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Do Supervisory Disclosures Lead to Greater Bank Transparency? The Role of Enforcement and Market Discipline*

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We investigate how supervisors influence bank transparency through supervisory disclosures and public enforcement. Upon adoption of the Single Supervisory Mechanism (SSM) for major Eurozone banks, the European Central Bank (ECB) as the new supervisor undertook a comprehensive review of bank balance sheets and publicly disclosed the results of this Asset Quality Review (AQR). The AQR disclosures revealed what the ECB perceived to be a substantial overvaluation of bank assets, and in particular problem loans. The magnitude of the AQR adjustments varied substantially across supervised banks. We exploit this firm-level variation as well as the staggered introduction of the SSM to analyze the change in affected banks' reporting behavior and transparency. The ECB's preference for more conservative reporting is associated with higher levels of loan loss provisions and non-performing loan classifications in the following periods. Pointing at the role of enforcement institutions, this reporting effect is particularly pronounced for firms whose prior national supervisors were more likely to be captured by political interest. At the same time, corresponding positive liquidity effects are concentrated among SSM banks that were exposed to potential pressure from market forces. Our findings suggest that supervisory disclosures are potentially effective in establishing greater transparency of the banking sector, but depend on the presence of firm-level incentives that help establish market discipline.

JEL classification: *M41, M48, G20, G21, G28*
Key Words: *Single supervisory mechanism, Asset quality review, Loan loss provisions, Financial institutions, International accounting, Enforcement*

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"One of the outcomes we expect from these tests is to dispel this fog that lies over bank balance sheets in the Euro area and in Europe."

Mario Draghi, 23/10/2013, in a speech to the European Parliament

1. Introduction

Supervisors can influence the reporting behavior of supervised firms through different channels. Their public enforcement relies on direct interventions such as comment letters, supervisory instructions, or fines (Jackson and Roe, 2009). Instead of intervening directly, supervisors can disclose private information to the public to increase market attention and encourage third-party monitoring (Duro, Heese, and Ormazabal, 2019). Such supervisory disclosures can also serve as a commitment device to assure supervisory discipline (Bushman and Williams, 2012; Dudley, 2009). In the banking industry, the role of supervisory disclosures about the financial health, risk, and transparency of regulated banks is controversial (Goldstein and Sapra, 2014). Enhanced disclosures equip market participants with a better understanding of bank fundamentals and thus help establish market discipline (Berger, Davies, and Flannery, 2000; Flannery, 2001; Herring, 2004), but increased transparency potentially mitigates opportunities for regulators to practice forbearance behind the scenes (Gallemore, 2019; Skinner, 2008). Therefore, ex ante it is not clear whether supervisory reporting preferences are in line with market demand for bank transparency, and how supervisory disclosures interact with traditional enforcement in increasing bank transparency.

The European Central Bank's (ECB) Asset Quality Review (AQR) provides a useful setting to explore the financial reporting preferences of bank regulators and the complementary roles of traditional enforcement and supervisory disclosures. In the run-up to the European Single Supervisory Mechanism (SSM), which shifted the responsibility for the prudential supervision of the most significant Eurozone banks from national regulators to the ECB, the ECB reassessed the

audited financial statements of each affected bank and published its findings.[1] For example, the ECB revealed that it viewed banks' loan loss allowances to be understated by, on average, 25% (median: 8%). Most of these AQR adjustments were not due to formal violations of accounting rules, but rather signaled a shift in supervisory reporting preferences within a common accounting framework, with the ECB generally preferring higher levels of provisioning than what was accepted by the national supervisors previously in charge of bank supervision.

This paper explores the effect of these changes in the reporting preferences of the responsible supervisor and the corresponding supervisory disclosures. In particular, we address three research questions. First, we examine whether banks adjust their reporting behavior following the change of their responsible supervisor and the public assessment of their asset quality. Second, we investigate whether the change in supervisory responsibility is also associated with the market perception of bank transparency as reflected in lower information asymmetry and greater market liquidity. Third, we compare how the changes in reporting behavior and perceived transparency relate to both the shift in the institutional characteristics of the supervisory authority and third-party market monitoring.

We exploit the data made available by the ECB as part of the AQR exercise to address these questions. These supervisory disclosures provide a relatively clean measure of firm-level differences in regulatory reporting preferences, and ultimately regulatory scrutiny, between the prior national supervisors and the ECB. This is important because, across the board, the ECB is not a stricter supervisor per se.[2] The availability of a firm-level measure of changes in regulatory scrutiny differentiates our paper from prior studies on the effect of supervisory characteristics on

[1] In addition to the Asset Quality Review, this Comprehensive Assessment (CA) included a stress test.

[2] For example, Nordea, the largest bank in Sweden (which is not part of the Eurozone), relocated its headquarters from Stockholm to Helsinki in late 2018 in a conscious effort to fall under SSM supervision instead of the Swedish Finansinspektionen (Financial Times, 2017).

bank reporting. Observable differences across regulatory regimes used in the literature are likely not only driven by supervisory characteristics, but also by macroeconomic conditions, idiosyncratic portfolio choices, and reporting incentives (Costello, Granja, and Weber, 2020; Nicoletti, 2018). Even for intra-firm changes in supervisory institutions, differences in supervisory characteristics need not uniformly affect supervised institutions (Agarwal, Lucca, Seru, and Trebbi, 2014; Granja and Leuz, 2019). For example, small banks with a straightforward business model can be supervised equally well by regulators with and without extensive resources. Similarly, concerns about regulatory capture that result from reputational concerns or future employment opportunities plausibly differ in the cross-section of banks.

