Discussion Paper

Does greater transparency discipline the loan loss provisioning of privately held banks?

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Non-technical summary

Research Question

The loan-loss provisioning practices of banks have economic implications for bank lending and financial stability. We investigate the relationship between the transparency of loan loss provision disclosures and the provisioning practice of privately held banks. We study a unique change in disclosure regulation under German banking law that introduces mandatory disclosures of loan loss provisions.

Contribution

In our study, we explore the reporting incentives that shape loan loss provisioning of privately held banks. Privately held banks are economically highly relevant for the financial sectors in many economies, yet research on the reporting incentives for loan loss provisions for privately held banks is scarce. We exploit cross-sectional variation in the strength of the local information environment and in banks' funding structure as potential moderating effects regarding the influence of public transparency of loan loss provision disclosures for bank monitoring.

Results

Our findings suggest that bank managers use loan loss provisions to a lesser extent for income smoothing once they are required to disclose their accounting choice. At the same time, provisions are becoming more informative of future loan losses. The change comes in the absence of capital market pressure and points to the role of depositors and public pressure in the monitoring of bank managers. We further show that the change is associated with differences in the local information environment and banks' funding structure.

Nichttechnische Zusammenfassung

Fragestellung

Die Risikovorsorge im Kreditgeschäft ist eine zentrale Determinante sowohl für die Kreditvergabe als auch für die Stabilität von Banken. Wir untersuchen den Zusammenhang zwischen der Transparenz der Risikovorsorge im Kreditgeschäft in der Bankenrechnungslegung und der Nutzung diskretionärer Spielräume bei nicht-kapitalmarktorientierten Banken. Hierfür nutzen wir eine Änderung der Bankenrechnungslegung in Bezug auf die Kreditrisikovorsorge aus, die aus der Bankenregulierung herrührt.

Beitrag

In unserer Studie untersuchen wir mögliche Einflussfaktoren auf die Nutzung diskretionärer Spielräume bei der Bildung der Kreditrisikovorsorge von nicht-kapitalmarktorientierten Banken. Diese Banken haben eine hohe Bedeutung für den Finanzsektor in vielen Ländern; dennoch stammt die wissenschaftliche Evidenz zur diskretionären Bildung von Kreditrisikovorsorge-Positionen fast ausschließlich von börsennotierten Banken. Zudem analysieren wir, wie sich Unterschiede im regionalen Informationsumfeld der Banken sowie in der Überwachung durch verschiedene Fremdkapitalinvestoren auf die Bildung der Kreditrisikovorsorge auswirken.

Ergebnisse

Unsere Ergebnisse deuten darauf hin, dass Bankmanager die diskretionären Spielräume in der Kreditrisikovorsorge weniger stark ausnutzen, wenn sie ihre Entscheidungen in der Rechnungslegung veröffentlichen müssen. Die Veröffentlichung im Rahmen der Rechnungslegung erhöht ebenfalls den Informationsgehalt der Kreditrisikovorsorge in Bezug auf zukünftige Risiken. Da wir die Überwachung auf regulierten Kapitalmärkten als potentielle Erklärung ausschließen können, sprechen unsere Ergebnisse für eine starke Rolle von Einlegern und öffentlichem Druck bei der Kontrolle von Bankmanagern. Weiter dokumentieren wir, dass die Nutzung diskretionärer Spielräume bei nicht-kapitalmarktorientierten Banken vom regionalen Informationsumfeld und der Finanzierungsstruktur abhängt.

Does Greater Transparency Discipline the Loan Loss Provisioning of Privately Held Banks?[*]

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Abstract

We investigate the relationship between the transparency of loan loss provision disclosures and the provisioning practices of privately held banks. We study a unique change in disclosure regulation under German banking law which introduces mandatory disclosures of loan loss provisions. Using proprietary data provided by the national supervisor, we are able to observe provisioning practices before and after disclosure becomes mandatory. Our findings suggest that bank managers use loan loss provisions to a lesser extent for income smoothing once they are required to disclose their accounting choice. At the same time, provisions become more informative about future loan losses. The change comes in the absence of capital market pressure and highlights the role of depositors and public pressure in the monitoring of bank managers. We exploit cross-sectional variation and show that the change is associated with differences in the local information environment and banks' funding structure.

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1. Introduction

The loan-loss provisioning practices of banks have economic implications for bank lending and financial stability (Beatty and Liao 2011; Bushman and Williams 2012, 2015). Evidence suggests that privately held banks have incentives to delay loss recognition and to use provisioning for discretionary earnings management (Nichols, Wahlen, and Wieland 2009). In many economies, privately held banks dominate the banking sector and are thus key to financial stability, rendering their reporting behavior a major concern for regulators. In this paper, we examine the reporting incentives of privately held banks. In particular, we analyze whether a plausibly exogenous increase in the transparency of loan-loss provisioning practices reduces opportunistic provisioning choices and consequently affects the information content of bank financial statements.

The effect of increased transparency on the reporting behavior of privately held banks is ambiguous. Equity owners of privately held firms generally have access to private information and do not need to rely on public financial statements (Allee, Badertscher, and Yohn 2019). Reporting incentives are, therefore, more likely to come from the banks' debt financing and other local stakeholders. The debt financing of privately held banks is in large part provided by depositors and other insured funds. Prior literature offers conflicting evidence on the role of insured investors in the monitoring of bank managers (Berger and Turk-Ariss 2015; Iyer and Puri 2012; Iyer, Puri, and Ryan 2016; Chen, Goldstein, Huang, and Vashishtha 2020). On the one hand, insurance reduces the monitoring incentives of depositors and investors in covered bonds or guaranteed liabilities. Depositors' limited financial accounting expertise also constrains their monitoring capability. On the other hand, even insured depositors react to changes in bank risk taking (Arnold, Größl, and Koziol 2016) and participate in bank runs, suggesting that depositors perceive insurance as only partially effective. Against this background, depositors' demand for and use of financial accounting information is an unresolved question (Beatty and Liao 2014).

In addition to debt investors, members of the general public in the local markets, e.g., local politicians and local retail customers, are likely to follow any news coverage of these banks' financial situation. That is, there are other plausible stakeholders who potentially exert pressure on bank management and, thus, cause a change in reporting practices. Prior literature offers some examples of managers changing their behavior in response to disclosure requirements on food hygiene, taxpaying behavior, safety measures, or environmental standards even in the absence of capital market pressure (Jin and Leslie 2003; Chatterji and Toffel 2010; Dyreng, Hoopes, and Wilde 2016; Christensen, Floyd, Liu, and Maffett 2017). Local communities observe German savings banks and credit unions closely (Haselmann, Schoenherr, and Vig 2018) because their financial situation is directly interlinked with the well-being of the local economy (Behr, Foos, and

Norden 2017) and because these banks play an important role in local public life (for example, by sponsoring cultural life and sports events or membership in local networks). Therefore, the local public is likely to create substantial pressure on these banks' managers if the banks' provisioning behavior appears unsound and their financial situation at risk. Managers who anticipate such potential costs will have an incentive to adapt their loan loss provisioning practices once these accounting choices become publicly observable.

Against this background, we exploit the German implementation of EU transparency requirements in a difference-in-differences design in order to examine banks' loan loss reporting around the adoption of the new rules. The EU regulation eliminated a special feature under local German GAAP which was unique in the context of the local GAAPs of the other European countries and IFRS. German GAAP used not to require the separate disclosure of loan loss provisions. This gave privately held banks which are not subject to IFRS reporting multiple avenues for creating and releasing hidden reserves. While banks are obliged to file disaggregated income statements privately with the supervisor, public financial statements included only loan loss provisions net of changes in these reserves and offset against gains and losses from other securities. In other words, financial statement users were unable to distinguish between smooth income resulting from well-functioning risk management and managers opportunistically making use of discretionary provisions to hide deteriorations in the loan portfolio. Germany's adoption of Pillar 3 disclosure regulation under the Basel 2 regime in 2007-08 brought a halt to the opacity of loan loss provisions by introducing separate disclosure requirements for this item. External financial statements users learned for the first time about the reporting banks' discretionary provisioning practices.

For the purposes of this study, the Deutsche Bundesbank, Germany's central bank and one of its prudential supervisors, has provided us with proprietary accounting data on banks' provisioning practices in the pre-disclosure period. The data comes from banks' private and standardized information exchange with the prudential supervisor. The data enables us to observe provisioning practices as well as the hidden and discretionary reserves in the pre-2007 period when banks did not publicly disclose these accounting numbers. We analyze whether banks change their reporting behavior and discretionary provisioning practices around the introduction of public disclosures. In particular, we examine the relationship between loan loss provisions and the gains and losses of securities (Securities G&L) held in the liquidity reserve (i.e., the item against which loan loss provisions can be offset under local German GAAP).

Our evidence is consistent with privately held banks having systematically used hidden loan loss reserves to offset fluctuations in Securities G&L and, thus, smooth reported income when such behavior was not publicly observable. Public disclosure significantly mutes the relationship between provisions and these Securities G&L, suggesting that greater transparency disciplines

banks' provisioning practices even in the absence of capital market pressure, i.e., consistent with the notion of depositor discipline and public pressure. At the same time, the information content of loan loss provisions increases and provisions are better at predicting future loan losses.

While the regulatory change stems from supra-national regulation in the European Union (EU) and the Basel Committee on Bank Supervision and is thus plausibly exogenous to local German banks, its simultaneity with other potential changes in the banks' information environment is a key concern of our research design. We address this concern by first using a matched EU control sample (Shipman, Swanquist, and Whited 2017; Iacus, King, and Porro 2012) which faces the same changes in the more general information environment. Second, we exploit variation in the potential strength of depositor discipline and public pressure across banks and regions within Germany. If the change in reporting practices resulted from public disclosure, we should see the regulation having a greater impact on banks with less secured funding and banks in regions where local financial statement users are more likely to use such disclosures and exert discipline on managers of privately held banks. We measure the potential strength of depositor discipline and public pressure by the use of securitized liabilities and collateralized bonds (Loutskina 2011), the percentage of uninsured retail deposits (Chen et al. 2020), the average financial literacy of members of the local population (i.e., their ability to absorb financial accounting information themselves; Lawrence 2013; Engelberg, Reed, and Ringgenberg 2012) and by the development of the local newspaper market (i.e., the likelihood of financial statement users learning about the financial situation of local banks through the media; Bushee, Core, Guay, and Hamm 2010). Our analyses suggest that differences in banks' funding structure and in the local newspaper market explain cross-sectional variation in banks' response to the public disclosure of loan loss provisions. The results are consistent with bank managers being concerned about how local depositors and other local stakeholders perceive loan loss provisions and their impact on income.

