMY (%)	981	64.859	100	0.000	0.000	100	100	0.477
DIVIDEND_EARNINGS (%)	981	35.286	28.000	0.000	0.000	47.630	102.170	55.049
DIVIDEND_EQUITY (%)	981	2.869	2.120	0.000	0.000	4.840	8.830	3.563
Leverage								
DEP&NONDEP_TA (%)	981	88.297	89.569	80.309	87.550	91.044	93.071	6.379
DEPOSITS_TA (%)	981	78.928	80.980	62.340	74.690	85.470	89.820	9.685
NONDEPOSITS_TA (%)	981	9.365	7.870	0.000	2.790	13.880	24.530	8.381
NONDEPOSITS_TL (%)	981	10.522	8.798	0.000	3.148	15.502	27.438	9.540
SHORTTERM_NONDEP_TA (%)	981	0.841	0.000	0.000	0.000	0.378	4.971	2.304
REPOS_TA (%)	981	2.479	0.923	0.000	0.000	3.479	9.648	4.188
Control Variables								
SIZE (log of Assets)	981	13.174	12.912	11.096	12.148	13.866	18.756	1.610
ROA (%)	981	0.430	0.830	-2.220	0.370	1.170	1.690	2.295
MTBV (%)	981	139.801	131.100	43.500	90.400	176.900	266.200	70.970
EQUITY_TA (%)	981	10.457	9.340	6.030	7.930	11.190	17.620	5.935
CASH_TA (%)	981	7.743	5.421	1.808	3.270	9.383	20.756	7.738
LOANS_TA (%)	981	66.144	67.945	41.880	59.740	74.870	83.440	12.840
RWA_TA (%)	981	72.084	72.730	52.100	64.650	80.150	90.220	11.864
INCOME_TAX_TA (%)	981	0.086	0.057	0.000	0.000	0.142	0.299	0.181
EMPL_COMP	981	61.550	56.315	37.310	47.020	70.190	103.23	22.169
CAPRATIO (%)	981	16.497	13.960	10.540	12.150	16.890	28.130	13.124

Table 2: Variables for Dividend Policy and Leverage for the Banks of the Sample Paying Dividends

The table reports the average value of the variables during the sample period 2000q1-2011q3. For *DIVIDEND_EARNINGS* and *DIVIDEND_EQUITY* the value reported in the table is the average positive *DIVIDEND_EARNINGS* and the average positive *DIVIDEND_EQUITY*.

Variable	Dividend paying banks (*DIVIDEND_DUMMY*=1)							
	N(as of 2011Q3)	Mean	Median	5%	25%	75%	95%	Std. Dev
Dividend Policy								
DIVIDEND_EARNINGS (%)	284	54.404	41.500	13.790	29.270	58.820	127.030	60.267
DIVIDEND_EQUITY (%)	284	4.990	4.470	1.260	3.060	6.200	10.140	3.376
Leverage								
DEP&NONDEP_TA (%)	284	88.992	89.608	84.403	87.960	90.886	92.585	4.014
DEPOSITS_TA (%)	284	77.656	79.260	61.680	73.090	84.160	88.910	9.256
NONDEPOSITS_TA (%)	284	11.318	10.090	0.130	5.030	15.920	26.350	8.429
NONDEPOSITS_TL (%)	284	12.729	11.302	0.171	5.651	17.877	29.547	9.579

Table 3: Variables for Dividend Policy of Banks along Years of the Sample

The table reports the average value of the variables during the sample period 2000q1-2011q3. For *DIVIDEND_EARNINGS* and *DIVIDEND_EQUITY* the value reported in the table is the average positive *DIVIDEND_EARNINGS* and the average positive *DIVIDEND_EQUITY*. The last two columns refer to the only dividend paying banks, selected by having *DIVIDEND_DUMMY* equal to one.

Year	All sample			Dividend paying banks (*DIVIDEND_DUMMY*=1)	
	DIVIDEND_DUMMY	*DIVIDEND_EARNINGS*	*DIVIDEND_EQUITY*	*DIVIDEND_EARNINGS*	*DIVIDEND_EQUITY*
	(%)	(%)	(%)	(%)	(%)
2000 (Q1-Q4)	77.25	35.795	4.015	46.338	5.406
2001 (Q1-Q4)	74.01	35.498	3.760	47.962	5.276
2002 (Q1-Q4)	69.37	31.491	3.556	45.399	5.191
2003 (Q1-Q4)	67.35	32.316	3.508	47.979	5.283
2004 (Q1-Q4)	65.79	33.364	3.457	50.714	5.358
2005 (Q1-Q4)	66.69	31.768	3.403	47.635	5.320
2006 (Q1-Q4)	65.19	33.672	3.254	51.653	5.275
2007 (Q1-Q4)	65.63	37.930	3.157	57.790	5.229
2008 (Q1-Q4)	65.06	47.366	2.765	72.802	5.104
2009 (Q1-Q4)	62.24	50.539	1.877	81.207	4.338
2010 (Q1-Q4)	54.21	30.630	1.566	56.502	3.829
2011 (Q1-Q3)	50.34	22.744	1.420	45.179	3.399

Figure 1: Deposit Leverage along Quarters

The figure depicts the variable *DEPOSITS_TA* along the quarters of the sample period 2007q1-2011q3. The average value of *DEPOSITS_TA* computed on the entire sample of banks is distinguished from the average *DEPOSITS_TA* computed only on dividend paying banks.

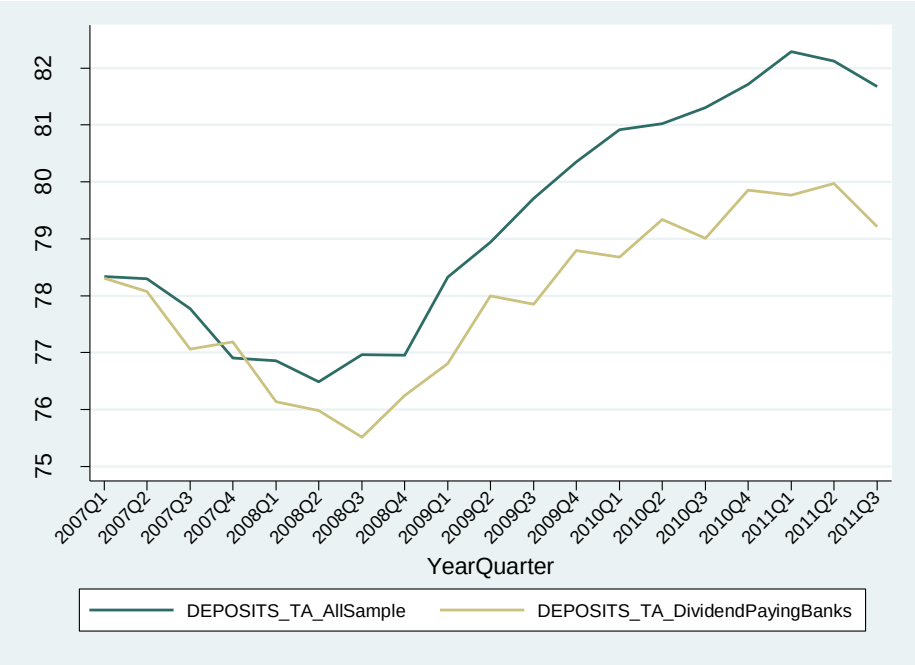

Table 4: Pair-Wise Correlation between the Variables for Dividend Policy and the Variables for Leverage

The table reports the pair-wise correlation between the set of variables measuring the dividend policy of the banks and the set of variables measuring the leverage of the same firms. The sample period is 2000q1-2011q3. Observations with negative *DIVIDEND_EARNINGS* and negative *DIVIDEND_EQUITY* are excluded from the sample. * p < 0.10, ** p < 0.05, *** p <0.01