In the first step of our analyses, we employ a panel of yearly bank-level accounting data over the period from 2011 to 2017 (i.e., three years before and three years after the introduction of the SSM in the Eurozone). To examine banks' reporting behavior, we focus on changes in loan loss provisioning and the classification of non-performing loans. Our research design benefits from the national regulators remaining responsible for the supervision of non-SSM banks. We include all other European banks that overlap in size with the SSM treatment sample as a benchmark group to enable a difference-in-differences estimation that controls for general time trends and macro-level shocks.

Controlling for changes in the underlying risk of the loan portfolio, we find, if anything, a negative standalone effect of SSM supervision on the level of loan loss provisions and non-performing loans. For instance, the ratio of non-performing to total loans decreased by 1.2 percentage points for SSM banks after becoming subject to ECB supervision, which amounts to about 18% of the average non-performing loan ratio of all banks in our sample period. This is in contrast to the common notion that the ECB is a generally stricter supervisor than the prior national

regulators (Fiordelisi, Ricci, and Lopes, 2017), and is consistent with our understanding that the impact of the SSM is not uniform across all affected banks, but depends on the firm- and country-specific divergences in supervisory policy. Consequently, when we take the magnitude of the AQR adjustments into account, we find that against the negative base effect, reporting conservatism significantly increases with larger adjustments. We interpret this as evidence that banks' reporting choices are influenced by supervisory preferences beyond simple compliance with given accounting standards.

In the second step, we estimate panel regressions of monthly bid-ask-spreads as a proxy for market liquidity and information asymmetry among market participants for the subsample of listed treatment and control firms. We find that the SSM adoption is associated with a decrease in the bid-ask spreads of participating banks by about 16%. However, when we interact the SSM participation with the magnitude of a bank's AQR adjustment, we observe that this association is limited to those banks with greater AQR adjustments. This finding supports the view that supervisory scrutiny can reduce information asymmetry and contribute to a higher level of perceived transparency.

In the third step, we examine the cross-sectional variation in the changes in reporting behavior and market liquidity around the SSM adoption more closely. In particular, to gauge the relative importance of enforcement and market discipline, we test to what extent the changes are attributable to supervisory reporting preferences (i.e., differences between the ECB and the national supervisor) or to the strength of market forces at the firm level. We find that the likelihood of political capture under local regulation and the increase in the quality of the regulatory infrastructure are associated with the change in banks' reporting behavior. Banks that are subject to the greatest shift in these supervisory characteristics exhibit the strongest increase in loan loss

provisions and loans classified as non-performing. However, we fail to find evidence that an increase in regulatory scrutiny per se also translates into higher stock liquidity. Instead, rather than with regulatory characteristics, the changes in market liquidity around SSM adoption are associated with the strength of third-party market monitoring through, e.g., depositors and other providers of bank funding. The latter finding implies that even where supervisory action is not perfectly aligned with market demand for information, supervisory disclosures like the publication of the AQR results can stimulate market discipline and push banks to increase their level of transparency.

Our study contributes to different streams of the literature. First, it is related to research on the influence of supervisory institutions and their enforcement on reporting outcomes and firm transparency in general and, in particular, in the banking industry (Bischof, Daske, Elfers, and Hail, 2020; Costello et al., 2016; Granja, 2018; Granja and Leuz, 2019; Leuz and Wysocki, 2016; Nicoletti, 2018). We add to this literature by focusing on a clearly identified setting that is characterized by within-firm changes in the responsible supervisor and a firm-level measure of supervisory reporting preferences that captures variation in the potential impact of the reform. Our results on the institutional determinants of the SSM/AQR effect are also related to the literature on the consequences of intra-agency and interagency heterogeneity for regulatory outcomes (Busuioc, 2015; Fremeth and Holburn, 2012; Macher, Mayo, and Nickerson, 2011) and on political influence and regulatory capture (Agarwal, Amromin, Ben-David, and Dinc, 2018; Lambert, 2018).

Second, our paper adds to the literature on the effects of supervisory disclosure. In particular in the banking industry, disclosures about enforcement actions or regulatory stress tests have been found to be informative and to elicit market discipline by investors (Petrella and Resti, 2013; Morgan, Peristiani, and Savino, 2014; Flannery, Hirtle, and Kovner, 2017; Fernandes, Igan, and Pinheiro, 2017). These disclosures can also have feedback effects on the supervisor's choice of

enforcement actions (Kleymenova and Tomy, 2020) and on firms' reporting behavior (Bischof and Daske, 2013; Duro et al., 2019). We complement these studies by investigating under which conditions supervisory disclosure can facilitate changes in banks' reporting behavior and perceived transparency.

Finally, our paper adds to the topical literature on the SSM. Prior research focuses either on the determinants (Acharya and Steffen, 2014; Homar, Kick, and Salleo, 2015; Steffen, 2014) or on the immediate market reaction to the publication of the results of the AQR and the contemporaneous stress test (Carboni, Fiordelisi, Ricci, and Lopes, 2017; Lazzari, Vena, and Venegoni, 2017; Sahin and de Haan, 2016). Regarding the real effects of the SSM adoption, Fiordelisi et al. (2017) document that affected banks reduced their credit supply in the run-up to the SSM launch to improve their equity capital ratios.[3] Our study contributes to this literature by providing evidence on how the SSM influenced the long-term transparency of supervised institutions.