We contribute to different strands of the literature in accounting and banking. First, our study augments the vast literature on reporting incentives that shape banks' loan loss provisioning (Beatty and Liao 2014; Kanagaretnam, Lobo, and Yang 2004; Ryan 2011). However, most of the earlier literature focuses on capital market incentives, and only a very few studies examine the reporting incentives of privately held banks (Beatty, Ke, and Petroni 2002; Nichols et al. 2009). While these latter studies compare opportunistic reporting by privately held banks with that by publicly listed banks, we exploit cross-sectional variation in the strength of local public and depositor discipline within the group of privately held banks and study incentives from these banks' deposit financing. Our evidence suggests that increased transparency of privately held banks is instrumental in limiting the reporting opportunism.

Second, we add to the literature on the consequences of disaggregation of financial reporting (Hirst, Koonce, and Venkataraman 2007; D'Souza, Ramesh, and Shen 2010; Chen, Miao, and Shevlin 2015; Franco, Urcan, and Vasvari 2016) by providing empirical evidence of the consequences of more granular disclosure requirements on banks' loan loss provisioning. While prior literature tends to associate disaggregated disclosure with greater disclosure quality (especially Chen et al. 2015), our results point to the prevention of opportunistic income smoothing as one potential channel for this effect.

Third, and most generally, we contribute to the growing literature on the economic consequences of disclosure regulation in the banking sector (Acharya and Ryan 2016; Goldstein 2013). Recent papers study the impact of stricter bank supervision on limiting bank managers' financial reporting discretion (Costello, Granja, and Weber 2019). In contrast, our paper examines whether the increase in required disclosures concerning loan loss provisioning practices alters the accounting choice in the first place. The findings suggest that loan loss provisioning becomes less discretionary and more informative in response to regulation, thereby highlighting the potential benefits of disclosure regulation.

2. German Banks and Disclosures of Loan Loss Provisions

The German economy is well known for its bank-based system (Haselmann et al. 2018) where banks play a key role in capital allocation. The German banking sector includes a few large banks with a strong presence on the international capital markets, including the equity market (e.g., Deutsche Bank) and the debt market alike (e.g., the Landesbanks); these banks use IFRS for their financial reporting. Capital market pressure from equity and debt investors is likely to shape those banks' reporting behavior. Therefore, we focus on the group of banks which are small in size, have mostly local business, and do not access the capital markets. Instead, these banks are privately held and largely funded by deposits (most of them being community-owned savings banks, credit unions or cooperative banks). These small banks account for approximately 63% of the German banking system in terms of employees and around 53% of banks' balance sheet volume (Deutsche Bundesbank 2018). They have substantially fewer incentives for voluntary disclosure, and additional disclosure requirements will thus have a potentially greater impact on their information environment.

This latter group of banks that we focus on reports under local German GAAP in compliance with German banking law. Local German GAAP requires only the disclosure of a single aggregated income statement item which combines various accounting results such as the net loan loss provisions, additional write-downs, and gains and losses from securities designated for the liquidity reserve (see Appendix C.1 for an example of the aggregated disclosure on the income statement).

External financial statement users are thus unable to infer loan loss provisions from banks' German GAAP reports, which makes it hard to judge banks' loan portfolio quality from the outside. Moreover, the aggregation and offsetting provides bank managers with the opportunity to more easily conceal earnings smoothing. For example, loan loss provisions could be managed downwards when securities produce losses. Conversely, the bank could engage in gains trading of these securities when faced with higher loan losses. In either case, investors cannot infer the bank's underlying financial situation from the aggregated disclosure.

The opacity of local GAAP reporting enables us to study the impact of new disclosure requirements introduced by the European Union's directives 2006/18/EC and 2006/49/EC from June 2006. For our sample of small and local banks, the adoption of the directives by the European Union as a supra-national institution is most plausibly an exogenous event (i.e., not driven by a certain trend in the provisioning practice of this particular sector). These directives were implemented in Germany through the Solvency Regulation (*Solvabilitätsverordnung* (SolvV)) which took effect in 2007, with a rollout period until 2008. The SolvV regulation specifically requires a separate disclosure of general and specific loan loss provisioning, the opening balances, additions, reversals, and charge-offs during the reporting period, liquidations, consumption, and other changes as well as the closing balances (see Appendix B for the legal text). Below, we will refer to the change in disclosure rules caused by the implementation of the EU directives as the SolvV disclosure regulation. In a nutshell, all external financial statement users learned for the first time about the provisioning behavior of banks that report under local German GAAP. It now became more difficult for bank managers engaged in the opportunistic use of discretionary loan loss provisions or gains trading of securities to conceal this behavior. Fluctuations in the quality of the loan portfolio became substantially more noticeable (see Appendix C.2 for an example of the new and detailed disclosures).

While newly mandated disclosures are typically accompanied by a lack of comparable data for the pre-regulation period, we are able to exploit regulatory filings that German banks are required to make with prudential supervisors (the Bundesbank and BaFin). Such standardized regulatory filings are not publicly available; that is, there is a substantial difference between information accessible to prudential supervisors and accounting information that is available to the public. The regulatory filings include detailed information about the quality of loan portfolios and the loan loss provisioning choices that banks make in their local GAAP reports. In other words, the regulatory filings in the pre-regulation period included largely the same information that became publicly available with the introduction of the SolvV disclosure regulation. We use access to banks' proprietary information exchange with the prudential supervisor to observe loan loss provisioning over time and, in particular, during the period when banks did not publicly disclose their accounting choice.

Table 1: Sample Selection

The table presents data on sample selection. In the sample, we include private German banks that report under local GAAP and EU banks that report under IFRS for the period 2003 to 2012 that have available data. This process leads to 14,280 firm-year observations from regulatory filings of German banks and 1,683 for our EU control group.

Panel A: Treatment Group (Germany)

	# Observations	# Banks
Universe of financial firms available through the Deutsche Bundesbank's Prudential Database [BAKIS]	**37,284**	**4,659**
Less: Foreign bank subsidiaries and branches, non-bank financial services firms, and IFRS-adopting banks	-12,884	
Less: Observations with M&A transactions in the current or previous year	-1,086	
Less: Observations of distressed or restructured banks	-112	
Less: Observations with missing data in the current or previous year	-6,512	
Less: Observations with no loan loss provisioning	-425	
Less: Observations with missing information on local newspaper markets	-39	
Sample for the estimation of equation (1)	**16,226**	**2,066**
Less: Observations with missing data on NPLs in the subsequent year	-1,946	
Sample for the estimation of equation (2)	**14,280**	**1,883**

Panel B: Control Group

	# Observations	# Banks
EU control sample from BvD Bankscope	**24,536**	**4,328**
Less: Non-bank financial services firms	-2,135	
Less: Observations with M&A transactions in the current or previous year	-480	
Less: Observations of distressed or restructuring banks	-1,371	
Less: Observations with missing information in previous year's assets	-4,411	
Less: Observations with missing data in the current year	-12,061	
- of which with missing data *on deposits*	*- 2,479*	
- of which with missing data *on loan loss allowances*	*- 5,827*	
- of which with missing data *on loan loss provisions*	*- 1,058*	
- of which with missing data *on other securities*	*- 1,479*	
- of which with missing data *on non-performing loans and its changes*	*- 1,218*	
Sample before matching	**4,078**	**1,253**

3. Data and Research Design

3.1. Data

Our treatment group comprises privately held banks that are headquartered in Germany and do not apply IFRS. We use financial information from local German GAAP reports as well as financial information from private filings to the prudential regulator (the Bundesbank's Prudential Database (BAKIS)). Our sample period covers the period from 2003 to 2012. Table 1 explains the sample selection process. After sample selection, our treatment group includes 2,066 banks and 16,226 firm-year observations; 10,771 firm-year observations are from cooperative banks, 4,232

observations are from savings banks, and 1,223 observations are from small privately held banks, including special purpose banks. For our EU control sample, we collect data from BvD Bankscope[1] which includes 1,253 banks and 4,078 firm-year observations.

We winsorize all variables at the 1% level to limit the impact of outliers on the regression coefficients and standard errors. Panel A of Table 2 provides the descriptive statistics for the treatment group. Most banks in our treatment group follow a traditional business model of granting loans to and accepting deposits from their local customers. The mean (median) share of customer loans to total assets from the beginning of the period is 78.95% (79.18%) and the mean (median) annual loan growth is 3.37% (2.13%). On average, customer deposits make up 73.54% of total funding with even the 5% quantile showing more than 51.97% of customer deposits. These ratios highlight the importance of depositors for our sample banks. The mean (median) share of core capital to total assets is 6.16% (5.79%) and well above the minimum threshold. The return on lagged total assets shows an average value of 0.21% and ranges from 0.03% at the 5% quantile to 0.44% at the 95% quantile. The data implies that our sample banks show relatively stable income even during the U.S. subprime mortgage crisis.

The Securities G&L represent a key variable for our study. On average, securities held in the liquidity reserve yield small losses (-0.05% of total assets). The result is economically meaningful as it amounts, on average, to almost 20% of current loan loss provisions (i.e., the income statement item against which banks can offset these Securities G&L). On average (at the median), loan loss provisions account for 0.25% (0.16%) of the lagged total loans, which corresponds relatively closely to the values found in previous studies with US data (e.g., Beatty and Liao 2014) and German data (e.g., Gropp, Gruendl, and Guettler 2014). The allowance for loan losses accumulates to 2.23% (1.81%) of lagged total loans on average (at the median). The non-performing loans range from 0.76% at the 5% quantile to nearly 12.92% at the 95% quantile, showing a relatively high dispersion in the loan portfolio quality of the sample banks.

Panel B of Table 2 provides the descriptive statistics for the EU control group. Overall, we see that the means and standard deviations of the major variables compare well to those of our treatment group. Nevertheless, we find that banks in our control group show higher levels of loan loss provisions while the share of non-performing loans is at a comparable level, albeit increasing during the sample periods. At 6.82%, we also see more firm-year observations reporting a loss, compared to only 0.94% for our German sample.