Pair-wise correlation	*DIVIDEND_DUMMY*	*DIVIDEND_EARNINGS*	*DIVIDEND_EQUITY*	*DEP&NONDEP_TA*	*NONDEPOSITS_TA*	*DEPOSITS_TA*
DIVIDEND_DUMMY	1.000					
DIVIDEND_EARNINGS	0.472***	1.000				
DIVIDEND_EQUITY	0.656***	0.582***	1.000			
DEP&NONDEP_TA	-0.002	-0.023***	0.055***	1.000		
NONDEPOSITS_TA	0.223***	0.102***	0.190***	0.166***	1.000	
DEPOSITS_TA	-0.209***	-0.105***	-0.143***	0.517***	-0.759***	1.000

Table 5: The Effect from Leverage on Banks´ Dividend Policies during three Time Horizons

Each panel estimates regression models across the following three sample periods: 2000q1-2007q3; 2007q4-2008q3; 2008q4-2011q3. Panel A: Coefficients estimated by a Logit model for *DIVIDEND_DUMMY* on the variables for leverage, the additional control variables, and a set of dummies for banks and quarters, which is not reported. For each period, the columns differ in the variable which measures the effect from the banks´ leverage. Standard errors are reported in parentheses. Panel B: Coefficients estimated by an Ordinary Least Squares (OLS) model for *DIVIDEND_EARNINGS* on the variables for leverage, the additional control variables, the lagged value of *DIVIDEND_EARNINGS*, and a set of dummies for banks and quarters, which is not reported. For each period, the columns differ in the variable which measures the effect from the banks´ leverage. *DIVIDEND_EARNINGS* is winsorized at the 1% and 99% level, and observations with negative *DIVIDEND_EARNINGS* are excluded from the sample. Standard errors are clustered at the bank level and are reported in parentheses. Panel C: Coefficients estimated by an Ordinary Least Squares (OLS) model for *DIVIDEND_EQUITY* on the variables for leverage, the additional control variables, the lagged value of *DIVIDEND_EQUITY*, and a set of dummies for banks and quarters, which is not reported. For each period, the columns differ in the variable which measures the effect from the banks´ leverage. *DIVIDEND_EQUITY* is winsorized at the 1% and 99% level, and observations with negative *DIVIDEND_EQUITY* are excluded from the sample. Standard errors are clustered at the bank level and are reported in parentheses. Significance: * p < 0.10, ** p < 0.05, *** p <0.01

Panel A	*DIVIDEND_DUMMY*											
	2000Q1-2007Q3				*2007Q4-2008Q3*				*2008Q4-2011Q3*			
	(1)	*(2)*	*(3)*	*(4)*	*(1)*	*(2)*	*(3)*	*(4)*	*(1)*	*(2)*	*(3)*	*(4)*
DEP&NONDEP_TA	-0.009			-0.005	2.999				-0.820**			
	(0.130)			(0.132)	(3.074)				(0.376)			
NONDEPOSITS_TA		-0.054*				-0.052				0.132*		
		(0.032)				(0.252)				(0.074)		
DEPOSITS_TA			0.053*				0.078				-0.165**	
			(0.031)				(0.259)				(0.074)	
NONDEPOSITS_TL				-0.048*				-0.051				0.125*
				(0.029)				(0.226)				(0.066)
SIZE	3.610***	3.815***	3.840***	3.816***	-116.550*	-85.368*	-84.722*	-85.310*	1.913	1.385	1.253	1.320
	(0.747)	(0.754)	(0.756)	(0.758)	(65.276)	(49.201)	(48.725)	(49.030)	(1.914)	(1.978)	(1.983)	(1.979)
ROA	0.484	0.536	0.550*	0.538	6.260*	5.210*	5.269*	5.222*	0.688*	0.785**	0.775**	0.784**
	(0.324)	(0.327)	(0.328)	(0.328)	(3.223)	(2.884)	(2.920)	(2.892)	(0.388)	(0.394)	(0.395)	(0.394)
EQUITY_TA	0.153	0.114	0.162	0.124	3.493	0.418	0.492	0.427	0.082	1.017***	0.863**	1.013***
	(0.168)	(0.125)	(0.123)	(0.170)	(3.566)	(1.889)	(1.932)	(1.893)	(0.518)	(0.352)	(0.351)	(0.353)
CASH_TA	-0.017	-0.030	-0.029	-0.030	-1.926*	-1.934*	-1.908*	-1.932*	-0.005	0.010	0.017	0.011
	(0.040)	(0.040)	(0.040)	(0.040)	(1.083)	(0.997)	(0.990)	(0.995)	(0.059)	(0.060)	(0.060)	(0.060)
MTBV	0.008***	0.008***	0.008***	0.008**	0.314**	0.263***	0.265***	0.264***	0.015**	0.013*	0.013*	0.013*
	(0.003)	(0.003)	(0.003)	(0.003)	(0.136)	(0.100)	(0.100)	(0.100)	(0.007)	(0.007)	(0.007)	(0.007)
LOANS_TA	-0.020	-0.026	-0.024	-0.025	-0.025	0.039	0.065	0.044	-0.112	-0.110	-0.110	-0.110
	(0.029)	(0.029)	(0.029)	(0.029)	(0.519)	(0.539)	(0.541)	(0.540)	(0.074)	(0.078)	(0.077)	(0.078)
RWA_TA	0.021	0.019	0.018	0.018	-2.775**	-2.247**	-2.277**	-2.254**	0.045	0.026	0.027	0.025
	(0.029)	(0.035)	(0.035)	(0.035)	(1.242)	(0.902)	(0.919)	(0.907)	(0.081)	(0.087)	(0.085)	(0.086)
INCOME_TAX_TA	0.062	0.106	0.100	0.107	-25.827**	-19.900**	-19.730**	-19.890**	1.629	0.978	1.127	0.991
	(0.757)	(0.758)	(0.757)	(0.758)	(12.462)	(9.689)	(9.513)	(9.627)	(1.478)	(1.477)	(1.475)	(1.478)
EMPL_COMP	0.005	0.008	0.008	0.008	-0.278	-0.204	-0.204	-0.204	-0.004	-0.006	-0.007	-0.006
	(0.013)	(0.013)	(0.013)	(0.013)	(0.211)	(0.174)	(0.174)	(0.174)	(0.024)	(0.024)	(0.024)	(0.024)
CAPRATIO	-0.047	-0.031	-0.032	-0.032	-16.040**	-12.376**	-12.419**	-12.392**	-0.648***	-0.716***	-0.719***	-0.721***
	(0.080)	(0.081)	(0.081)	(0.081)	(7.320)	(4.996)	(5.002)	(4.995)	(0.248)	(0.251)	(0.252)	(0.252)
Firm and Time Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo-R^2	0.170	0.173	0.172	0.173	0.656	0.643	0.644	0.644	0.180	0.175	0.179	0.176
Observations	1361	1361	1363	1363	106	106	106	106	578	578	578	578