The remainder of the paper proceeds as follows. In Section 2, provide more details on the SSM and the AQR disclosures and develop our empirical predictions. In Section 3, we outline the research design, describe the sample selection, and provide descriptive statistics. Section 4 presents the results of the baseline analysis of the SSM/AQR effects on banks' accounting behavior and perceived transparency, and the cross-sectional tests along the dimensions of changes in supervisory enforcement and the intensity of market monitoring. Section 5 concludes.

[3] Eber and Minoiu (2017) also find that banks subject to the Comprehensive Assessment adjusted their leverage, mainly by reducing lending and wholesale funding. Gropp, Mosk, Ongena, and Wix (2019) make a similar point regarding the 2011 stress test by the European Banking Authority (EBA).

2. Institutional setting and empirical predictions

2.1. Bank supervision and accounting enforcement under the Single Supervisory Mechanism

To reinstate trust in the financial markets after the European sovereign debt crisis, policymakers and regulators called for a coordinated approach regarding the governance of financial system stability. A major aspect of these initiatives was the integrated supervision of cross-border banking activities, as banking supervision was predominantly performed by national supervisors even for large, internationally active banking groups.[4] To facilitate the harmonization of the European system of banking supervision, the Eurozone countries formally agreed to form a Banking Union in December 2012.

This Banking Union consists of three building blocks: the SSM, the Single Resolution Mechanism, and a common deposit insurance scheme. Under the SSM, the ECB formally assumed responsibility as the prudential supervisor of all banks in the Eurozone as of November 2014 (Regulation EU/1024/2013). At the same time, the ECB automatically redelegated the supervision of all "non-significant" institutions back to the originally responsible national supervisors.[5] The ECB determines the significance of a bank on a country-by-country basis depending on predetermined size cutoffs (total assets above EUR 30 billion or the bank being among the three

[4] National supervisors of cross-border banking groups were already engaging in information sharing in the form of "supervisory colleges" before the crisis. These supervisory colleges were formed to foster coordination between the different national supervisors and were formally mandated by the EU Capital Requirements Directive II (Directive 2009/111/EC). However, the degree of collaboration between national supervisors within the colleges varied significantly, often leading to inefficient microprudential supervision. For instance, during the chaotic bailout of the Fortis banking group, regulators from Belgium, Luxemburg, and the Netherlands had difficulties to align their actions (Financial Times, 2009).

[5] The General Court of Justice eventually ruled that national authorities had no formal autonomous competence for prudential supervision of euro area financial institutions (Case T-122/15 Landeskreditbank Baden-Württemberg vs. ECB, 2017). However, once prudential supervision tasks were redelegated to a national supervisor, there was no formal accountability mechanism that would give the ECB any power to sanction the national supervisor besides the latent threat to reassume the role of the supervisor of a less significant institution in the respective country (Karagianni and Scholten, 2018).

largest financial institutions of a country) and the extent of its cross-border activities. As such, with the adoption of the SSM regulation, the ECB became the direct supervisor of 120 major financial institutions in 18 Eurozone countries (plus Lithuania, which adopted the Euro in 2015), aiming to *"build on the best supervisory practices that are already in place"* (ECB, 2014a). Prudential supervision for these significant institutions is carried out by joint supervisory teams composed of both supervisory staff directly employed by the ECB and representatives assigned from the national supervisors of countries where the bank has subsidiaries or significant branches. To impede regulatory capture, team members rotate on a regular basis (ECB, 2018). Although the ECB sets the supervisory agenda and the joint supervisory teams are always headed by ECB staff, the teams rely extensively on the national supervisor's existing supervisory infrastructure as well as on their local staff in their operations (European Court of Auditors, 2016; IMF, 2018).

On October 26, 2014, shortly before the introduction of the SSM, the ECB and the European Banking Authority (EBA) released the results of a Comprehensive Assessment (CA) that consisted of the AQR and a stress test of major Eurozone banks.[6] While the stress test gauged the banks' resilience against macroeconomic shocks, the AQR involved a detailed review of bank balance sheets with the objective of harmonizing the measurement of banks' risk exposures and increasing the quality of public information. In particular, the AQR assessed the adequacy of loan loss provisions, collateral valuations, and the classification of loan exposures as non-performing. It was a supervisory exercise of unprecedented scale (ECB, 2014b), lasting 12 months, involving more than 6,000 staff, and costing nearly EUR 500 million for external auditors and consultants. In 2015

[6] While there was significant overlap between CA inclusion and participation in the SSM, some banks did not become subject to ECB supervision but were part of the AQR, and vice versa. Specifically, between 2014 and 2017, 136 banks were included in the SSM, but seven of these were never included in an AQR. In the AQRs, the ECB assessed 142 banks, but 13 of these AQR banks were never included in the SSM. Therefore, the overlap between SSM and AQR comprises a set of 129 banks (see Table 1 for details).

and 2016, the EBA carried out two more AQRs to prepare the inclusion of additional banks to the SSM supervisory system (2015: 13 banks, 2016: 3 banks). Importantly, the ECB did not intend the findings of the AQR to trigger immediate accounting restatements, and only 8% of the additionally required loan loss provisions were stated to stem from actual violations of binding accounting rules (ECB, 2014b). Instead, the AQR adjustments revealed differences in the regulatory reporting preferences between the ECB and individual national regulators that originate from the discretion inherent to the application of financial reporting standards for loan loss provisioning.