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[1] BvD Bankscope provides sufficient data for Austria, Belgium, Denmark, Finland, France, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden and the United Kingdom. Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, and Slovenia joined the EU in 2004. Because their convergence processes with EU law coincide with our sample period, we do not include any observations from these countries in our sample.

Table 2: Descriptive Statistics

The table presents descriptive statistics for our German treatment group and our EU control group. Panel A shows descriptive statistics of all 16,226 bank-year observations for our German sample period from 2003 to 2012. Panel B displays descriptive statistics for our EU control group with 4,078 bank-year observations. We provide all variable definitions in Appendix A.

Panel A: Sample Germany	N	Mean	St. Dev.	P5	P25	Median	P75	P95
Provisions for Loan Losses to beginning total loans (%)	16,226	0.25	0.44	-0.24	0.01	0.16	0.39	1.06
Securities G&L to beginning total assets (%)	16,226	-0.05	0.23	-0.47	-0.12	-0.01	0.04	0.28
Ln Total Assets	16,226	19.84	1.41	17.60	18.83	19.78	20.79	22.19
Core Capital to beginning total assets (%)	16,226	6.16	2.11	3.84	4.94	5.79	6.82	9.55
Customer Deposits to beginning total assets (%)	16,226	73.54	13.68	51.97	68.07	75.51	81.81	89.94
Return on Assets	16,226	0.20	0.21	0.03	0.11	0.17	0.25	0.44
Loss Dummy (%)	16,226	0.01	0.10					
Small Increase Dummy	16,226	0.14	0.35					
Customer Loans to beginning total assets (%)	16,226	78.95	17.72	50.00	68.54	79.18	89.95	107.25
Change in Customer Loans (%)	16,226	3.37	7.33	-5.40	-0.39	2.13	5.49	18.07
Loan Loss Allowances $_{(t-1)}$ to beginning total loans (%)	16,226	2.23	1.77	0.30	1.04	1.81	2.90	5.50
Loan Charge-Offs to beginning total loans (%)	16,226	0.41	0.50	0.00	0.10	0.25	0.51	1.34
Non-Performing Loans to beginning total loans (%)	16,226	5.60	3.93	0.76	2.99	4.80	7.28	12.92
Change in Non-Performing Loans (%)	16,226	-0.15	1.74	-2.73	-0.85	-0.16	0.44	2.68

Panel B: EU Control Group from BvD Bankscope	N	Mean	St. Dev.	P5	P25	Median	P75	P95
Provisions for Loan Losses to beginning total loans (%)	4,078	0.56	0.56	0.03	0.24	0.44	0.74	1.44
Securities G&L to beginning total assets (%)	4,078	0.09	0.25	-0.06	0.00	0.00	0.09	0.53
Ln Total Assets	4,078	15.04	2.413	11.9	13.13	14.51	16.59	19.87
Core Capital to beginning total assets (%)	4,078	9.94	5.04	3.96	6.90	9.24	11.90	17.90
Customer Deposits to beginning total assets (%)	4,078	55.90	21.90	14.70	43.60	54.60	69.50	92.20
Return on Assets	4,078	0.63	0.87	-0.31	0.26	0.54	0.95	1.83
Loss Dummy (%)	4,078	0.07	0.25					
Small Increase Dummy	4,078	0.01	0.11					
Customer Loans to beginning total assets (%)	4,078	72.20	17.70	39.00	62.00	74.40	83.60	96.80
Change in Customer Loans (%)	4,078	5.56	8.78	-4.20	0.66	4.24	8.53	19.70
Loan Loss Allowances $_{(t-1)}$ to beginning total loans (%)	4,078	2.79	2.68	0.39	1.24	2.12	3.37	7.57
Loan Charge-Offs to beginning total loans (%)	3,292	-0.31	1.10	-2.00	-0.76	-0.19	0.13	1.05
Non-Performing Loans to beginning total loans (%)	4,078	5.88	4.53	0.63	2.54	4.91	7.99	14.30
Change in Non-Performing Loans (%)	4,078	0.64	2.20	-2.15	-0.20	0.36	1.42	4.08

Table 3: Correlation Matrix

The table presents the correlation matrix for the variables of interest. The upper triangle shows Pearson correlations and the lower triangle shows Spearman rank correlations. We provide all variable definitions in Appendix A. P-values are displayed in brackets.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) Ln Total Assets	1	0.15 (0.00)	0.06 (0.00)	-0.32 (0.00)	-0.29 (0.00)	-0.15 (0.00)	0.02 (0.00)	0.05 (0.00)	-0.01 (0.06)	0.07 (0.00)	-0.06 (0.00)	-0.02 (0.00)
(2) Customer Loans	0.1506 (0.00)	1	0.44 (0.00)	0.04 (0.00)	-0.16 (0.00)	0.06 (0.00)	0.11 (0.00)	0.01 (0.19)	-0.17 (0.00)	-0.11 (0.00)	-0.03 (0.00)	0.11 (0.00)
(3) Change in Customer Loans	0.0131 0.09)	0.4237 (0.00)	1	-0.02 (0.02)	0.07 (0.00)	0.08 (0.00)	0.17 (0.00)	-0.01 (0.36)	-0.27 (0.00)	-0.14 (0.00)	-0.08 (0.00)	0.17 (0.00)
(4) Core Capital Ratio	-0.3729 (0.00)	0.1159 (0.00)	0.0322 (0.00)	1	-0.19 (0.00)	0.36 (0.00)	0.02 (0.00)	0.01 (0.10)	0.04 (0.00)	0.04 (0.00)	-0.01 (0.47)	0.01 (0.06)
(5) Customer Deposit Ratio	-0.3255 (0.00)	-0.2333 (0.00)	0.0765 (0.00)	0.0571 (0.00)	1	-0.05 (0.00)	-0.05 (0.00)	-0.19 (0.00)	-0.14 (0.00)	-0.16 (0.00)	-0.11 (0.00)	-0.02 (0.01)
(6) Return on Assets	-0.2646 (0.00)	0.0959 (0.00)	0.1212 (0.00)	0.3973 (0.00)	0.1516 (0.00)	1	0.05 (0.00)	-0.05 (0.00)	-0.02 (0.01)	-0.01 (0.52)	-0.04 (0.00)	0.01 (0.32)
(7) Securities G&L	0.0446 (0.00)	0.1221 (0.00)	0.1473 (0.00)	-0.0133 (0.09)	-0.0617 (0.00)	0.0332 (0.00)	1	0.17 (0.00)	-0.01 (0.36)	0.01 (0.10)	0.07 (0.00)	0.12 (0.00)
(8) Provisions for Loan Losses	0.0868 (0.00)	0.0134 (0.09)	-0.0523 (0.00)	-0.1168 (0.00)	-0.1971 (0.00)	-0.1218 (0.00)	0.2039 (0.00)	1	0.35 (0.00)	0.38 (0.00)	0.43 (0.00)	0.27 (0.00)
(9) Loan Loss Allowances $_{(t-1)}$	0.0381 (0.00)	-0.1498 (0.00)	-0.3086 (0.00)	-0.1226 (0.00)	-0.1771 (0.00)	-0.1029 (0.00)	-0.0442 (0.00)	0.3150 (0.00)	1	0.62 (0.00)	0.77 (0.00)	-0.19 (0.00)
(10) Loan Charge-Offs	0.2187 (0.00)	-0.0806 (0.00)	-0.1987 (0.00)	-0.1656 (0.00)	-0.1773 (0.00)	-0.1623 (0.00)	-0.0150 (0.06)	0.3626 (0.00)	0.6007 (0.00)	1	0.39 (0.00)	-0.29 (0.00)
(11) Non-Performing Loans	-0.0299 (0.00)	-0.0296 (0.00)	-0.1225 (0.00)	-0.0979 (0.00)	-0.1504 (0.00)	-0.0845 (0.00)	0.0527 (0.00)	0.3834 (0.00)	0.7943 (0.00)	0.3866 (0.00	1	0.17 (0.00)
(12) Change in Non-Performing Loans	-0.0156 (0.05)	0.1161 (0.00)	0.1807 (0.00)	0.0186 (0.02)	-0.0271 (0.00)	0.0150 (0.06)	0.1729 (0.00)	0.3049 (0.00)	-0.2041 (0.00)	-0.2745 (0.00)	0.0973 (0.00)	1

Pearson Correlations

Spearman Rank Correlation

Table 3 shows the univariate correlations of the variables we use in our analyses for our main German sample. The Securities G&L are positively correlated with loan loss provisions (p-value < 0.01). That is, when these securities produce higher gains, banks tend to build larger provisions for loan losses (and vice versa), which is consistent with these two income statement items generally providing a means for income smoothing.

3.2. Loan Loss Provisioning Choices around the Disclosure Change

Main Regression Model

In our base model, we analyze whether the transparency of banks' provisioning choices helps explain potentially opportunistic accounting measurements. In particular, we examine the relationship between banks' loan loss provisions and the contemporaneous results from their investment securities before and after a significant disclosure reform enacted by the SolvV disclosure regulation which mandates the separate disclosure of loan loss provisions. We test whether a positive association between loan loss provisions and these Securities G&L, which is suggestive of loan loss provisioning being used for income smoothing, is muted upon the adoption of the SolvV disclosure regulation. We use the Securities G&L as the potential origin of income smoothing incentives, because the portfolio composition of these investment securities is not driven by short-term earnings targets but instead follows from a banks' liquidity needs. For our sample banks, the securities portfolio frequently comprises liquid governmental and covered corporate bonds with the highest rating (e.g., jumbo bonds). The market movements of these bonds are most likely exogenous for our sample of smaller and local banks.