Panel B	*DIVIDEND_EARNINGS*											
	2000Q1-2007Q3				*2007Q4-2008Q3*				*2008Q4-2011Q3*			
	(1)	*(2)*	*(3)*	*(4)*	*(1)*	*(2)*	*(3)*	*(4)*	*(1)*	*(2)*	*(3)*	*(4)*
DIVIDEND_EARNINGS(t-1)	-0.205***	-0.206***	-0.206***	-0.205***	-0.422***	-0.421***	-0.422***	-0.422***	0.023	0.024	0.023	0.023
	(0.040)	(0.041)	(0.041)	(0.041)	(0.094)	(0.094)	(0.094)	(0.094)	(0.051)	(0.051)	(0.051)	(0.051)
DEP&NONDEP_TA	-1.031				-3.243				-4.730*			
	(1.153)				(2.903)				(2.602)			
NONDEPOSITS_TA		-0.184				-0.725				1.031		
		(0.201)				(0.698)				(0.727)		
DEPOSITS_TA			0.084				-0.578				-1.332*	
			(0.199)				(0.701)				(0.729)	
NONDEPOSITS_TL				-0.154				-0.663				0.960
				(0.183)				(0.628)				(0.651)
SIZE	-6.745	-5.657	-6.173	-5.721	-16.792	-13.960	-14.062	-13.866	58.601***	59.358***	60.041***	59.289***
	(4.528)	(4.580)	(4.583)	(4.578)	(41.751)	(41.657)	(41.464)	(41.705)	(21.779)	(21.743)	(21.708)	(21.716)
ROA	-35.911***	-35.984***	-35.907***	-35.968***	-53.751***	-53.487***	-53.379***	-53.453***	-26.312***	-25.900***	-26.076***	-25.943***
	(5.360)	(5.331)	(5.320)	(5.329)	(14.765)	(14.590)	(14.564)	(14.593)	(4.005)	(3.943)	(3.961)	(3.948)
EQUITY_TA	0.678	1.485**	1.642***	1.514**	-2.605	-0.250	0.493	-0.168	-6.222	-0.425	-1.409	-0.466
	(1.238)	(0.670)	(0.623)	(0.661)	(5.336)	(4.604)	(4.432)	(4.585)	(4.882)	(4.296)	(4.241)	(4.281)
CASH_TA	0.129	0.094	0.120	0.096	0.099	-0.189	-0.179	-0.200	0.873	0.935	0.994	0.944
	(0.243)	(0.251)	(0.248)	(0.252)	(0.961)	(0.929)	(0.940)	(0.935)	(0.625)	(0.634)	(0.634)	(0.634)
MTBV	0.028*	0.026*	0.027*	0.026*	0.067	0.068	0.067	0.068	0.128*	0.124*	0.124*	0.124*
	(0.016)	(0.016)	(0.016)	(0.015)	(0.066)	(0.066)	(0.066)	(0.066)	(0.068)	(0.067)	(0.067)	(0.067)
LOANS_TA	-0.015	-0.042	-0.036	-0.041	0.914	0.761	0.750	0.748	-0.914	-0.894	-0.877	-0.895
	(0.167)	(0.173)	(0.172)	(0.173)	(1.455)	(1.472)	(1.477)	(1.473)	(0.610)	(0.632)	(0.633)	(0.632)
RWA_TA	-0.109	-0.120	-0.116	-0.120	-0.817	-0.843	-0.839	-0.844	1.784***	1.653**	1.637**	1.645**
	(0.159)	(0.159)	(0.160)	(0.159)	(1.112)	(1.116)	(1.114)	(1.117)	(0.679)	(0.693)	(0.690)	(0.693)
INCOME_TAX_TA	-2.836	-2.795	-2.797	-2.791	-0.320	-0.302	-0.314	-0.302	10.182	8.101	8.092	8.036
	(4.043)	(4.046)	(4.044)	(4.046)	(0.406)	(0.415)	(0.417)	(0.416)	(8.647)	(8.540)	(8.552)	(8.541)
EMPL_COMP	0.112	0.128	0.127	0.129	-0.404	-0.354	-0.358	-0.351	0.044	0.131	0.130	0.131
	(0.104)	(0.102)	(0.102)	(0.101)	(0.501)	(0.503)	(0.499)	(0.500)	(0.122)	(0. 224)	(0. 224)	(0. 224)
CAPRATIO	-0.954	-0.906	-0.939	-0.912	-5.342	-5.370	-5.384	-5.391	0.960	0.496	0.364	0.444
	(0.586)	(0.583)	(0.583)	(0.579)	(3.774)	(3.787)	(3.783)	(3.785)	(2.015)	(1.200)	(1.997)	(1.998)
Constant	255.443*	145.746**	141.772**	146.111**	749.287	418.944	360.786	-418.132	-378.069	-864.534***	-748.972**	-862.397***
	(132.240)	(65.753)	(69.430)	(65.679)	(767.491)	(657.122)	(661.803)	(657.103)	(403.914)	(335.648)	(332.206)	(334.918)
Firm and Time Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2 (within)	0.164	0.164	0.164	0.164	0.280	0.280	0.280	0.280	0.150	0.149	0.151	0.150
Observations	5292	5292	5294	5292	887	887	887	887	2403	2403	2403	2403

Panel C	*DIVIDEND_EQUITY*											
	2000Q1-2007Q3				*2007Q4-2008Q3*				*2008Q4-2011Q3*			
	(1)	*(2)*	*(3)*	*(4)*	*(1)*	*(2)*	*(3)*	*(4)*	*(1)*	*(2)*	*(3)*	*(4)*
DIVIDEND_EQUITY(t-1)	-0.387***	-0.387***	-0.387***	-0.387***	-0.424***	-0.424***	-0.424***	-0.424***	-0.075	-0.078	-0.078	-0.078
	(0.043)	(0.043)	(0.043)	(0.043)	(0.077)	(0.076)	(0.076)	(0.076)	(0.064)	(0.063)	(0.064)	(0.063)
DEP&NONDEP_TA	-0.042				-0.141				-0.021			
	(0.032)				(0.111)				(0.015)			
NONDEPOSITS_TA		-0.001				-0.028				0.049***		
		(0.011)				(0.033)				(0.014)		
DEPOSITS_TA			-0.004				0.018				-0.045***	
			(0.011)				(0.031)				(0.012)	
NONDEPOSITS_TL				0.001				0.028				0.044***
				(0.010)				(0.029)				(0.013)
SIZE	-0.391	-0.366	-0.389	-0.366	2.271*	3.070*	3.050*	3.099*	1.075***	1.177***	1.124***	1.170***
	(0.324)	(0.339)	(0.340)	(0.338)	(1.605)	(1.683)	(1.688)	(1.693)	(0.310)	(0.314)	(0.314)	(0.314)
ROA	-0.005	-0.008	-0.005	-0.008	0.038	0.036	0.034	0.036	0.040***	0.041***	0.040***	0.041***
	(0.062)	(0.063)	(0.063)	(0.063)	(0.057)	(0.057)	(0.057)	(0.057)	(0.011)	(0.011)	(0.011)	(0.011)
EQUITY_TA	-0.096**	-0.057**	-0.059**	-0.057**	-0.237*	-0.105	-0.083	-0.105	0.028	0.071	0.028	0.066
	(0.041)	(0.029)	(0.029)	(0.029)	(0.129)	(0.070)	(0.072)	(0.070)	(0.046)	(0.046)	(0.046)	(0.045)
CASH_TA	-0.011	-0.012	-0.011	-0.012	-0.031*	-0.042	-0.041	-0.043	0.032***	0.037***	0.038***	0.037***
	(0.011)	(0.011)	(0.011)	(0.011)	(0.027)	(0.029)	(0.029)	(0.029)	(0.012)	(0.012)	(0.012)	(0.012)
MTBV	0.005***	0.005***	0.005***	0.005***	0.011***	0.011***	0.011***	0.011***	0.007***	0.007***	0.007***	0.008***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.001)	(0.001)	(0.001)
LOANS_TA	-0.008	-0.010	-0.009	-0.010	0.068*	0.060	0.060	0.060	0.015	0.014	0.020	0.015
	(0.012)	(0.012)	(0.012)	(0.012)	(0.041)	(0.040)	(0.040)	(0.040)	(0.011)	(0.010)	(0.011)	(0.011)
RWA_TA	0.006	0.007	0.007	0.007	0.005	0.007	0.008	0.008	0.007	0.009	0.005	0.008
	(0.011)	(0.011)	(0.011)	(0.011)	(0.042)	(0.042)	(0.042)	(0.042)	(0.015)	(0.014)	(0.014)	(0.014)
INCOME_TAX_TA	-0.078	-0.071	-0.075	-0.071	0.018	0.019	0.018	0.019	0.442**	0.399*	0.436**	0.401*
	(0.257)	(0.256)	(0.256)	(0.256)	(0.017)	(0.017)	(0.017)	(0.017)	(0.212)	(0.208)	(0.209)	(0.208)
EMPL_COMP	-0.008	-0.008	-0.008	-0.008	0.007	0.008	0.008	0.008	0.002	0.002	0.002	0.002
	(0.005)	(0.005)	(0.005)	(0.005)	(0.006)	(0.007)	(0.007)	(0.007)	(0.004)	(0.004)	(0.004)	(0.004)
CAPRATIO	-0.005	-0.004	-0.003	-0.004	0.066	0.073*	0.071	0.073*	-0.060*	-0.069**	-0.070**	-0.070**
	(0.016)	(0.016)	(0.016)	(0.016)	(0.042)	(0.043)	(0.043)	(0.043)	(0.034)	(0.034)	(0.034)	(0.034)
Constant	13.978**	9.679**	10.231**	9.677**	-25.573	-43.706*	-45.347*	-44.068*	-11.858**	-16.230***	-11.170**	-16.108***
	(5.724)	(4.665)	(5.079)	(4.667)	(26.518)	(25.811)	(26.887)	(25.935)	(4.984)	(5.070)	(4.878)	(5.081)
Firm and Time Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2 (within)	0.167	0.167	0.167	0.167	0.256	0.255	0.255	0.256	0.137	0.142	0.142	0.142
Observations	5647	5647	5650	5647	1146	1146	1146	1146	3945	3945	3945	3945