2.2. Banks' reporting behavior around the supervisory AQR disclosures

Formal supervisory enforcement and informal supervisory influence are an important determinant of firms' reporting behavior (Christensen, Hail, and Leuz, 2013; Gipper, Leuz, and Maffett, 2019; Holthausen, 2009). In the banking sector, bank supervisors tend to dominate the public enforcement of reporting regulation. They have economic resources and legal powers that usually outmatch those of general accounting supervisors (such as the securities market regulator) by a wide margin (Bischof et al., 2020). However, bank supervisors can have ambiguous preferences regarding bank transparency, which are not necessarily aligned with investors' demand for information. For example, supervisors prefer at least some specific banks to be opaque to facilitate the orderly resolution of troubled institutions, to avoid market concern, or to protect the supervisor's reputation (Gallemore, 2019; Steffen, 2014).

We expect that the transnational unification of supervisory institutions under the SSM affects bank reporting, beyond formal compliance with accounting standards, through a harmonization of these supervisory preferences. Importantly, this effect is not necessarily uniform at the individual firm level, but depends on the relative divergence in supervisory reporting

preferences between the national regulator and the ECB, which becomes manifest in the bank-specific AQR adjustment. We therefore predict that SSM banks will adjust their accounting policies corresponding to the magnitude of these published accounting adjustments.

The extent to which the ECB will intervene and enforce its reporting preferences likely depends on a country's specific institutional setup, such as the sources of the national supervisor's prior leniency and the national supervisor's relative resources and bargaining power. Supervisory leniency can be caused by a lack of supervisory resources, which reduces the ability to detect shortcomings and to enforce corrective action (Fremeth and Holburn, 2012; Jackson and Roe, 2009; Macher et al., 2011). At the same time, the national supervisors' endowment and ability also likely determine their bargaining power in determining supervisory policies relative to the ECB, which initially had to rely substantially on local resources and the existing supervisory infrastructure (European Court of Auditors, 2016; IMF 2018). Against this backdrop, we predict that the adjustment of banks' accounting behavior is more pronounced in countries with relatively weak national supervisors.

Another important potential cause of supervisory leniency is institutional capture (Lambert, 2018; Macher and Mayo, 2012; Stigler, 1971). As the ECB is a relatively independent institution regarding the influence of individual governments or national interest groups (Loipersberger, 2018), the SSM implementation likely mitigates such issues, and we expect that SSM banks are required to adjust their accounting policies more strongly in local environments that indicate prior capture of the national supervisor.

In addition to the direct intervention by the supervisor, we expect that the SSM implementation also affects banks' reporting behavior indirectly through market pressure that stems from the disclosure of the AQR results. Such supervisory disclosure provides market

participants with private supervisory information and allows them to impose market discipline on the supervised firms, which in turn can induce changes in firm behavior (Duro et al., 2019). The more a bank's funding structure or the perceived threat of distress facilitate market monitoring, the greater we expect banks to adjust their reporting choices.

2.3. Bank transparency around the supervisory AQR disclosures

Where the AQR adjustments match market concerns about banks' portfolio risk (Carboni et al. 2017; Lazzari et al. 2017), their publication and the corresponding changes in reporting behavior can increase banks' perceived transparency and, through the reduction in adverse selection, induce an increase in stock liquidity (Diamond and Verrecchia, 1991; Leuz and Verrecchia, 2000; Verrecchia, 2001). In addition, even if the AQR adjustments are not fully aligned with investors' informational needs (e.g., because they are understood simply as an indicator of unconditional supervisory conservatism), they can suggest a higher level of supervisory strictness under the SSM that might affect the perception of banks' reporting quality in general. Similarly, supervisory disclosures that reveal substantial AQR adjustments likely trigger investor attention that extends to all aspects of financial reporting, which in turn can generate market pressure for banks to increase their overall level of public information.

3. Research design and data

In this section, we describe the empirical identification strategy and develop the regression models to test our main predictions regarding the effect of the SSM introduction and the supervisory AQR disclosures on bank's reporting behavior and, consequently, on market liquidity. We then discuss the sample selection and provide descriptive statistics on our sample of European banks.

3.1. Empirical model

We evaluate the changes in bank reporting and transparency around the SSM adoption and after the supervisory AQR disclosures from two perspectives. First, we analyze changes in banks' loan loss reporting behavior around the AQR disclosures using panel regressions with different key ratios from banks' yearly financial statements as the dependent variable. Second, we examine whether the observed changes in reporting behavior are associated with an increase in bank transparency and lower levels of information asymmetry (as reflected in bid-ask spreads). The analyses rely on publicly available data on the AQR adjustments. These adjustments provide us with a granular and firm-specific measure of the extent to which the newly adopted supra-national SSM supervision reflects a change in supervisory reporting preferences (compared to the previous supervision by the local authority).