Our tests employ an OLS regression model with loan loss provisions [*LLP*], scaled by total loans, being our dependent variable. The *Securities G&L*, scaled by total assets, serve as our main explanatory variable. To test for potential changes in the association between these two variables around the disclosure regulation, we interact the *Securities G&L* with an indicator variable *Disclosure* which takes a value of 1 in periods after the separate disclosure of loan loss provisions became mandatory, and 0 otherwise. The base model has the following form:

$$LLP_{i,t} = \alpha + \beta_1 * \text{Securities G\&L}_{i,t} + \beta_2 * \text{Disclosure}_t + \beta_3 * \text{Securities G\&L}_{i,t} * \text{Disclosure}_t +$$
$$\sum_{j}^{6} \beta_{4+j} * \text{Business Model Controls}_{i,t}^{j} + \sum_{k}^{6} \beta_{10+k} * \text{Loan Portfolio Controls}_{i,t}^{k} + \gamma_i + \mu_t + \varepsilon_{i,t}$$

$$(1)$$

We expect β_1 to be positive and β_2 to be negative. The control variables consist of two groups with six variables each. The first group includes different time-varying characteristics of the banks' business model. For the second group of control variables, we follow Kilic, Lobo, Ranasinghe, and Sivaramakrishnan (2013) and Beatty and Liao (2014) and include proxies for the most important

loan portfolio characteristics. We refer to Appendix A for an overview and exact definition of all 12 control variables. In addition, we include year and bank fixed effects. The year fixed effects capture the overall economic environment in each period and the potential impact of the business cycle on the overall loan quality. The year fixed effects absorb the base term of the *Disclosure* indicator. The bank fixed effects further control for all unobserved bank heterogeneity in the quality of loan loss provisions, such as different loan technologies, which remain constant over time. This variable also captures static differences in banks' business activities. In all specifications of the model, we estimate robust standard errors that are clustered at the bank level.

Matched Sample

The disclosure regulation affects all banks in Germany. Therefore, our estimation of equation (1) lacks a proper control group, and any change in the association between loan loss provisions and other income which we observe around the SolvV disclosure regulation could alternatively be explained by some other, more general time trend that stems from unobservable factors. To address this important concern, we add observations from other EU Member States to our sample. Although the EU directives were implemented in these other EU countries at the same time as in Germany, the EU directives did not change the transparency of banks' loan loss provisioning, because, in these countries, equivalent disclosure requirements were already in place. Banks' loan loss provisioning practices in these countries, therefore, provide a plausible counterfactual for loan loss provisions in Germany in the absence of the disclosure regulation.

However, banking systems in the EU are not fully converged and banks in other EU member states tend to be systematically different from banks in the German system, with its strong reliance on small savings banks and cooperatives. To alleviate concerns regarding functional form misspecification if we fail to control adequately for such differences (Shipman et al. 2017), we apply Coarsened Exact Matching (CEM) in order to construct a sample with similar characteristics in the treatment and the control groups (Iacus et al. 2012). In contrast to propensity-score matching, CEM does not require a first-stage model and is thus less sensitive to design choices[1]. Average size and profitability in the pre-treatment period are the matching variables in our main specification. CEM identifies 1,187 EU bank-observations as proper matches for strata of 15,145 German bank-observations. For a remaining stratum of 1,081 German bank-observations, the CEM does not find any matches that meet the matching requirements.

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[1] Results on the statistical influence of the Securities G&L on loan loss provisions and the moderating effect of loan loss disclosure on this link for our treated banks remain unchanged if we use Propensity Score Matching (PSM) or an unmatched control group.

We re-estimate equation (1) for the two matched samples and compare the coefficient estimates. Comparing the differences in the coefficient of the interaction term of the Securities G&L and the disclosure dummy (β_3) in a difference-in-differences analysis[2], we measure the incremental change in the German SolvV disclosure regulation. A difference-in-differences approach is helpful in our context because other competing influences from a simultaneous event might potentially contribute to the observed effects. By comparing the effect in Germany with that in the EU control group, we can rule out the effects of simultaneous events that are specific to the EU banking sector, such as regulatory interventions.

3.3. Informativeness of Loan Loss Provisions around the Disclosure Change

In the second part of our analysis, we explore whether potential changes in loan loss provisioning behavior are accompanied by changes in the informational properties of loan loss provisions (Kilic et al. 2013). In particular, we examine whether loan loss provisioning became more forward-looking and more informative following adoption of the SolvV disclosure regulation. We follow Bushman and Williams (2012, 2015) and Beatty and Liao (2011) and test whether current loan loss provisions help predict changes in future non-performing loans (NPL). We include NPL changes for the next two years in our model (*Change NPL (t+1)*; *Change NPL (t+2)*). Our left-hand side variable is again the current period's loan loss provisions [*LLP*]. We estimate the following OLS regression model:

$$
\begin{aligned}
LLP_{i,t} = {} & \alpha + \beta_1 * \text{Securities G\&L}_{i,t} + \beta_2 * \text{Disclosure}_t + \beta_3 * \text{Securities G\&L}_{i,t} * \text{Disclosure}_t + \\
& \beta_4 * \text{Change NPL}_{i,t+1} + \beta_5 * \text{Change NPL}_{i,t+2} + \beta_6 * \text{Change NPL}_{i,t+1} * \text{Disclosure}_t + \\
& \beta_7 * \text{Change NPL}_{i,t+2} * \text{Disclosure}_t + \sum_j^6 \beta_{7+j} * \text{Business Model Controls}_{i,t}^j + \\
& \sum_k^6 \beta_{13+k} * \text{Loan Portfolio Controls}_{i,t}^k + \gamma_i + \mu_t + \varepsilon_{i,t} \quad\quad\quad\quad (2)
\end{aligned}
$$

Coefficient estimates for β_4 and β_5 describe the overall informativeness of a bank's loan loss provisions. The interaction terms (i.e., the coefficient estimates for β_6 and β_7) capture the change in the informativeness around the disclosure change. We use all control variables and the same fixed effects structure as in equation (1).

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[2] Because we are interested in the change and not in the level of the association between Securities G&L and loan loss provisions around the disclosure event, a classic difference-in-differences design would require a triple interaction with the Securities G&L, the disclosure dummy, and the Germany dummy. Because triple interactions are qualitatively the same but its coefficients are much more challenging to interpret, we opt to compare the interaction terms in split samples.

Table 4: Univariate Tests

The table presents summary statistics for both the treatment sample of German banks and the control sample of EU banks for three years before and four years after the initial adoption of the SolvV disclosure regulation. We include banks in the statistics only if we have no more than one missing observation for a variable. Data for the German sample comes from the Bundesbank BAKIS database. Data for the EU control sample comes from BvD Bankscope.

	2003-2006		2007-2010		Difference in means	
	Mean	*Median*	*Mean*	*Median*	*p-value*	
German Sample	N= 5,364		N= 5,395			
Loan Loss Provisions to Loans (%)	0.39	0.30	0.20	0.14	<0.01	***
Standard Deviation of Loan Loss Provisions (%)	0.27	0.21	0.23	0.17	<0.01	***
Loan Loss Provisions to Charge Offs	2.02	0.75	1.46	0.48	<0.01	***
Loan Loss Allowances to Loans (%)	2.91	2.54	2.00	1.70	<0.01	***
Loan Loss Allowances to Non-Performing Loans	0.46	0.43	0.44	0.40	<0.01	***
European Control Sample	N= up to 470		N= up to 470		*p-value*	
Loan Loss Provisions to Loans (%)	0.32	0.17	0.56	0.25	<0.01	***
Standard Deviation of Loan Loss Provisions (%)	0.33	0.22	0.45	0.22	0.01	***
Loan Loss Provisions to Charge Offs	4.88	1.13	2.06	0.93	0.05	**
Loan Loss Allowances to Loans (%)	2.97	1.70	2.37	1.19	0.05	**
Loan Loss Allowances to Non-Performing Loans	0.11	0.58	0.83	0.59	0.15	
Differences in Means	*p-value*		*p-value*			
Loan Loss Provisions to Loans (%)	<0.01 ***		<0.01 ***			
Standard Deviation of Loan Loss Provisions (%)	<0.01 ***		<0.01 ***			
Loan Loss Provisions to Charge Offs	<0.01 ***		0.24			
Loan Loss Allowances to Loans (%)	0.59		<0.01 ***			
Loan Loss Allowances to Non-Performing Loans	<0.01 ***		<0.01 ***			

(*** significant at the 1% level, ** significant at the 5% level, * significant at the 10% level)

4. Empirical Results

4.1. Loan Loss Provisioning Behavior around the SolvV Disclosure Regulation

Table 4 summarizes in more detail how key indicators of banks' loan loss provisioning choices behave around the SolvV disclosure regulation for both our German treatment group and our European control group. The table further presents univariate test statistics on how the changes in these ratios differ between the two samples. To make results comparable, we restrict both samples to banks with observations in at least six out of the eight sample periods.

The statistics reveal that the mean (median) ratio of loan loss provisions to total loans of 0.39% (0.30%) in Germany before adoption of the SolvV disclosure regulation is slightly higher than in our EU control group. For Germany, the mean (median) value significantly decreases to 0.20%

(0.14%) after adoption of the SolvV disclosure regulation. In contrast, the ratio of loan loss provisions to total loans increases for our EU control group from 0.32% (0.17%) to 0.56% (0.25%). Findings are similar for the standard deviation of loan loss provisions over time. Among German banks, the average standard deviation decreases from 0.27% (0.21%) before adoption of the SolvV disclosure regulation to 0.23% (0.17%). Among EU banks, the average standard deviation increases from 0.33% to 0.45% with the median remaining constant at 0.22%. Overall, these results provide initial support for the notion that the loan loss provisioning behavior of privately-held German banks changed systematically around the initial release of enhanced loan loss provision disclosures. Apparently, the change in provisioning behavior cannot simply be explained by a corresponding trend in the European banking industry.

Table 4 also presents ratios of loan loss provisions to charge-offs and of loan loss allowances to total loans. For all banks, both ratios decline on average and at the median around the adoption of the SolvV disclosure regulation. At the same time, the loan loss allowances to non-performing loans decrease slightly from 0.46 (0.43) to 0.44 (0.40) for German banks, while we observe an increase from 0.11 (0.58) to 0.83 (0.59) for our EU control group. These trends highlight the need for a larger set of control variables in multiple regression analyses.

Table 5 summarizes results from the estimation of the linear panel regression model (equation (1)) for our German treatment group. In column (1), we run the estimation without the interaction term. The coefficient estimate for the base term (*Securities G&L*) is 0.172 (p-value < 0.01). The positive association between the Securities G&L and total loan loss provisions is consistent with these two sources of income offsetting each other. Put differently, banks recognize higher loan loss provisions when they experience gains from securities in the liquidity reserve and vice versa. In column (2), we add the interaction term (*Securities G&L * Disclosure*). The coefficient estimate for the base term remains positive (0.249 [p-value < 0.01]), while the coefficient estimate for the interaction term becomes negative (-0.094 [p-value < 0.05]). The negative interaction term suggests that the association between the Securities G&L and total loan loss provisions is muted in the periods after adoption of the SolvV disclosure regulation, i.e., after our sample banks have to initiate the disclosure of their loan loss provisioning choices. This finding is generally consistent with disclosure mitigating the potentially opportunistic use of loan loss provisions to smooth the income from securities held in the liquidity reserve. Because the disclosure regulation becomes effective at the beginning of the financial crisis, we rerun the estimation on a reduced sample of 11,411 bank-year observations and exclude the period 2007 to 2009. The results for the base term (0.243) and the interaction term (-0.110) are almost unaffected and remain at the same level of statistical significance.