Table 6: The Effect from Leverage on Banks´ Dividend Policies, Including the Interaction between Leverage and Profitability

Each column estimates regression models during the sample period 2008q4-2011q3. Columns 1-2: Coefficients estimated by a Logit model for *DIVIDEND_DUMMY*. The specification controls also for the following variables, which are not reported in the table: *SIZE*, *ROA*, *EQUITY_TA*, *CASH_TA*, *MTBV*, *LOANS_TA*, *RWA_TA*, *INCOME_TAX_TA*, *EMPL_COMP*, *CAPRATIO*, and a set of dummies for banks and quarters. Standard errors are reported in parentheses. Columns 3-4: Coefficients estimated by an Ordinary Least Squares (OLS) model for *DIVIDEND_EQUITY*. The specification controls also for the following variables, which are not reported in the table: *DIVIDEND_EQUITY (t-1)*, *SIZE*, *ROA*, *EQUITY_TA*, *CASH_TA*, *MTBV*, *LOANS_TA*, *RWA_TA*, *INCOME_TAX_TA*, *EMPL_COMP*, *CAPRATIO*, a constant, and a set of dummies for banks and quarters. *DIVIDEND_EQUITY* is winsorized at the 1% and 99% level, and observations with negative *DIVIDEND_EQUITY* are excluded from the sample. Standard errors are clustered at the bank level and are reported in parentheses.
Significance: * p < 0.10, ** p < 0.05, *** p <0.01

	DIVIDEND_DUMMY		*DIVIDEND_EQUITY*	
	(1)	(2)	(3)	(4)
NONDEPOSITS_TA	0.105 (0.082)		0.049*** (0.015)	
DEPOSITS_TA		-0.119 (0.082)		-0.045*** (0.013)
ROA	0.561 (0.496)	6.146 (4.483)	0.042* (0.023)	-0.041 (0.121)
*NONDEPOSITS_TA*ROA*	0.041 (0.058)		-0.000 (0.002)	
*DEPOSITS_TA*ROA*		-0.066 (0.054)		-8.20eˆ^06 (0.002)
Control Variables	Yes	Yes	Yes	Yes
Firm and Time Effects	Yes	Yes	Yes	Yes
Pseudo- R^2 / R^2 (within)	0.176	0.182	0.142	0.142
Observations	578	578	3945	3945

Table 7: The Effect from Leverage on Banks´ Dividend Policies, Including the Interaction between Leverage and Insider Ownership

Each column estimates regression models during the sample period 2008q4-2011q3. *LOW_INSIDER_DUMMY* is a dichotomous variable which assumes value one if the bank has got insider ownership smaller or equal than the mean insider ownership across the sample (equal to 18.231%). Columns 1-2: Coefficients estimated by a Logit model for *DIVIDEND_DUMMY*. The specification controls also for the following variables, which are not reported in the table: *SIZE*, *ROA*, *EQUITY_TA*, *CASH_TA*, *MTBV*, *LOANS_TA*, *RWA_TA*, *INCOME_TAX_TA*, *EMPL_COMP*, *CAPRATIO*, and a set of dummies for banks and quarters. Standard errors are reported in parentheses. Columns 3-4: Coefficients estimated by an Ordinary Least Squares (OLS) model for *DIVIDEND_EARNINGS*. The specification controls also for the following variables, which are not reported in the table: *DIVIDEND_EARNINGS (t-1)*, *SIZE*, *ROA*, *EQUITY_TA*, *CASH_TA*, *MTBV*, *LOANS_TA*, *RWA_TA*, *INCOME_TAX_TA*, *EMPL_COMP*, *CAPRATIO*, a constant, and a set of dummies for banks and quarters. *DIVIDEND_EARNINGS* is winsorized at the 1% and 99% level, and observations with negative *DIVIDEND_EARNINGS* are excluded from the sample. Standard errors are clustered at the bank level and are reported in parentheses. Columns 5-6: Coefficients estimated by an Ordinary Least Squares (OLS) model for *DIVIDEND_EQUITY*. The specification controls also for the following variables, which are not reported in the table: *DIVIDEND_EQUITY (t-1)*, *SIZE*, *ROA*, *EQUITY_TA*, *CASH_TA*, *MTBV*, *LOANS_TA*, *RWA_TA*, *INCOME_TAX_TA*, *EMPL_COMP*, *CAPRATIO*, a constant, and a set of dummies for banks and quarters. *DIVIDEND_EQUITY* is winsorized at the 1% and 99% level, and observations with negative *DIVIDEND_EQUITY* are excluded from the sample. Standard errors are clustered at the bank level and are reported in parentheses. Significance: * p < 0.10, ** p < 0.05, *** p <0.01

	DIVIDEND_DUMMY		*DIVIDEND_EARNINGS*		*DIVIDEND_EQUITY*	
	(1)	(2)	(3)	(4)	(5)	(6)
NONDEPOSITS_TA	0.192*		0.265		0.021	
	(0.110)		(1.355)		(0.021)	
DEPOSITS_TA		-0.270**		-0.607		-0.029*
		(0.112)		(1.346)		(0.015)
NONDEPOSITS_TA* *LOW_INSIDER_DUMMY*	-0.116		0.932		0.032	
	(0.123)		(1.369)		(0.026)	
DEPOSITS_TA* *LOW_INSIDER_DUMMY*		0.176		-0.829		-0.016
		(0.121)		(1.336)		(0.019)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Firm and Time Effects	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo- R^2 / R^2 (within)	0.176	0.184	0.161	0.162	0.155	0.155
Observations	521	521	2258	2258	3657	3657

Table 8: The Composition of Banks´ Deposit Leverage

The table reports the average value of the variables in percentage terms during the sample period 2000q1-2011q3.