In both sets of tests, we use a difference-in-differences design that exploits the size overlap between AQR participants and European non-SSM banks arising from the different size thresholds for AQR participation in the Eurozone countries (Gropp et al., 2019). We include only non-SSM banks that are at least as large as the smallest SSM bank in the benchmark sample to avoid that our results are driven by different business models or funding strategies that are potentially correlated with bank size. Our research design also benefits from the staggered introduction of the SSM from 2014 to 2016 (with the majority of banks being included in 2014). Together, these features allow us to control for general time trends and market-wide shocks in reporting behavior and stock liquidity.

To analyze banks' reporting behavior, we estimate variations of the following difference-in-difference regression model for a panel of yearly observations of the treatment and benchmark firms over the 2011 to 2017 period.

$$Loss\_Recognition = \beta_0 + \beta_1 SSM\_Treated + \beta_2 SSM\_Treated * AQR + \sum \beta_i Controls + \sum \beta_j Fixed\ Effects + \varepsilon \quad (1)$$

We employ four accounting ratios that represent the loan loss reporting behavior of banks as dependent variable. Specifically, we use (1) the ratio of periodic loan loss provisions to total gross loans (*LLP Ratio*), (2) the ratio of the total loan loss allowance to total gross loans (*LLA Ratio*), (3) the ratio of loan loss allowances to non-performing loans (*Coverage Ratio*), and (4) the ratio of non-performing loans to total gross loans (*NPL Ratio*). There are two main variables of interest. First, the difference-in-difference estimator *SSM_Treated* is a binary indicator variable that takes on the value of '1' beginning in the first year that an SSM bank becomes subject to ECB supervision. Second, *SSM_Treated * AQR* captures the potentially heterogeneous treatment effect and is the interaction of *SSM_Treated* and the continuous variable *AQR*. We compute *AQR* as the magnitude of the ECB's disclosed adjustment of a bank's loan loss provisions (scaled by the concurrent loan loss allowance) as a result of the Asset Quality Review. *Controls* denotes the following lagged firm-level and macroeconomic control variables: *Size* as the natural logarithm of total assets, *RoA* as the ratio of pre-provisioning income to total assets as a measure of banks' profitability, *Tier 1* as the ratio of banks' tier 1 capital to risk-weighted assets, *Cost-to-Income* as the operating expense divided by operating income measuring banks' efficiency, *GDP* as the annual gross domestic product growth rate in the respective country obtained from the World Bank, and *RWA* as the ratio of risk-weighted assets to total assets as a measure of the underlying portfolio risk. We add changes in non-performing loans from year t–1 to year t in regressions of loan loss provisions to control for non-discretionary changes in delinquency rates. We include year- and firm-fixed effects, which account for the general time trend as well as time-invariant bank and country characteristics (e.g., the quality of the legal system or the development of capital markets).

As such, our fixed-effects structure subsumes factors that are specific to a certain year (e.g., the sovereign debt crisis). In all our tests, we draw statistical inferences based on standard errors clustered by bank to adjust for time-series correlation (Petersen, 2009).

For the liquidity analysis, we estimate the SSM effect in a similar regression model using a panel of monthly observations of the subsample of listed sample banks from 2011 to 2017:

$$Log(Bid\text{-}Ask\text{-}Spread) = \beta_0 + \beta_1 SSM\_Treated + \beta_2 SSM\_Treated * AQR + \sum \beta_i Controls$$

$$+ \sum \beta_j Fixed\ Effects + \varepsilon \quad (2)$$

where the dependent variable *Bid-Ask Spread* is the monthly median quoted spread between the bid and ask price, and *SSM_Treated* is a binary indicator variable that now takes on the value of '1' for treatment banks beginning in the first month after becoming subject to ECB supervision. *SSM_Treated * AQR* is the interaction between *SSM_Treated* and the magnitude of the ECB's disclosed adjustments of a bank's loan loss provisions, scaled by the concurrent loan loss allowance. *Controls* is a vector of firm-specific controls that capture additional determinants of stock liquidity: the absolute value of the monthly *Abnormal Stock Return* (based on a simple market model), *Market Value*, the monthly median of daily *Share Turnover*, and *Return Variability* measured by the standard deviation of daily stock returns. We estimate the liquidity regressions in a log-linear form with the natural logarithm of the dependent and control variables, and lag the control variables by 12 months. We include country-month and firm-fixed effects to control for country-specific time trends as well as for time-invariant bank and country characteristics.

3.2. Sample selection and descriptive statistics

Our sample period begins in 2011, three years before the launch of the SSM, and runs until 2017, three years after.[7] We collect annual bank accounting information from S&P Global Market Intelligence (formerly SNL Financial) and capital market data from Thomson Reuters Datastream. Table 1 summarizes the sample selection process. For the accounting analysis, the initial treatment sample includes all 136 SSM banks, of which we keep 129 banks that were also subject to an AQR in 2014, 2015, or 2016. We exclude 12 banks that were nationalized during the sample period, and drop six more banks due to missing data on dependent or independent variables. The final treatment sample comprises 111 SSM/AQR banks with 667 annual observations.

For the control group, we begin with all 4,600 EU banks from the S&P universe that were not included in the SSM. We exclude 755 banks that were either directly owned by a treatment bank or shared their direct or ultimate parent with a treatment bank.[8] We additionally exclude 748 banks due to missing data. Because the AQR focused on banks with significant lending activity, we follow Fiordelisi et al. (2017) and exclude 233 control banks that are in the bottom fifth percentile of loans to total assets.