Table 5: Loan Loss Provisioning and the Securities G&L around the Regulation

The table displays estimation results from an OLS panel regression model (equation [1]), where loan loss provisions serve as the dependent variable. We provide all variable definitions in Appendix A. Year and bank fixed effects are included in all specifications. The time fixed effects also capture the base term for the Disclosure variable. The sample includes all 16,226 bank-year observations from our treatment group of German privately held banks over the sample period from 2003 to 2012. Column [3] excludes all observations from the period 2007 to 2009 that are affected by the financial crisis. Columns [4] to [5] show the results of placebo tests with pseudo-treatment dummies taking a value of 1 in 2008 and 2009. Robust standard errors are clustered at the bank level.

	(1)	(2)	(3) Ex 2007-2009	(4) Placebo Tests 2008	(5) Placebo Tests 2009
Securities G&L	0.172***	0.249***	0.243***	0.204***	0.176***
	(11.733)	(6.102)	(6.080)	(7.099)	(9.091)
Securities G&L * Disclosure		-0.094**	-0.110**	-0.045	-0.009
		(-2.186)	(-2.344)	(-1.412)	(-0.313)
Ln Total Assets	0.002***	0.002***	0.002***	0.002***	0.002***
	(4.078)	(4.095)	(3.883)	(4.085)	(4.078)
Core Capital Ratio	-0.005	-0.005	-0.004	-0.005	-0.005
	(-0.626)	(-0.601)	(-0.422)	(-0.609)	(-0.625)
Customer Deposit Ratio	-0.002	-0.002	-0.002*	-0.002	-0.002
	(-1.625)	(-1.603)	(-1.680)	(-1.615)	(-1.624)
Return on Assets	-0.341***	-0.341***	-0.329***	-0.341***	-0.341***
	(-7.252)	(-7.275)	(-5.295)	(-7.265)	(-7.253)
Loss Dummy	0.001	0.001	0.000	0.001	0.001
	(0.412)	(0.422)	(0.096)	(0.418)	(0.410)
Small Increase Dummy	-0.000**	-0.000**	-0.000	-0.000**	-0.000**
	(-2.152)	(-2.096)	(-1.334)	(-2.140)	(-2.157)
Customer Loans	0.003***	0.003***	0.003***	0.003***	0.003***
	(3.975)	(3.970)	(4.099)	(3.979)	(3.975)
Change in Customer Loans	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***
	(-3.562)	(-3.558)	(-3.269)	(-3.570)	(-3.559)
Loan Loss Allowances $_{(t-1)}$	-0.058***	-0.058***	-0.055***	-0.058***	-0.058***
	(-5.536)	(-5.548)	(-4.795)	(-5.538)	(-5.536)
Non-Performing Loans	0.030***	0.030***	0.036***	0.030***	0.030***
	(7.194)	(7.213)	(7.419)	(7.197)	(7.194)
Change in Non-Performing Loans	0.047***	0.047***	0.058***	0.047***	0.047***
	(12.982)	(12.948)	(12.637)	(12.965)	(12.984)
Loan Charge-Offs	0.201***	0.201***	0.221***	0.201***	0.201***
	(13.369)	(13.369)	(12.411)	(13.363)	(13.365)
Constant	Yes	Yes	Yes	Yes	Yes
Bank and Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	16,226	16,226	11,411	16,226	16,226
R-squared	0.322	0.322	0.372	0.322	0.322
F	115.0	110.5	108.6	110.2	110

Robust t-statistics are displayed in brackets (*** significant at the 1% level, ** significant at the 5% level, * significant at the 10% level).

Columns (4) and (5) display results for placebo tests where we use the years 2008 and 2009 as placebo events. During these years, the financial crisis started to spread from the US subprime mortgage market to main street banks in Germany, too. These tests thus specifically address concerns that our results are driven by the financial crisis. The coefficient estimates for the interaction term with the placebo event are all less negative and statistically insignificant, providing further support for the provisioning changes being attributable to the disclosure reform rather than pure crisis effects.

4.2. Difference-in-Differences Design with Control Groups

Table 6 benchmarks the results from our treatment group of German banks against the matched sample of control banks from the EU. We do not observe any statistically significant association between loan loss provisions and income from securities for our matched sample of EU banks that have to provide full disclosures throughout the sample period; the coefficient estimate for the base term is 0.075 [p-value> 0.1]). The coefficient estimate increases to 0.235 in the post-2007 period (p-value < 0.10) when German banks have to adopt the SolvV disclosure regulation (and the regulation of these disclosures does not change for banks from other EU member states).

We test for the difference between the coefficient estimates in the two samples and report the results from the Wald tests right below the table. Consistent with our predictions, the coefficient estimate for the base term is significantly larger for the German treatment group (p-value < 0.10), and the coefficient estimate for the interaction term is significantly smaller for the German treatment group (p-value < 0.05). These findings mitigate the concern that German banks simply changed their loan loss provisioning behavior in response to general trends in the European economy.

When using European peers as controls, potential differences in the long-term evolution of the relation between loan loss provisions and security gains and losses are a key concern. Figure 1 explores the common trend in this relation for our German treatment group and the matched European control group. The plot shows coefficient estimates for the *Securities G&L* (equation [1]) for each year and suggests that both groups share a largely common and parallel trend until 2007, i.e., before the adoption of the SolvV disclosure regulation in Germany (our treatment event). With the introduction of the new SolvV disclosure regulation, Figure 1 shows a strong divergence of the time trends between our German treatment group and our European control group. Compared to the control group, the link becomes much weaker for our German treatment group.

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Table 6: Loan Loss Provisioning by German Banks vs. Matched EU Banks

The table displays estimation results from an OLS panel regression model (equation [1]), where loan loss provisions serve as the dependent variable. We provide all variable definitions in Appendix A. Year and bank fixed effects are included in all specifications. The time fixed effects also capture the base term for the Post 2007 variable. The sample includes 15,145 bank-year observations from our treatment group of German privately held banks (column (1)) and 1,187 observations from our control group of EU banks that meet the matching requirements of Coarsened exact matching (column (2)). We report Wald tests for the difference in the coefficient estimates between the German treated banks and the matched European control group. Robust standard errors are clustered at the bank level.

|	(1) German Treated Banks	(2) Matched Control Group
Securities G&L	0.269***	0.075
	(6.123)	(0.694)
Securities G&L * Post 2007	-0.096**	0.235*
	(-2.083)	(1.764)
Ln Total Assets	0.002***	-0.001
	(3.705)	(-1.031)
Core Capital Ratio	-0.005	0.012
	(-0.621)	(1.044)
Customer Deposit Ratio	-0.002	0.003
	(-1.447)	(1.354)
Return on Assets	-0.368***	-0.238***
	(-6.778)	(-3.587)
Loss Dummy	-0.000	0.001**
	(-0.164)	(2.209)
Small Increase Dummy	-0.000**	-0.001
	(-2.292)	(-1.636)
Customer Loans	0.003***	0.003
	(4.361)	(1.102)
Change in Customer Loans	-0.003***	-0.001
	(-2.870)	(-0.210)
Loan Loss Allowances $_{(t-1)}$	-0.015	-0.108***
	(-1.507)	(-4.427)
Non-Performing Loans	0.026***	0.082***
	(6.262)	(4.702)
Change in Non-Performing Loans	0.040***	0.009
	(11.051)	(0.541)
Constant	Yes	Yes
Bank and Year Fixed Effects	Yes	Yes
Observations	15,145	1,187
R-squared	0.292	0.513
F	100.3	13.88

Robust t-statistics are displayed in brackets (*** significant at the 1% level, ** significant at the 5% level, * significant at the 10% level).

Wald tests on difference between the two samples :

Securities G&L	0.194* (1.674)
Securities G&L * Post 2007	-0.332** (-2.369)

Figure 1: Common Trends in Coefficient Estimates for Securities G&L

The figure displays the annual regression coefficients for Securities G&L around the initial adoption of the SolvV disclosure regulation, estimated by using equation [1]. Furthermore, it shows the 5% and 95% intervals for the German treated banks. The continuous line presents annual regression coefficients for the sample of German treated banks (left y-axis). The dashed line presents annual regression coefficients for the matched control sample banks from other EU countries (right y-axis).
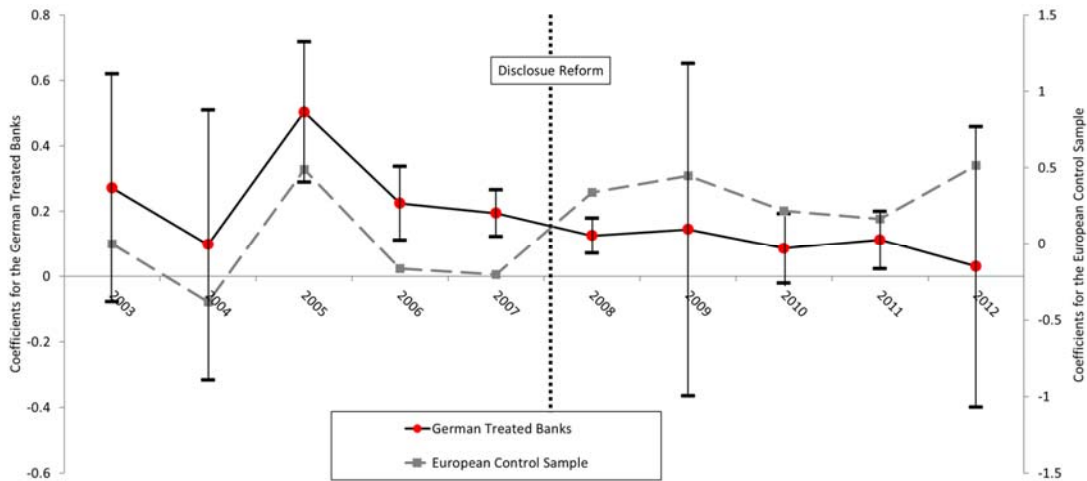
While the financial crisis affected the European peers in our control group in a relatively similar way as the German treatment firms, supervisory practice is potentially different across European countries. To hold the supervisory regime constant over our sample period, we use German IFRS-reporting banks as a second control group. These banks are either publicly listed or subsidiaries of international bank holding companies and already publicly disclose their provisioning choices prior to the adoption of the SolvV regulation. Untabulated results show a statistically insignificant coefficient estimate for the interaction term in equation [1] for this group of banks (p-value = 0.294). However, the small sample size with 36 IFRS-adopting banks in our sample makes it difficult to rule out that the possibility that the statistical insignificance is due only to low statistical power.