Variable	N (as of 2011Q3)	Mean	Median	5%	25%	75%	95%	Std. Dev
DEPOSITS_TA	981	78.928	80.980	62.340	74.690	85.470	89.820	9.685
JUMBOTIMEDEP_TA	981	14.589	12.984	4.376	8.742	18.930	30.077	8.133
RETAILTIMEDEP_TA	981	19.204	19.121	3.510	12.216	25.685	35.841	9.746
MONEYMKTACC_TA	981	14.952	12.872	2.354	7.583	20.267	34.648	10.149
SAVINGACC_TA	981	8.558	5.962	0.233	2.451	11.730	27.086	8.554
CURRENTACC_TA	981	21.831	21.063	7.189	14.723	27.808	39.535	9.962
FOREIGNDEP_TA	981	0.230	0.000	0.000	0.000	0.000	0.000	2.300
OTHERDEP_TA	981	0.021	0.000	0.000	0.000	0.000	0.000	0.837

Table 9: The Effect from the Components of Deposit Leverage on Banks´ Dividend Policies

Each column estimates regression models during the sample period 2008q4-2011q3. The variables for the type of deposits are defined in the Appendix. *ΔDEPOSITS* is the difference in the amount of banks´ deposits across quarters. Column 1: Coefficients estimated by a Logit model for *DIVIDEND_DUMMY*. The specification controls also for the following variables, which are not reported in the table: *SIZE*, *ROA*, *EQUITY_TA*, *CASH_TA*, *MTBV*, *LOANS_TA*, *RWA_TA*, *INCOME_TAX_TA*, *EMPL_COMP*, *CAPRATIO*, and a set of dummies for banks and quarters. Standard errors are reported in parentheses. Column 2: Coefficients estimated by an Ordinary Least Squares (OLS) model for *DIVIDEND_EARNINGS*. The specification controls also for the following variables, which are not reported in the table: *DIVIDEND_EARNINGS (t-1)*, *SIZE*, *ROA*, *EQUITY_TA*, *CASH_TA*, *MTBV*, *LOANS_TA*, *RWA_TA*, *INCOME_TAX_TA*, *EMPL_COMP*, *CAPRATIO*, a constant, and a set of dummies for banks and quarters. *DIVIDEND_EARNINGS* is winsorized at the 1% and 99% level, and observations with negative *DIVIDEND_EARNINGS* are excluded from the sample. Standard errors are clustered at the bank level and are reported in parentheses. Column 3: Coefficients estimated by an Ordinary Least Squares (OLS) model for *DIVIDEND_EQUITY*. The specification controls also for the following variables, which are not reported in the table: *DIVIDEND_EQUITY (t-1)*, *SIZE*, *ROA*, *EQUITY_TA*, *CASH_TA*, *MTBV*, *LOANS_TA*, *RWA_TA*, *INCOME_TAX_TA*, *EMPL_COMP*, *CAPRATIO*, a constant, and a set of dummies for banks and quarters. *DIVIDEND_EQUITY* is winsorized at the 1% and 99% level, and observations with negative *DIVIDEND_EQUITY* are excluded from the sample. Standard errors are clustered at the bank level and are reported in parentheses.

Significance: * p < 0.10, ** p < 0.05, *** p <0.01

	DIVIDEND_DUMMY	*DIVIDEND_EARNINGS*	*DIVIDEND_EQUITY*
	(1)	(2)	(3)
Type of Deposits:			
JUMBOTIMEDEP_TA	-0.362**	-2.166*	-0.049**
	(0.182)	(1.483)	(0.022)
RETAILTIMEDEP_TA	-0.640***	-2.453*	-0.084***
	(0.236)	(1.440)	(0.024)
MONEYMKTACC_TA	-0.375**	-2.464	-0.042**
	(0.181)	(1.630)	(0.021)
SAVINGACC_TA	-1.193**	-3.031*	-0.079**
	(0.482)	(1.583)	(0.035)
CURRENTACC_TA	-0.403*	-3.489**	-0.046**
	(0.226)	(1.401)	(0.022)
FOREIGNDEP_TA	-4.728	-2.237	-0.248*
	(5.87e^04)	(3.679)	(0.136)
Control Variables	Yes	Yes	Yes
Firm and Time Effects	Yes	Yes	Yes
Dummy for:			
ΔDEPOSITS < 0	-0.538**	-0.075	-0.084
	(0.254)	(2.137)	(0.051)
*ΔDEPOSITS (*Excluded *TIME DEPOSITS) < 0*	-0.738***	-1.016	-0.139**
	(0.275)	(2.381)	(0.065)
Control Variables	Yes	Yes	Yes
Firm and Time Effects	Yes	Yes	Yes

Table 10: The Effect from Short-Term Non-Deposit Leverage on Banks´ Dividend Policies

Each column estimates regression models during the sample period 2008q4-2011q3. Column 1: Coefficients estimated by a Logit model for *DIVIDEND_DUMMY*. The specification controls also for the following variables, which are not reported in the table: *SIZE*, *ROA*, *EQUITY_TA*, *CASH_TA*, *MTBV*, *LOANS_TA*, *RWA_TA*, *INCOME_TAX_TA*, *EMPL_COMP*, *CAPRATIO*, and a set of dummies for banks and quarters. Standard errors are reported in parentheses. Column 2: Coefficients estimated by an Ordinary Least Squares (OLS) model for *DIVIDEND_EARNINGS*. The specification controls also for the following variables, which are not reported in the table: *DIVIDEND_EARNINGS (t-1)*, *SIZE*, *ROA*, *EQUITY_TA*, *CASH_TA*, *MTBV*, *LOANS_TA*, *RWA_TA*, *INCOME_TAX_TA*, *EMPL_COMP*, *CAPRATIO*, a constant, and a set of dummies for banks and quarters. *DIVIDEND_EARNINGS* is winsorized at the 1% and 99% level, and observations with negative *DIVIDEND_EARNINGS* are excluded from the sample. Standard errors are clustered at the bank level and are reported in parentheses. Column 3: Coefficients estimated by an Ordinary Least Squares (OLS) model for *DIVIDEND_EQUITY*. The specification controls also for the following variables, which are not reported in the table: *DIVIDEND_EQUITY (t-1)*, *SIZE*, *ROA*, *EQUITY_TA*, *CASH_TA*, *MTBV*, *LOANS_TA*, *RWA_TA*, *INCOME_TAX_TA*, *EMPL_COMP*, *CAPRATIO*, a constant, and a set of dummies for banks and quarters. *DIVIDEND_EQUITY* is winsorized at the 1% and 99% level, and observations with negative *DIVIDEND_EQUITY* are excluded from the sample. Standard errors are clustered at the bank level and are reported in parentheses. Significance: * p < 0.10, ** p < 0.05, *** p <0.01

	DIVIDEND_DUMMY	*DIVIDEND_EARNINGS*	*DIVIDEND_EQUITY*
	(1)	(2)	(3)
SHORTTERM_NONDEP_TA	-0.281	0.121	0.032
	(0.203)	(1.155)	(0.038)
REPOS_TA	0.102	2.552	0.028
	(0.174)	(1.896)	(0.038)
Control Variables	Yes	Yes	Yes
Firm and Time Effects	Yes	Yes	Yes
Pseudo- R^2 / R^2 (within)	0.177	0.141	0.130
Observations	512	2173	3596

Table 11: The Effect from Leverage on Banks´ Dividend Policies, Controlling for Equity Issued Under the Unite States Treasury's Troubled Asset Relief Program (TARP)