The ECB determines on a country-by-country basis which banks are classified as "significant" and therefore become subject to ECB supervision. This selection is mainly determined by bank size (banks which exceed total assets of EUR 30 billion or are among the three

[7] From 2018, Eurozone banks that apply IFRS started to report loan loss provisions under IFRS 9's new expected credit loss model, which impairs the comparability of post-2018 accounting numbers with earlier periods (when banks applied the incurred loss model under IAS 39). This supports our choice of the sample period.

[8] Ownership information in S&P Global Market Intelligence is static and only available for the latest respective update. We additionally use ownership information from the 2012 Bureau van Dijk Bankscope tape to complement the ownership test with earlier periods.

largest financial institutions of a country).[9] As such, SSM/AQR banks are on average larger than non-treatment banks. However, they significantly overlap with the control banks due to the country-specific application of the selection criteria. Following Gropp et al. (2019), we exploit this size overlap to construct the control group as an "overlap sample" of banks that are at least as large as the smallest SSM bank in the treatment sample. This procedure alleviates concerns that we capture inherent differences in business models or funding strategies that stem from the size difference between our treatment and control group.[10] After excluding banks that do not overlap with the size range of SSM banks, the final control group comprises 1,567 banks and 7,754 annual observations. We use the subsample of banks with publicly listed equity and trading data available on Datastream for the liquidity analysis. Using the same selection criteria as for the accounting analysis yields a final sample of 6,141 monthly observations for AQR/SSM banks and the control group.

To establish the validity of assuming a parallel trend among our treatment and control group, Figure 1 reports the coefficient estimates for an interaction of the SSM treatment indicator with dummy variables for each year in the different specifications of Eq. (1), using t-1 (the year before a bank becomes subject to SSM supervision) as a benchmark. These coefficients are never significantly different from zero (at a 5% significance level) in the pre-SSM period, mitigating

[9] Additional selection criteria are a) the economic importance of the bank for the country or the EU economy as a whole, b) the significance of cross-border activities, and c) whether the bank receives direct public financial assistance.

[10] We validate our results using entropy balancing as a quasi-matching technique that alleviates concerns about potential differences between our treatment and control sample (Hainmueller, 2012) and that is widely used in recent finance and accounting research (Chapman, Miller and White, 2019; Ferri, Zheng and Zhou, 2018; Shroff, Verdi and Yost, 2017). Under entropy balancing, the observations in our sample are reweighted so that the distribution of the control variables in the control group is as similar as possible to the distribution in the treatment group along the first three moments (mean, variance, and skewness). The findings from this analysis are qualitatively and quantitatively similar to the ones presented in the results section (see Appendix B).

concerns about systematically different time-trends or anticipation effects that might bias our difference-in-difference results.

Panel A of Table 2 presents descriptive statistics for all firm-level variables used in the accounting and liquidity regression analyses. The four dependent variables of interest in the accounting analysis show considerable variation in our sample. Banks recognize annual loan loss provisions of 0.5% of total gross loans on average (ranging up to 5.6% at the 99th percentile), and the loan loss allowance covers 3.3% (1.8%) of banks' total loans at the mean (median). The average adjustment to loan loss provisions disclosed through the AQR amounts to 25.9% of the loan loss allowance for SSM/AQR treatment banks. Panel B of Table 2 breaks down the sample composition by country and provides detailed information on the country-level variables. A large proportion of the sample banks is located in Germany and Italy, which corresponds to the distribution of the bank population in Europe.

4. Empirical results

In this section, we first describe the baseline results of the analysis of banks' reporting behavior around the SSM introduction and the corresponding AQR disclosures. Next, we examine the potential effect on banks' stock liquidity as an indicator of perceived firm transparency. We conclude with an analysis of cross-sectional differences in the changes in reporting behavior and stock liquidity.

4.1. Changes in financial reporting following SSM adoption

We begin by estimating the effect of the SSM implementation and contemporaneous disclosure of the AQR results on different credit risk-related reporting outcomes and report our

baseline results in Table 3.[11] Columns (1) and (2) reveal that the adoption of the SSM is negatively associated with the level of loan loss provisions of participating banks. On average, loan loss provisions (scaled by total gross loans) decrease by 0.5 percentage points (p-value < 0.1%) upon SSM adoption relative to non-SSM banks, which is both statistically significant and economically meaningful. However, in line with our predictions, the supervisory shift does not uniformly affect all banks to a similar extent. Column (2) highlights that a bank with an average AQR adjustment disclosure of 25.9% decreases its loss provisions by 0.078 percentage points (0.003 x 0.259; p-value < 1%) less than a bank with no adjustment. This translates to an average marginal increase of the loan loss provision ratio for treatment banks of 9.3%, which is economically meaningful. Columns (3) and (4) report the results for banks' loan loss allowances. While the average effect of the SSM adoption is also negative (-0.2 percentage points, p-value=0.538), but statistically insignificant, we observe a marginal increase by 0.259 percentage points (p-value < 5%) in the loan loss allowance for treatment banks with an average AQR adjustment. We draw similar inferences for the coverage ratio (the ratio of the loan loss allowance to non-performing loans) in columns (5) and (6). Banks with an average AQR adjustment report more conservatively and increase their coverage ratios by 1.06 percentage points (p-value < 1%) relative to banks with no adjustment. In columns (7) and (8), the ratio of non-performing loans (NPL) to total gross loans serves as dependent variable. Treatment banks, on average, decrease their non-performing loan ratios by 1.6 percentage points (p-value < 1%) upon introduction of the SSM. However, similar to the results on loan loss provisioning, we find that those banks with higher AQR adjustments classify on average 0.41 percentage points (p-value < 1%) more loans as non-performing, suggesting that they adopted stricter guidelines in appraising their portfolio quality.