4.3. The Informativeness of Loan Loss Provisions around the SolvV Disclosure Regulation

Table 7 presents the results from the estimation of equation (2) and addresses the informativeness of loan loss provisions before and after German banks began to comply with the SolvV disclosure regulation. The results suggest that the association between current loan loss provisions and future changes in non-performing loans is weak, if not even potentially negative. The coefficient estimates are 0.010 (statistically non-significant) for the change in t+1 and -0.013 (p-value < 0.05) for the change in t+2. What these results imply is that loan loss provisions by our German sample banks used to contain little information about future credit defaults.

Table 7: The Informativeness of Loan Loss Provisioning Around the Regulation

The table displays estimation results from an OLS panel regression model, where loan loss provisions serve as the dependent variable. We provide all variable definitions in Appendix A. Year and bank fixed effects are included in all specifications. The time fixed effects also capture the base term for the Disclosure variable. The sample includes all 14,280 bank-year observations from our treatment group of German privately held banks over the sample period from 2003 to 2012. Robust standard errors are clustered at the bank level.

	(1)
Change in Non-Performing Loans $_{(t+1)}$	0.010
	(1.353)
Change in Non-Performing Loans $_{(t+2)}$	-0.013**
	(-2.094)
Change in Non-Performing Loans $_{(t+1)}$ * Disclosure	0.031***
	(4.977)
Change in Non-Performing Loans $_{(t+2)}$ * Disclosure	0.030***
	(4.622)
Securities G&L	0.231***
	(5.546)
Securities G&L * Disclosure	-0.081*
	(-1.840)
Ln Total Assets	0.002***
	(3.545)
Core Capital Ratio	-0.007
	(-0.765)
Customer Deposit Ratio	-0.001
	(-1.046)
Return on Assets	-0.296***
	(-7.118)
Loss Dummy	-0.001
	(-0.417)
Small Increase Dummy	-0.000***
	(-2.746)
Customer Loans	0.002***
	(3.678)
Change in Customer Loans	-0.004***
	(-4.906)
Loan Loss Allowances $_{(t-1)}$	-0.090***
	(-8.105)
Non-Performing Loans	0.044***
	(7.641)
Change in Non-Performing Loans	0.049***
	(12.910)
Loan Charge-Offs	0.226***
	(14.788)
Constant	Yes
Bank and Year Fixed Effects	Yes
Observations	14,280
R-squared	0.364
F	96.59

Robust t-statistics are displayed in brackets (*** significant at the 1% level, ** significant at the 5% level, * significant at the 10% level).

However, the picture changes around the adoption of the SolvV disclosure regulation. For the period after our sample, banks have to initiate their loan loss provision disclosures, the association increases substantially by 0.031 (for t+1) and 0.030 (for t+2), with both coefficient estimates for the two interaction terms being statistically highly significant (p-value < 0.01). At the same time, the coefficient estimates for *Securities G&L* and its interaction with the *Disclosure* indicator remain similar to the main tests in table 5 (0.231 [p-value < 0.01] for the base term and -0.081 [p-value < 0.1] for the interaction term). Overall, these results suggest that the change in loan loss provisioning behavior among privately held German banks and the less extensive use of loan loss provisions for potentially opportunistic income smoothing coincides with a greater informativeness of loan loss provisions for financial statement users.

5. Cross-Sectional Validation

5.1. Potential Heterogeneity in the Information Environment

The difference-in-differences design of our main analyses controls for the potential impact of simultaneous events which our sample banks share with their European peers. To address concerns related to local economic trends within Germany, we exploit cross-sectional differences in the characteristics of banks' local environment. The ability of local depositors and other stakeholders to make use of the newly required disclosures about loan portfolio quality is likely to vary along with the characteristics of the banks' information environment (e.g., the availability of business news or financial sophistication; Bushee et al. 2010; Engelberg and Partsons 2011; Chi and Shanthikumar 2017) and investors' monitoring incentives (e.g. covered vs. uncovered bonds, insured vs. uninsured deposits; Loutskina 2011; Chen et al. 2020; Lawrence 2013). The analysis benefits from the geographical restriction of our sample banks' business activities to local business areas, e.g., a town or a metropolitan area (see our discussion in chapter 2). At the same time, it is less plausible that a potential competing influence on the general trend of loan portfolio quality is correlated with these characteristics.

5.2. Cross-Sectional Variation in the Accessibility of Local Newspapers

In a first set of tests, we explore differences in the concentration of local newspaper markets (similar to the design of Engelberg and Parsons 2011). Our sample banks tend to be too small to be covered by German national media or general online fora and, therefore, the accessibility of information about these banks to local stakeholders depends on the extent to which these local papers transmit and interpret financial statement information.

Table 8 presents the coefficient estimates from equation (1) and corresponding test statistics separately for the two subsamples of banks in highly concentrated (tight) newspaper markets and in active markets where concentration is low. We measure market concentration by a Herfindahl index describing the market share of the different local newspapers for a total of 3,948 local bank areas (provided by the newspaper marketing corporation ZMG) and construct an indicator variable based on a median split. The data allows us to link newspaper sales to the location of the bank's headquarters. Given the regional focus of our sample banks, it is a reasonable assumption that depositor discipline and local pressure are most likely to arise, if at all, in the immediate vicinity of the banks' headquarters.

Columns (1) and (2) of Table 8 show similar associations between loan loss provisions and the Securities G&L in both subsamples (0.228 vs. 0.274 [both p-values < 0.01]). Nevertheless, the interaction term with the post-disclosure period is more negative in more competitive local newspaper markets (-0.135 [p-value < 0.05] vs. -0.053 [p-value > 0.1]). While the magnitude of the difference is statistically insignificant, the direction of the results is consistent with disclosure being more highly associated with loan loss provisioning behavior (i.e., less smoothing) in markets where more newspapers cover the banks' financial situation.

Columns (3) to (6) distinguish between observations with security losses (columns (3) and (4)) and security gains (columns (5) and (6)). The Wald test below the table reveals the largest difference in the coefficient estimate for the interaction with the post-disclosure period (-0.221 [p-value < 0.05]) for security losses. When bank managers engage in smoothing, security losses tend to be accompanied by under-reserving for future loan losses and less conservative reporting of these private firms (Badertscher, Givoly, Katz, and Lee 2019). Once the results are separately disclosed, this relation is muted and, on average, banks in more competitive local newspaper markets recognize higher loan loss provisions even if the securities produce losses. In other words, the greater the likelihood of newspaper coverage in highly competitive news markets, the greater is the decrease in the use of loan loss provisions for the discretionary offsetting of the results of securities held in the bank's liquidity reserve.

Table 8: Cross-Sectional Variation in the Local News Market

The table displays results from an OLS panel regression model, where loan loss provisions serve as the dependent variable. The table provides estimation results of equation (1) for separate samples of banks in areas with greater and less competition on the local news market (source: ZMG database). Results in columns (1) and (2) include all observations, results in columns (3) and (4) include only bank-year observations with net income smaller than zero, and results in columns (5) and (6) include only bank-year observations with net income being equal to or greater than zero. We provide all variable definitions in Appendix A. Year and bank fixed effects are included in all specifications. The time fixed effects also capture the base term for the Disclosure variable. Control variables are identical to the full-sample estimations in Tables 5 and 7. Robust standard errors are clustered at the bank level.

	(1)	(2)	(3)	(4)	(5)	(6)
	All Observations		Only Security Losses		Only Security Gains	
	Tight Local News Market	Active Local News Market	Tight Local News Market	Active Local News Market	Tight Local News Market	Active Local News Market
Securities G&L	0.228***	0.274***	0.180***	0.295***	0.250	0.551***
	(3.866)	(5.061)	(2.645)	(4.419)	(1.596)	(3.515)
Securities G&L *	-0.053	-0.135**	-0.009	-0.242***	-0.109	-0.328**
Disclosure	(-0.854)	(-2.393)	(-0.128)	(-3.416)	(-0.629)	(-1.980)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Constant	Yes	Yes	Yes	Yes	Yes	Yes
Bank and Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8,194	8,032	5,004	4,902	3,190	3,130
R-squared	0.340	0.316	0.295	0.275	0.371	0.364
F	56.91	62.34	31.03	31.41	33.01	37.85

Robust t-statistics are displayed in brackets (*** significant at the 1% level, ** significant at the 5% level, * significant at the 10% level).

Wald tests on the difference in disclosure consequences by newspaper market concentration

	Difference	p-value	Difference	p-value	Difference	p-value
Securities G&L	0.0461	0.5649	0.1102	0.2472	0.2981	0.1783
Securities G&L * Disclosure	-0.0794	0.3473	-0.2212 **	0.0298	-0.2178	0.3632
Sum of Coefficients	-0.0332	0.2727	-0.1110 **	0.0165	0.0803	0.3822

5.3. Cross-Sectional Variation in Banks' Funding Structure

In a second set of tests, we explore differences in banks' funding structure. Monitoring incentives plausibly decrease with the level of investor protection. In our sample, three groups of debt investors are particularly well protected. Debt investors in securitized liabilities and in covered bonds (mainly the German Pfandbrief; Deutsche Bundesbank 2018) rely on highly secure collateral, and private depositors benefit from the national deposit insurance scheme[1]. These groups of debt investors benefit least from private monitoring and will thus be least likely to respond to changes in loan loss provisioning practices. At the same time, monitoring ability increases with local investor sophistication (Engelberg et al. 2012), and local depositors with low financial expertise will be least likely to monitor their bank effectively.