Each column estimates regression models during the sample period 2008q4-2011q3. Columns 1-3: Coefficients estimated by a Logit model for *DIVIDEND_DUMMY*. The specification controls also for the following variables, which are not reported in the table: *SIZE, ROA, EQUITY_TA, CASH_TA, MTBV, LOANS_TA, RWA_TA, INCOME_TAX_TA, EMPL_COMP, CAPRATIO*, and a set of dummies for banks and quarters. The three columns differ in the variables which are included in the specification in order to control for the effects from Treasury's Troubled Asset Relief Program (TARP). Standard errors are reported in parentheses. Columns 4-6: Coefficients estimated by an Ordinary Least Squares (OLS) model for *DIVIDEND_EARNINGS*. The specification controls also for the following variables, which are not reported in the table: *DIVIDEND_EARNINGS (t-1), SIZE, ROA, EQUITY_TA, CASH_TA, MTBV, LOANS_TA, RWA_TA, INCOME_TAX_TA, EMPL_COMP, CAPRATIO*, a constant, and a set of dummies for banks and quarters. *DIVIDEND_EARNINGS* is winsorized at the 1% and 99% level, and observations with negative *DIVIDEND_EARNINGS* are excluded from the sample. The three columns differ in the variables which are included in the specification in order to control for the effects from Treasury's Troubled Asset Relief Program (TARP). Standard errors are clustered at the bank level and are reported in parentheses. Columns 7-9: Coefficients estimated by an Ordinary Least Squares (OLS) model for *DIVIDEND_EQUITY*. The specification controls also for the following variables, which are not reported in the table: *DIVIDEND_EQUITY (t-1), SIZE, ROA, EQUITY_TA, CASH_TA, MTBV, LOANS_TA, RWA_TA, INCOME_TAX_TA, EMPL_COMP, CAPRATIO*, a constant, and a set of dummies for banks and quarters. *DIVIDEND_EQUITY* is winsorized at the 1% and 99% level, and observations with negative *DIVIDEND_EQUITY* are excluded from the sample. The three columns differ in the variables which are included in the specification in order to control for the effects from Treasury's Troubled Asset Relief Program (TARP). Standard errors are clustered at the bank level and are reported in parentheses. Significance: * p < 0.10, ** p < 0.05, *** p <0.01

	DIVIDEND_DUMMY			*DIVIDEND_EARNINGS*			*DIVIDEND_EQUITY*		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
NONDEPOSITS_TA	0.189** (0.074)	0.175** (0.075)	0.250*** (0.093)	1.076 (0.734)	1.095 (0.733)	1.099 (0.818)	0.048*** (0.014)	0.048*** (0.014)	0.040*** (0.015)
TARPEQUITY_TA	-1.176*** (0.333)			-1.698 (3.250)			0.036 (0.056)		
TARPEQUITY_DUMMY		-3.090*** (0.927)	-1.703 (1.226)		-4.976 (5.973)	-4.868 (13.087)		0.066 (0.128)	-0.175 (0.204)
NONDEPOSITS_TA* *TARPEQUITY_DUMMY*			-0.140 (0.092)			-0.009 (0.829)			0.020 (0.015)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm and Time Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo- R^2 / R^2 (within)	0.209	0.209	0.214	0.150	0.150	0.150	0.142	0.142	0.143
Observations	578	578	578	2396	2396	2396	3933	3933	3933

Table 12: The Effect from Leverage on Banks´ Dividend Policies, Including the Interaction between Leverage and a Dichotomous Variable Denoting "Too-Big-To-Fail" Institutions

Each column estimates regression models during the sample period 2008q4-2011q3. *TOOBIGTF_DUMMY* is a dichotomous variable which assumes value one if the bank is classified as a "systemically important financial institution." The banks headquartered in the United States which the Financial Stability Board classifies (as on November 2011) as "systemically important financial institutions" are the following: Bank of America, Bank of New York Mellon, Citigroup, Goldman Sachs, JPMorgan Chase, Morgan Stanley, State Street, Wells Fargo. Columns 1-2: Coefficients estimated by a Logit model for *DIVIDEND_DUMMY*. The specification controls also for the following variables, which are not reported in the table: *SIZE, ROA, EQUITY_TA, CASH_TA, MTBV, LOANS_TA, RWA_TA, INCOME_TAX_TA, EMPL_COMP, CAPRATIO*, and a set of dummies for banks and quarters. Standard errors are reported in parentheses. Columns 4-6: Coefficients estimated by an Ordinary Least Squares (OLS) model for *DIVIDEND_EARNINGS*. The specification controls also for the following variables, which are not reported in the table: *DIVIDEND_EARNINGS (t-1), SIZE, ROA, EQUITY_TA, CASH_TA, MTBV, LOANS_TA, RWA_TA, INCOME_TAX_TA, EMPL_COMP, CAPRATIO*, a constant, and a set of dummies for banks and quarters. *DIVIDEND_EARNINGS* is winsorized at the 1% and 99% level, and observations with negative *DIVIDEND_EARNINGS* are excluded from the sample. Standard errors are clustered at the bank level and are reported in parentheses. Columns 7-9: Coefficients estimated by an Ordinary Least Squares (OLS) model for *DIVIDEND_EQUITY*. The specification controls also for the following variables, which are not reported in the table: *DIVIDEND_EQUITY (t-1), SIZE, ROA, EQUITY_TA, CASH_TA, MTBV, LOANS_TA, RWA_TA, INCOME_TAX_TA, EMPL_COMP, CAPRATIO*, a constant, and a set of dummies for banks and quarters. *DIVIDEND_EQUITY* is winsorized at the 1% and 99% level, and observations with negative *DIVIDEND_EQUITY* are excluded from the sample. Standard errors are clustered at the bank level and are reported in parentheses. Significance: * p < 0.10, ** p < 0.05, *** p <0.01

	DIVIDEND_DUMMY		*DIVIDEND_EARNINGS*		*DIVIDEND_EQUITY*	
	(1)	(2)	(3)	(4)	(5)	(6)
NONDEPOSITS_TA	0.142*		1.060		0.047***	
	(0.075)		(0.731)		(0.014)	
DEPOSITS_TA		-0.170**		-1.359*		-0.043***
		(0.075)		(0.734)		(0.012)
NONDEPOSITS_TA* *TOOBIGTF_DUMMY*	-1.418		-5.294***		0.268	
	(1.137)		(0.100)		(0.168)	
DEPOSITS_TA* *TOOBIGTF_DUMMY*		0.204		2.946		-0.244
		(0.359)		(2.551)		(0.240)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Firm and Time Effects	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo- R^2 / R^2 (within)	0.183	0.180	0.150	0.151	0.145	0.144
Observations	578	521	2403	2403	3945	3945

Table 13: Simultaneous System of Equations for the Banks´ Dividend Payout and Leverage

Panel A and B of the table estimate the simultaneous system of equations in (3) on the two sample periods 2000q1-2008q3, and 2008q4-2011q3, respectively. On each panel, Columns 1, 3, and 5 report the coefficients estimated on the equation for dividends, which are measured by *DIVIDEND_EQUITY*. Columns 2, 4, and 6 report the coefficients estimated on the equation for leverage, which is measured, alternatively by *DEP&NONDEP_TA*, *NONDEPOSITS_TA*, and *DEPOSITS_TA*. The estimation is performed according to the one-way random effect estimation of seemingly-unrelated regressions implemented by Nguyen (2010).