[11] The results are qualitatively and quantitatively similar if we exclude 2014 as the initial treatment year, suggesting that we indeed measure a long-term shift in reporting behavior.

Taken together, our findings reveal a substantial change in reporting behavior after the SSM implementation and the publication of the AQR results. Banks facing a greater adjustment of their loan loss provisions increase their level of loan loss provisions, loan loss allowances, and loans classified as non-performing subsequently relative to other treatment banks. We interpret this evidence as consistent with the notion that the increase in supervisory scrutiny for certain SSM banks, together with the disclosure of the corresponding AQR results, changed how banks report about their portfolio quality.

4.2. Changes in liquidity following SSM adoption

We next examine whether SSM supervision and the disclosure of the AQR results are associated with a higher level of perceived transparency as reflected in higher market liquidity for the subsample of publicly listed banks.

In column (1) of Table 4, we document a significant increase in liquidity for banks that fall under SSM supervision. However, column (2) reveals that the liquidity benefits are entirely attributable to the magnitude of the AQR adjustments. That is, the base coefficient estimate for the SSM introduction becomes statistically insignificant once we include an interaction term that captures variation in the impact of the new supervisory regime and, correspondingly, the supervisory AQR disclosures. For the average treatment bank in our sample (in terms of the magnitude of the AQR adjustment), bid-ask-spreads decrease by about 15% relative to the control group after the SSM implementation, which is economically meaningful, but not too large to be implausible.

Taken together, our findings suggest that those SSM banks that, relative to their prior national supervisors, experienced a substantial switch in supervisory reporting preferences became

more forthcoming in recognizing problem loans, with market participants perceiving these banks to be more transparent.

4.3. Cross-sectional heterogeneity: enforcement and market monitoring

We proceed with a closer examination of the channels that drive changes in banks' reporting behavior. First, we study the role of stricter enforcement under SSM supervision and exploit cross-country variation in the institutional setup and in the likelihood of political capture of prior national supervisors before the SSM adoption. Second, we explore the role of market monitoring in response to the newly available disclosures and exploit firm-level variation in the potential strength of market discipline. For these cross-sectional analyses, we add an interaction term to Eq. (1) and (2) and estimate variations of the following difference-in-difference regression model:

$$Loss\_Recognition \;/\; Log(Bid\text{-}Ask\text{-}Spread) = \beta_0 + \beta_1\, SSM\_Treated + \beta_2\, SSM\_Treated * Split + \beta_3\, SSM\_Treated * AQR + \beta_4\, SSM\_Treated * AQR * Split + \sum \beta_i\, Controls_i + \sum \beta_j\, Fixed\ Effects_j + \varepsilon \quad (3)$$

Split stands for a vector of binary partitioning variables that allow us to capture systematic variation in the impact of SSM supervision and the AQR disclosures among our treatment banks. The main effect of *Split* is subsumed by the firm-fixed effects, and the control variables are the same as defined before.

We report the results of the cross-sectional tests in Table 5. In each Panel, columns (1) to (5) provide the results from OLS regressions using country-level splits that are supposed to capture institutional features that reflect changes in enforcement strength. In column (1), *Regulatory Quality* is a summary measure from the World Bank's Worldwide Governance Indicators (WGI) to proxy for the overall quality and strength of national supervisors (Kaufmann, Kraay, and

Mastruzzi, 2010). We use a binary indicator that takes the value of '1' for countries with above median regulatory quality in 2014. We expect banks with high-quality national supervisors to react less to SSM supervision because prior leniency is more likely to be driven by intentional supervisory policy (instead of, e.g., lack of resources or incompetence). At the same time, high-quality regulators have more bargaining power to assert their supervisory approach against the ECB, which initially had to rely substantially on the national supervisors' resources (European Court of Auditors, 2016; IMF 2018). In column (2), *Recession* is a binary indicator for countries that experienced negative GDP growth during the two years before the SSM introduction. We assume that politicians prefer more lenient supervision during economic downturns to foster bank lending, which potentially conflicts with the aim of the banking regulator to promote a sound banking system. The ECB as a supranational institution is likely to be politically independent and therefore more able to enforce its more conservative reporting preferences against opposing political interest (Loipersberger, 2018). This is also the underlying rationale for the following variables that directly capture countries' political characteristics. We derive the *Distrust EU* split in column (3) and the *Distrust ECB* split in column (4) from the answers to the 2014 Eurobarometer survey in each sample country. *Distrust EU* describes the answers to the question "Do you trust the EU?"; *Distrust ECB* describes the answers to the question "Do you trust the ECB?". Both variables are binary indicator variables that take the value of '1' if a country's percentage of "No" answers (indicating distrust) is above the sample median. We expect that national supervisors experience political pressure towards a more lenient supervisory approach in countries where the population exhibits a pronounced distrust towards the EU or ECB. In the same spirit, *Anti-EU Party* in column (5) indicates whether a nationalist or euro-skeptic party had a significant influence in the national parliament in the respective country as of 2014. We gather information on national election results from the Manifesto Project (Volkens et al., 2019) and manually collect data on missing countries.