Table 9 reports coefficient estimates for the separate subsamples of banks. Consistent with loan loss provisions being used to offset Securities G&L and smooth earnings, the basic association between loan loss provisions and Securities G&L is positive (between 0.152 for banks issuing covered bonds and 0.306 for banks with a large share of uninsured retail deposits) and statistically significant in all specifications. This relation changes in the post-disclosure period, but does so only for banks that have not issued securitized liabilities (column [1]) or covered bonds (column [3]), have a large share of uninsured retail deposits (column [5]), and in local areas with a high level of financial literacy (column [7]). For the other subsamples of banks (in columns [2], [4], [6], and [8]), the coefficient estimates for the interaction term with the post-disclosure period are much closer to zero (between 0.012 and -0.071) and statistically insignificant. The difference between the coefficient estimates for the interaction term is statistically significant when we split the sample by the issuance of securitized liabilities (column [1] vs. [2], p-value = 0.076) and by the issuance of covered bonds (column [3] vs. [4], p-value = 0.085). Overall, consistent with monitoring incentives explaining loan loss provisioning choices, these results suggest that banks which provide more secure funding adjust their loan loss provisioning behavior less in response to increases in the transparency of the provisions.

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[1] Deposits of more than €100,000 do not benefit from the public deposit insurance scheme and, instead, have to rely on voluntary insurance schemes.

Table 9: Cross-Sectional Variation in Banks' Funding Structure

The table displays results from an OLS panel regression model, where loan loss provisions serve as the dependent variable. The table provides estimation results of equation (1) for separate samples of banks that use (do not use) securitized liability transactions (columns (1) and (2)), that use (do not use) covered bonds (mainly Pfandbriefe) (columns (3) and (4)), that have a larger (smaller) share of deposits uncovered by the German mandatory deposit insurance (median split, columns (5) and (6)), and that come from a local market with higher (lower) financial literacy of the local population (median split by regions, source: SAVE survey) (columns (7) and (8)). We provide all variable definitions in Appendix A. Year and bank fixed effects are included in all specifications. The time fixed effects also capture the base term for the Disclosure variable. Control variables are identical to the full-sample estimations in Table 4. Robust standard errors are clustered at the bank level.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Securitized Liabilities		Covered Bonds		Uninsured Retail Deposits		Financial Literacy of Local Depositors	
	No use	Use	No use	Use	High Share	Low Share	High	Low
Securities G&L	0.289***	0.156***	0.287***	0.152***	0.305***	0.249***	0.246***	0.249***
	(4.246)	(3.460)	(4.224)	(3.386)	(5.005)	(3.824)	(4.809)	(3.656)
Securities G&L *	-0.141**	0.009	-0.135*	0.012	-0.159**	-0.071	-0.127**	-0.047
Disclosure	(-1.978)	(0.191)	(-1.892)	(0.255)	(-2.466)	(-1.018)	(-2.361)	(-0.651)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank and Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7,345	8,881	7,504	8,722	6,769	6,433	10,516	5,643
R-squared	0.244	0.413	0.241	0.419	0.297	0.375	0.291	0.389
F	33.21	95.09	33.46	94.74	46.04	58.70	61.37	56.81

Robust t-statistics are displayed in brackets (*** significant at the 1% level, ** significant at the 5% level, * significant at the 10% level)

Wald tests on differences in disclosure consequences

	Difference	p-value	Difference	p-value	Difference	p-value	Difference	p-value
Securities G&L	0.1318	0.1017	0.1326*	0.0996	0.0527	0.5546	0.0026	0.9759
Securities G&L * Disclosure	-0.1508*	0.0764	-0.1467*	0.0846	-0.0858	0.3659	0.0795	0.3760
Sum of Coefficients	-0.0190	0.5391	-0.0141	0.6476	-0.0331	0.3065	0.0821***	0.0092

6. Conclusions

In this paper, we explore the implications of privately held banks' greater transparency. We exploit the adoption of Pillar 3 disclosure requirements under the Basel 2 regime which forced privately held banks in Germany to publicly reveal their loan loss provisioning practices. In contrast to banks in other countries, the local German GAAP previously in force gave privately held banks the opportunity not to disclose their loan loss provisioning choices separately. The Pillar 3 implementation in Germany in 2007-08 brought a halt to these accounting practices. Using proprietary data provided by the national bank supervisor, we compare banks' loan loss provisioning before and after the implementation of detailed public disclosure. The data stems from banks' private and standardized information exchange with the prudential supervisor. This enables us to observe detailed loan loss provisioning practices at a time when it was unobservable for the general public and compare it to regimes with additional public disclosure.

Most notably, we document a potentially opportunistic offsetting of the loan loss provision and the Securities G&L when such behavior is unobservable to depositors and outside stakeholders. However, once banks are required to disclose their underlying accounting choices, the offsetting decreases considerably and loan loss provisions become significantly more predictive of future loan losses. We use geographical variation in depositor characteristics such as financial literacy and local newspaper coverage as well as cross-sectional differences in banks' funding structures to shed light on how transparency disciplines the provisioning behavior of privately held banks. The decrease in the opportunistic income smoothing is greatest for privately held banks offering the most secure funding to their debt investors and operating in local markets where depositors are more financially literate and press coverage is most intense. Overall, the results are consistent with investors and local stakeholders providing reporting incentives for timely loan loss provisioning even in the absence of capital market demand for accounting information.

References

Acharya, V. V., and S. G. Ryan. 2016. Banks' Financial Reporting and Financial System Stability. *Journal of Accounting Research* 54 (2): 277–340.

Allee, K., B. Badertscher, and T. Yohn. 2019. Private versus Public Corporate Ownership: Implications for Future Changes in Profitability. *Journal of Management Accounting* (forthcoming).

Arnold, E. A., I. Größl, and P. Koziol. 2016. Market Discipline across Bank Governance Models. Empirical Evidence from German Depositors. *The Quarterly Review of Economics and Finance* 61: 126–138.

Badertscher, B., D. Givoly, S. Katz, and H. Lee. 2019. Private Ownership and the Cost of Public Debt: Evidence from the Bond Market. *Management Science* 65 (1): 301–326.

Beatty, A., and S. Liao. 2011. Do Delays in Expected Loss Recognition affect Banks' Willingness to Lend? *Journal of Accounting and Economics* 52 (1): 1–20.

Beatty, A., and S. Liao. 2014. Financial Accounting in the Banking Industry. A Review of the Empirical Literature. *Journal of Accounting and Economics* 58 (2-3): 339–383.

Beatty, A. L., B. Ke, and K. R. Petroni. 2002. Earnings Management to Avoid Earnings Declines across Publicly and Privately Held Banks. *The Accounting Review* 77 (3): 547–570.

Behr, P., D. Foos, and L. Norden. 2017. Cyclicality of SME Lending and Government Involvement in Banks. *Journal of Banking & Finance* 77: 64–77.

Berger, A. N., and R. Turk-Ariss. 2015. Do Depositors Discipline Banks and Did Government Actions During the Recent Crisis Reduce this Discipline? An International Perspective. *Journal of Financial Services Research* 48 (2): 103–126.

Bushee, B. J., J. E. Core, W. Guay, and S. J.W. Hamm. 2010. The Role of the Business Press as an Information Intermediary. *Journal of Accounting Research* 48 (1): 1–19.

Bushman, R. M., and C. D. Williams. 2012. Accounting Discretion, Loan Loss Provisioning, and Discipline of Banks' Risk-Taking. *Journal of Accounting and Economics* 54 (1): 1–18.

Bushman, R. M., and C. D. Williams. 2015. Delayed Expected Loss Recognition and the Risk Profile of Banks. *Journal of Accounting Research* 53 (3): 511–553.

Chatterji, A. K., and M. W. Toffel. 2010. How Firms Respond to Being Rated. *Strategic Management Journal* 31: 917–945.

Chen, Q., I. Goldstein, Z. Huang, and R. Vashishtha. 2020. Bank Transparency and Deposit Flows. Available: https://ssrn.com/abstract=3212873.

Chen, S., B. Miao, and T. Shevlin. 2015. A New Measure of Disclosure Quality: The Level of Disaggregation of Accounting Data in Annual Reports. *Journal of Accounting Research* 53 (5): 1017–1054.

Chi, S. S., and D. M. Shanthikumar. 2017. Local Bias in Google Search and the Market Response around Earnings Announcements. *The Accounting Review* 92 (4): 115–143.

Christensen, H. B., E. Floyd, L. Y. Liu, and M. Maffett. 2017. The Real Effects of Mandated Information on Social Responsibility in Financial Reports: Evidence from Mine-Safety Records. *Journal of Accounting and Economics* 64 (2-3): 284–304.

Costello, A. M., J. Granja, and J. Weber. 2019. Do Strict Regulators Increase the Transparency of Banks? *Journal of Accounting Research* 57 (3): 603–637.

D'Souza, J., K. Ramesh, and M. Shen. 2010. Disclosure of GAAP Line Items in Earnings Announcements. *Review of Accounting Studies* 15 (1): 179–219.

Deutsche Bundesbank. 2018. Banking statistics. Statistical Supplement to the Monthly Report. Available for download at https://www.bundesbank.de/de/publikationen/statistiken/statistische-beihefte/zahlungsbilanzstatistik-dezember-2018-770994

Dyreng, S. D., J. L. Hoopes, and J. H. Wilde. 2016. Public Pressure and Corporate Tax Behavior. *Journal of Accounting Research* 54 (1): 147–186.

Engelberg, J. E., and C. A. Partsons. 2011. The Causal Impact of Media in Financial Markets. *The Journal of Finance* 66 (1): 67–97.

Engelberg, J. E., A. V. Reed, and M. C. Ringgenberg. 2012. How are Shorts Informed*? Journal of Financial Economics* 105 (2): 260–278.

Franco, F., O. Urcan, and F. P. Vasvari. 2016. Corporate Diversification and the Cost of Debt: The Role of Segment Disclosures. *The Accounting Review* 91 (4): 1139–1165

Goldstein, I. 2013. Should Banks' Stress Test Results be Disclosed? An Analysis of the Costs and Benefits. *Foundations and Trends® in Finance* 8 (1): 1–54.

Gropp, R., C. Gruendl, and A. Guettler. 2014. The Impact of Public Guarantees on Bank Risk-Taking. Evidence from a Natural Experiment. *Review of Finance* 18 (2): 457–488.

Haselmann, R., D. Schoenherr, and V. Vig. 2018. Rent Seeking in Elite Networks. *Journal of Political Economy* 126 (4): 1638–1690.