Panel A (2000q1-2008q3)	*DIVIDEND_EQUITY*	*DEP&NONDEP_TA*	*DIVIDEND_EQUITY*	*NONDEPOSITS_TA*	*DIVIDEND_EQUITY*	*DEPOSITS_TA*
	(1)	(2)	(3)	(4)	(5)	(6)
DIVIDEND_EQUITY		0.000**		0.024		-0.001
		(0.000)		(0.021)		(0.022)
DIVIDEND_EQUITY(t-1)	-0.077***		-0.077***		-0.077***	
	(0.009)		(0.009)		(0.009)	
DEP&NONDEP_TA	-2.716					
	(2.108)					
NONDEPOSITS_TA			0.004			
			(0.007)			
DEPOSITS_TA					-0.004	
					(0.007)	
SIZE	-0.162	0.014***	-0.158	5.241***	-0.156	-3.866***
	(0.141)	(0.001)	(0.144)	(0.246)	(0.143)	(0.261)
ROA	0.035	0.003***	0.041	0.377***	0.041	0.632***
	(0.032)	(0.000)	(0.032)	(0.057)	(0.032)	(0.060)
EQUITY_TA	0.083***		0.046**		0.047**	
	(0.029)		(0.021)		(0.021)	
CASH_TA	-0.009		-0.010		-0.009	
	(0.008)		(0.008)		(0.009)	
MTBV	0.005***	0.000***	0.005***	0.001	0.005***	0.005***
	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
LOANS_TA	-0.015**		-0.017**		-0.016**	
	(0.008)		(0.007)		(0.008)	
RWA_TA	0.013		0.014*		0.015*	
	(0.008)		(0.008)		(0.008)	
INCOME_TAX_TA	-0.002		-0.002		-0.003	
	(0.095)		(0.095)		(0.095)	
EMPL_COMP	-0.004		-0.004		-0.004	
	(0.003)		(0.003)		(0.003)	

CAPRATIO	0.006 (0.012)		0.006 (0.012)		0.005 (0.012)	
Constant	5.880 (3.645)	0.662*** (0.026)	3.021 (3.001)	-64.762*** (5.067)	3.384 (3.125)	131.059*** (5.386)
Firm and Time Effects	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.725	0.866	0.725	0.866	0.725	0.866
Observations	7382	7382	7382	7382	7387	7387
Breusch-Pagan Test ($\chi 2$)	1.121		0.324		0.000	

Panel B (2008q4-2011q3)	*DIVIDEND_EQUITY* (1)	*DEP&NONDEP_TA* (2)	*DIVIDEND_EQUITY* (3)	*NONDEPOSITS_TA* (4)	*DIVIDEND_EQUITY* (5)	*DEPOSITS_TA* (6)
DIVIDEND_EQUITY		0.000* (0.000)		0.208*** (0.026)		-0.172*** (0.031)
DIVIDEND_EQUITY(t-1)	0.009 (0.010)		0.007 (0.010)		0.007 (0.010)	
DEP&NONDEP_TA	-1.098 (1.731)					
NONDEPOSITS_TA			0.087*** (0.010)			
DEPOSITS_TA					-0.065*** (0.009)	
SIZE	0.924*** (0.260)	0.019*** (0.003)	1.014*** (0.258)	-0.170 (0.379)	1.007*** (0.258)	2.092*** (0.457)
ROA	0.039*** (0.011)	-0.001*** (0.000)	0.040*** (0.011)	-0.024 (0.018)	0.037*** (0.011)	-0.056*** (0.021)
EQUITY_TA	0.018 (0.038)		0.061* (0.035)		0.020 (0.035)	
CASH_TA	0.030*** (0.009)		0.035*** (0.009)		0.036*** (0.009)	
MTBV	0.007*** (0.001)	0.000* (0.000)	0.007*** (0.001)	-0.001 (0.001)	0.007*** (0.001)	0.003** (0.002)

LOANS_TA	0.015 (0.010)		0.014 (0.009)		0.019** (0.010)	
RWA_TA	0.004 (0.011)		0.005 (0.011)		0.002 (0.011)	
INCOME_TAX_TA	0.402** (0.181)		0.356** (0.179)		0.393** (0.179)	
EMPL_COMP	0.001 (0.003)		0.001 (0.003)		0.002 (0.003)	
CAPRATIO	-0.056** (0.026)		-0.064** (0.026)		-0.065** (0.026)	
Constant	-12.310** (5.085)	0.536*** (0.055)	-17.026** (4.694)	23.958*** (6.465)	-10.450** (4.717)	29.587*** (7.798)
Firm and Time Effects	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.783	0.860	0.783	0.925	0.784	0.915
Observations	3857	3857	3857	3857	3857	3857
Breusch-Pagan Test ($\chi 2$)	0.710		16.682***		7.796***	

Table 14: The Effect from Leverage on Banks´ Dividend Policies, Including Lagged Values of Leverage

Each column estimates regression models during the sample period 2008q4-2011q3. Columns 1-4: Coefficients estimated by a Logit model for *DIVIDEND_DUMMY*. The specification controls also for the following variables, which are not reported in the table: *SIZE*, *ROA*, *EQUITY_TA*, *CASH_TA*, *MTBV*, *LOANS_TA*, *RWA_TA*, *INCOME_TAX_TA*, *EMPL_COMP*, *CAPRATIO*, and a set of dummies for banks and quarters. Standard errors are reported in parentheses. Columns 5-8: Coefficients estimated by an Ordinary Least Squares (OLS) model for *DIVIDEND_EARNINGS*. The specification controls also for the following variables, which are not reported in the table: *DIVIDEND_EARNINGS (t-1)*, *SIZE*, *ROA*, *EQUITY_TA*, *CASH_TA*, *MTBV*, *LOANS_TA*, *RWA_TA*, *INCOME_TAX_TA*, *EMPL_COMP*, *CAPRATIO*, a constant, and a set of dummies for banks and quarters. *DIVIDEND_EARNINGS* is winsorized at the 1% and 99% level, and observations with negative *DIVIDEND_EARNINGS* are excluded from the sample. Standard errors are clustered at the bank level and are reported in parentheses. Columns 9-12: Coefficients estimated by an Ordinary Least Squares (OLS) model for *DIVIDEND_EQUITY*. The specification controls also for the following variables, which are not reported in the table: *DIVIDEND_EQUITY (t-1)*, *SIZE*, *ROA*, *EQUITY_TA*, *CASH_TA*, *MTBV*, *LOANS_TA*, *RWA_TA*, *INCOME_TAX_TA*, *EMPL_COMP*, *CAPRATIO*, a constant, and a set of dummies for banks and quarters. *DIVIDEND_EQUITY* is winsorized at the 1% and 99% level, and observations with negative *DIVIDEND_EQUITY* are excluded from the sample. Standard errors are clustered at the bank level and are reported in parentheses. Significance: * p < 0.10, ** p < 0.05, *** p <0.01

	DIVIDEND_DUMMY				*DIVIDEND_EARNINGS*				*DIVIDEND_EQUITY*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
NONDEPOSITS_TA(t-1)	0.102 (0.064)				0.869 (0.576)				0.039*** (0.014)			
NONDEPOSITS_TA(t-2)		0.080 (0.058)				1.296** (0.635)				0.026** (0.013)		
DEPOSITS_TA(t-1)			-0.412** (0.062)				-1.026* (0.569)				-0.036*** (0.011)	
DEPOSITS_TA(t-2)				-0.097* (0.055)				-1.222** (0.592)				-0.020** (0.009)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm and Time Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo- R^2 / R^2 (within)	0.173	0.172	0.180	0.175	0.149	0.151	0.151	0.151	0.141	0.139	0.141	0.139
Observations	578	578	578	578	2403	2402	2402	2400	3945	3940	3944	3941

Table 15: The Effect from Deposit Leverage on Banks´ Dividend Payouts: Output from Tobit Model, and Dynamic Panel Data Model

Columns 1-2: Coefficients estimated by a Tobit model during the sample period 2008q4-2011q3. The estimation follows the technique of Honoré (1992). Both *DIVIDEND_EARNINGS* and *DIVIDEND_EQUITY* are winsorized at the 1% and 99% level, and observations with negative *DIVIDEND_EARNINGS* and *DIVIDEND_EQUITY* are excluded from the sample. Standard errors are estimated by the bootstrap, and are reported in parentheses. Columns 3-4: Coefficients estimated according to the method for dynamic panel data developed by Arellano and Bond (1991). Both *DIVIDEND_EARNINGS* and *DIVIDEND_EQUITY* are winsorized at the 1% and 99% level, and observations with negative *DIVIDEND_EARNINGS* and *DIVIDEND_EQUITY* are excluded from the sample. Robust standard errors are reported in parentheses. Significance: * p < 0.10, ** p < 0.05, *** p <0.01