Hirst, E. D., L. Koonce, and S. Venkataraman. 2007. How Disaggregation Enhances the Credibility of Management Earnings Forecasts. *Journal of Accounting Research* 45 (4): 811–837.

Iacus, S. M., G. King, and G. Porro. 2012. Causal Inference without Balance Checking. Coarsened Exact Matching. *Political Analysis* 20 (01): 1–24.

Iyer, R., and M. Puri. 2012. Understanding Bank Runs. The Importance of Depositor-Bank Relationships and Networks. *American Economic Review* 102 (4): 1414–1445.

Iyer, R., M. Puri, and N. Ryan. 2016. A Tale of Two Runs. Depositor Responses to Bank Solvency Risk. *The Journal of Finance* 71 (6): 2687–2726.

Jin, G. Z., and P. Leslie. 2003. The Effect of Information on Product Quality: Evidence from Restaurant Hygiene Grade Cards. *The Quarterly Journal of Economics* 118 (2): 409–451.

Kanagaretnam, K., G. Lobo, and D.-H. Yang. 2004. Joint Tests of Signaling and Income Smoothing through Bank Loan Loss Provisions. *Contemporary Accounting Research* 21(4): 843–884.

Kilic, E., G. Lobo, T. Ranasinghe, and K. Sivaramakrishnan. 2013. The Impact of SFAS 133 on Income Smoothing by Banks through Loan Loss Provisions. *The Accounting Review* 88 (1): 233–260.

Lawrence, A. 2013. Individual Investors and Financial Disclosure. *Journal of Accounting and Economics* 56 (1): 130–147.

Loutskina, E. 2011. The role of securitization in bank liquidity and funding management. *Journal of Financial Economics* 100 (3): 663–684.

Nichols, C. D., J. M. Wahlen, and M. M. Wieland. 2009. Publicly Traded versus Privately Held. Implications for Conditional Conservatism in Bank Accounting. *Review of Accounting Studies* 14 (1): 88–122.

Ryan, S. G. 2011. Financial Reporting for Financial Instruments. *Foundations and Trends® in Accounting* 6 (3-4): 187–354.

Shipman, J. E., Q. T. Swanquist, and R. L. Whited. 2017. Propensity Score Matching in Accounting Research. *The Accounting Review* 92 (1): 213–244.

Variable Definitions

Variable	Description	Source
Change in Customer Loans	Change in *Customer Loans*.	Bundesbank
Change in Non-Performing Loans	Change in *Non-Performing Loans*.	Bundesbank
Core Capital Ratio	Banks' core regulatory capital scaled by banks' total assets at the beginning of the year.	Bundesbank
Covered Bonds	Dummy variable taking the value of one if the bank reports covered bonds for funding purposes on its current balance sheet; 0 otherwise.	Bundesbank
Customer Deposit Ratio	Total customer deposits scaled by banks' total assets at the beginning of the year.	Bundesbank
Customer Loans	Total customer loans scaled by banks' total assets at the beginning of the year.	Bundesbank
Disclosure	Dummy variable taking the value of one once banks are required to separately disclose their loan loss provisions, i.e., for German banks in the period 2007 to 2012; 0 otherwise.	Authors' calculation
Financial Literacy [High vs. Low]	Financial literacy is measured by the local populations' average score on ten finance-related questions. We transform the variable into a binary variable by using a median split based on regional clusters. Because banks are not evenly distributed over regions but are more common in regions with higher financial literacy, the subsamples are not equally large.	SAVE survey by MEA
Ln Total Assets	Natural logarithm of banks' total assets in thousand € at the beginning of the year.	Bundesbank
Loan Charge-Offs	Net charge-offs for loans scaled by banks' total loans at the beginning of the year.	Bundesbank
Loan Loss Allowances	Allowance for loan losses scaled by banks' total loans.	Bundesbank
Loss Dummy	Dummy variable taking the value of one if a bank's net income is negative; 0 otherwise.	Authors' calculation

Variable	Description	Source
Local News Market [Tight vs. Active]	We measure market concentration by a Herfindahl index on the market share of the different local newspapers within the same zip code. Information on the circulation of different newspapers was provided by newspaper marketing corporation ZMG for the year 2014. We transform the variable into a binary variable by using a median split based on zip codes. Because banks are not evenly distributed over zip codes but are more common in zip codes with more competitive local newspaper markets, the subsamples are not equally large.	ZMG database
Non-Performing Loans	Already impaired loans plus loans more than 90 days past due, scaled by banks' total loans at the beginning of the year.	Bundesbank
Post 2007	Dummy variable taking the value of one in the period 2007 to 2012; 0 otherwise.	Authors' calculation
Provisions for Loan Losses	Loan loss provisions scaled by banks' total loans at the beginning of the year.	Bundesbank
Securities G&L	Gains and losses from securities held in the bank's liquidity reserve scaled by total assets at the beginning of the period. For our matched European control sample, we approximate the item by the result from "securities held for trading".	Bundesbank
Return on Assets	Net income scaled by banks' total assets at the beginning of the year.	Bundesbank
Uninsured Retail Deposits [High Share vs. Low Share]	Banks' share of uninsured retail deposits to total retail deposits. Because the share of uninsured deposits was first formally reported in 2016 for the net stable funding ratio, we use the 2016 values to approximate for the share during the sample period. We transform the variable into a binary variable by using a median split based on the 2016 values.	Bundesbank
Securitized Liabilities	Dummy variable taking the value of one if the bank reports securitized liabilities for funding purposes on its current balance sheet in that year ; 0 otherwise.	Bundesbank
Small Increase Dummy	Dummy variable taking the value of 1 if a bank's return on assets is greater than 0 and smaller than 0.08%; 0 otherwise.	Authors' calculation

APPENDIX B

New disclosure requirements under the German Solvency Regulation

Regulation governing the capital adequacy of institutions, groups of institutions and financial holding groups

(Solvency Regulation (Solvabilitätsverordnung - SolvV))

This Regulation serves to further implement Directive 2006/48/EC of the European Parliament and of the Council of 14 June 2006 relating to the taking up and pursuit of the business of credit institutions (recast) (OJ L177/1 of 30 June 2006) and Directive 2006/49/EC of the European Parliament and of the Council of 14 June 2006 on the capital adequacy of investment firms and credit institutions (recast) (OJ L177/201 of 30 June 2006).

Section 327

Counterparty credit risk: general disclosure obligations for all institutions

(1) [1] The following qualitative information shall be disclosed over and above the general disclosure obligation:
   1. the definition of "past due" and "impaired" used for accounting purposes and
   2. a description of the approaches and methods adopted for determining value adjustments and provisions.

[2] Disclosure of additional information pursuant to sentence 1 may be waived if it is published under other statutory disclosure obligations.

(2) The following quantitative information shall be disclosed:
   1. the total amount of exposures without taking into account the effects of credit risk mitigation, broken down by different types of exposure classes; where the amounts differ materially from the average amounts on the reference date for disclosure, the average amounts shall also be disclosed;
   2. the distribution of the exposures over significant geographical areas, broken down by material exposure classes;
   3. the distribution of the exposures by industry or counterparty type, broken down by exposure classes;
   4. a breakdown of the various exposure classes by the contractual residual maturity;
   5. a breakdown of impaired and past-due exposures by significant industry or counterparty type and broken down separately by significant geographical areas with their
      a) assignable amounts of individual and general value adjustments and provisions and
      b) for the breakdown by significant industry or counterparty type, also the assignable charges for individual and general value adjustments, for provisions and for direct write downs or write-offs as well as the assignable revenues on written-off exposures during the reporting period;
   6. separate disclosure of the changes in the individual value adjustments, general value adjustments and provisions in lending business, stating the opening balance, adjustments in the reporting period, liquidations, consumption, exchange rate-related and other changes as well as the closing balance at the end of the reporting period.

APPENDIX C

Disclosure of loan loss provisions before and after the regulatory change:

Panel C. 1: Aggregated Income Statement Item Before the Regulation (in € thousands)

		Income	*Sub-total*
11.	Amortization, depreciation and impairments on intangible and fixed assets		-1,780
12.	Other administrative expenses		-592
13.	Value impairments and provisioning on customer loans as well as losses of specific securities, i.e., those held as liquidity reserve	-7,924	
14.	Income from revaluations and reversals of impaired loans as well as value gains on specific securities, i.e., those held as liquidity reserve	0	-7,924 [= 13+14]
15.	Amortization, depreciation and revaluation of participations, shares in affiliated firms and investment securities	-858	
16.	Income from appreciation to participations, shares in affiliated firms and investment securities	0	-858 [= 15+16]
17.	Expenses from the transfer of losses		0
18.	Allocation to extraordinary items with partial reserve character		0

Panel C.2: Disaggregated Notes Disclosure after the Regulation

Development of loan loss allowances (in € thousands)			
	Additions	*Reversals*	*Use*
Specific loan loss allowances	20,145	9,746	5,032
Allowances for loan commitments	2,117	658	0
General loan loss allowances	0	284	0

Loan loss provisions by client types (in € thousands)			
	Current net loan loss provisions	*Loan write-downs (without LLPs)*	*Recoveries on impaired loans*
Retail customers	n.a.	261	204
Corporate Clients	n.a.	11	240
Total	**11,858**	**272**	**444**

Panel C.1 illustrates the disclosure of loan loss provisions under local German GAAP before the new SolvV disclosure regulation became effective. An aggregated income statement item combines loan loss provisions, other write-downs and the Securities G&L from the liquidity reserve. There is no additional information in the footnotes.

Panel C.2 illustrates the additional footnote disclosure after the SolvV disclosure regulation became effective in financial year 2007-08. The template provides detailed information on loan loss allowances (from both specific and general provisions), loan loss provisions, gross charge offs, and recoveries on impaired loans by client types. The information in the new table reveals that total expenses of €7.924m that were aggregated in one income statement item include loan loss provisions of €11.858m (where €20.145m – €9.746m = €10.399m come from on-balance sheet loans and €2.117m – €0.658m = €1.459m come from off-balance sheet commitments), additional write-downs for non-provisioned loans of €0.272m, and a reversal of the general loan loss allowance of €0.284m. Consequently the reader learns that the aggregated amount includes gains of special securities, i.e. those held as liquidity reserve, of €3.921m (= €11.858m + €0.272m – €0.284m – €7.924m).