	DIVIDEND_EARNINGS	*DIVIDEND_EQUITY*	*DIVIDEND_EARNINGS*	*DIVIDEND_EQUITY*
	(1)	(2)	(3)	(4)
Dependent variable (t-1)	-0.015	-0.186**	-0.062	-0.220***
	(0.057)	(0.078)	(0.050)	(0.070)
DEPOSITS_TA	-2.142**	-0.079**	-1.863**	-0.137***
	(1.041)	(0.033)	(0.732)	(0.019)
SIZE	83.816**	3.885***	-10.084	0.077
	(34.081)	(0.714)	(25.861)	(0.522)
ROA	-127.438***	0.075*	-31.218***	0.046***
	(17.593)	(0.042)	(5.009)	(0.013)
EQUITY_TA	3.944	0.025	-9.314**	-0.064
	(6.138)	(0.124)	(3.866)	(0.061)
CASH_TA	1.553	0.060**	0.231	0.080***
	(1.060)	(0.028)	(0.685)	(0.025)
MTBV	0.261***	0.017***	-0.111*	0.009***
	(0.098)	(0.003)	(0.065)	(0.002)
LOANS_TA	-0.303	0.035	-3.312***	0.109***
	(0.847)	(0.023)	(1.081)	(0.023)
RWA_TA	1.999**	0.037	3.023***	-0.008
	(0.913)	(0.029)	(1.137)	(0.025)
INCOME_TAX_TA	25.131	1.126**	1.559	0.300
	(15.729)	(0.515)	(7.836)	(0.233)
EMPL_COMP	-0.156	-0.003	0.516***	-0.008*
	(0.402)	(0.010)	(0.196)	(0.005)
CAPRATIO	-0.820	-0.057	0.008	-0.091**
	(3.362)	(0.091)	(2.113)	(0.045)
Firm Effects	Yes	Yes	Yes	Yes
Time Effects	Yes	Yes	No	No
$\chi 2$	192.010***	285.090***	80.840***	113.860***
Observations	2403	3945	1958	3615

Table 16: Variables for Banks´ Share Repurchases.

The table reports the average value of the variables during the sample period 2000q1-2011q3. For *REPURCHASE_INCOME* the value reported in the table is the average positive *REPURCHASE_INCOME*.

Variable	Mean	Median	5%	25%	75%	95%	Std. Dev
REPURCHASE_DUMMY	28.816	0.000	0.000	0.000	100	100	0.453
REPURCHASE_INCOME	19.080	0.000	0.000	0.000	1.079	63.704	547.725

Figure 2: Payout through Share Repurchases and Payout through Dividends along Years

The figure is based on data excluding from the sample observations with negative *DIVIDEND_EARNINGS* and negative *REPURCHASE_INCOME*. *DIVIDEND_EARNINGS* and *REPURCHASE_INCOME* are winsorized at the 1% and 99% level.

Figure 3: Payout through Share Repurchases and Payout through Dividends along Years, for Banks Simultaneously Paying Dividends and Repurchasing Shares

The figure is based on data excluding from the sample observations with negative *DIVIDEND_EARNINGS* and negative *REPURCHASE_INCOME*. *DIVIDEND_EARNINGS* and *REPURCHASE_INCOME* are winsorized at the 1% and 99% level.

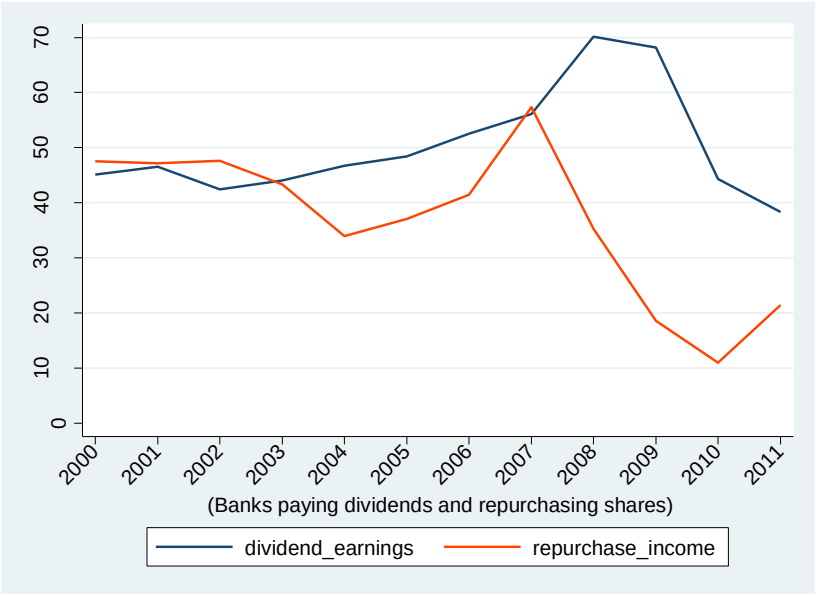

Table 17: The Effect from Leverage on Banks´ Share Repurchases

Each column estimates regression models during the sample period 2008q4-2011q3. Columns 1-2: Coefficients estimated by a Logit model for *REPURCHASE_DUMMY*. The specification controls also for a set of dummies for banks and quarters, which is not reported. Standard errors are reported in parentheses. Columns 3-4: Coefficients estimated by an Ordinary Least Squares (OLS) model for *REPURCHASE_INCOME*. The specification controls also for a set of dummies for banks and quarters, which is not reported. *REPURCHASE_INCOME* is winsorized at the 1% and 99% level, and observations with negative *REPURCHASE_INCOME* are excluded from the sample. Standard errors are clustered at the bank level and are reported in parentheses. Significance: * p < 0.10, ** p < 0.05, *** p <0.01

	REPURCHASE_DUMMY		*REPURCHASE_INCOME*	
	(1)	(2)	(3)	(4)
REPURCHASE_INCOME (t-1)			-0.002***	-0.002***
			(0.001)	(0.000)
NONDEPOSITS_TA	0.075*		0.360	
	(0.042)		(0.248)	
DEPOSITS_TA		-0.077*		-0.278
		(0.042)		(0.188)
SIZE	2.110	2.184*	13.477*	12.982*
	(1.326)	(1.328)	(6.948)	(6.791)
ROA	0.151	0.148	0.015	0.012
	(0.100)	(0.100)	(0.073)	(0.074)
EQUITY_TA	-0.176	-0.252	0.494	0.204
	(0.181)	(0.177)	(0.402)	(0.366)
CASH_TA	-0.060	-0.058	0.079	0.079
	(0.043)	(0.043)	(0.109)	(0.110)
MTBV	-0.008*	-0.008*	0.007	0.007
	(0.004)	(0.005)	(0.010)	(0.010)
LOANS_TA	0.047	0.049	0.183	0.217
	(0.049)	(0.049)	(0.125)	(0.132)
RWA_TA	-0.023	-0.022	-0.029	-0.055
	(0.053)	(0.052)	(0.106)	(0.110)
INCOME_TAX_TA	-1.379*	-1.363*	-1.860*	-1.583
	(0.714)	(0.712)	(1.117)	(1.132)
EMPL_COMP	0.028	0.027	-0.030	-0.026
	(0.019)	(0.019)	(0.036)	(0.036)
CAPRATIO	0.098	0.098	-0.236	-0.241
	(0.127)	(0.127)	(0.290)	(0.294)
Constant			-197.370*	-162.348*
			(107.015)	(97.566)
Firm and Time Effects	Yes	Yes	Yes	Yes
Pseudo-R^2 / R^2 (within)	0.144	0.144	0.028	0.028
Observations	1061	1061	3590	3590