We define a party to be significant if it received 5% or more votes in the national elections or was part of the government in 2014.

In columns (6) to (10), we present test statistics from the OLS regressions using firm-level splits that are supposed to capture the strength of market monitoring and, thus, the potential role of market discipline in shaping banks' reporting behavior and transparency. In column (6), *Junk Rating* is an indicator for banks with an S&P rating below BBB-. We expect that banks with a speculative grade rating are subject to increased attention from their equity and debt investors (Freixas and Laux, 2011; Schweitzer, Szewczyk, and Varma, 1992). In column (7), *Short-term Funding* is the ratio of deposits maturing in less than three months to total liabilities. We consider banks with more short-term funding to be more exposed to debt investor scrutiny (Berger and Turk-Ariss, 2015; Calomiris and Kahn, 1991; Flannery, 1994; Peria and Schmukler, 2001). Similarly, *Funding Cost Volatility* in column (8) is the pre-treatment standard deviation of interest expenses to total liabilities. If debt investors learn about banks risk exposure, banks mitigate expected funding drains by offering higher interest rates to risk-sensitive investors (Demirgüç-Kunt and Huizinga, 2010; Maechler and McDill, 2006; Peria and Schmukler, 2001). That is, we expect that banks with more risk-sensitive investors are subject to higher market monitoring and experience higher fluctuations in their funding costs. For these three firm-level measures, we use data from 2013, the year before the SSM introduction, to avoid potential feedback effects or problems of reverse causality.

We use two additional country-level indicators of general stock market development. In column (9), *Listed Firms* is the ratio of the number of domestic listed firms to GDP (in billions) in 2014 from the World Bank (LaPorta, Lopez-de-Silanes, and Shleifer, 2006). In column (10), *Equity Ownership* is the proportion of total household liquid assets directly invested in the stock

market during 2008-2010 from Christensen, Maffett, and Vollon (2019). For both splits, we expect that a higher demand for information in more sophisticated capital markets, and therefore a stronger reaction to the AQR disclosures.

Panels A to D of Table 5 report the results from estimating Eq. (3) separately for each of the four dependent variables related to reporting behavior from Eq. (1). The tables allow the following insights: We observe a significantly negative coefficient on the triple interaction of *SSM_Treated * AQR * Regulatory Quality* for all dependent variables. We interpret this result as consistent with the idea that an efficient national regulator can maintain its prior preferences against the ECB, which initially had to rely on local resources to enforce its policy. We further find that the main coefficient of interest on the triple interaction of *SSM_Treated * AQR * Split* is generally positive and significant when we employ *Recession*, *Distrust EU*, and *Distrust ECB* (and, less consistently, *Anti-EU Party*) as indicators of potential political capture of the national supervisor. The incremental effect on reporting conservatism is substantive and can be up to an order of magnitude larger than the baseline effect of *SSM_Treated * AQR*. In line with our expectations, these findings indicate that the impact of a change in supervisory reporting preferences on firms' reporting behavior is particularly pronounced when it coincides with a material change in the supervisor's institutional and political setup, pointing at the role of institutional characteristics and supervisory enforcement for the outcome of a given supervisory policy.

However, we do not find conclusive evidence on the role of market monitoring in promoting changes in SSM banks' accounting policies. In Panels A to D of Table 5, the coefficients on the triple interaction of *SSM_Treated * AQR * Split* for the different partitioning variables in columns (6) to (10) are mostly insignificant, except for *Junk Rating*. These results suggest that the supervisory disclosure of the AQR adjustments did not spark market demand for corresponding

accounting changes, implying that such adjustments were not in line with investors' informational needs after the initial AQR disclosure.

We present the results of our analysis of cross-sectional variation in the effect on market liquidity in Panel E of Table 5. In contrast to our findings on changes in accounting behavior, four of the five partitioning variables reflecting heterogeneity in the potential impact of the SSM introduction on supervisory enforcement in columns (1) to (5) are statistically insignificant. However, we find a consistent and economically substantial incremental effect in settings that suggest a high level of market monitoring and investor scrutiny. We interpret these results to be consistent with the idea that while regulatory enforcement is effective in implementing given supervisory reporting preferences, firm transparency is ultimately determined by idiosyncratic reporting incentives and, in particular, market demand. Our findings suggest that the supervisory disclosure of the AQR results was effective in generating market attention that gave rise to an overall higher level of bank transparency beyond an adjustment to the supervisory policy. Together, these results point at the important complementary role of traditional enforcement and supervisory disclosures in effectuating firm transparency.

4.4. Timeliness of the loan loss provision

We conclude our analysis with a closer examination of the mechanisms that drive the observed increase in perceived transparency following the introduction of the SSM and the AQR disclosures. In particular, prior literature suggests that a primary determinant of bank transparency is the timeliness of loan loss reporting (Beatty and Liao, 2014; Bushman, 2014; Bushman and Williams, 2015). Our analysis in this section borrows from prior literature and is centered on the association between loan loss provisions and changes in current and future non-performing loans as a proxy for the timeliness of the provisions (Bhat, Ryan, and Vyas, 2018; Gebhardt and Novotny-

Farkas, 2011; Nichols, Wahlen and Wieland, 2009). Consistent with the evidence from the market liquidity tests, we expect that the change in the timeliness of banks' provisioning choice is positively associated with the magnitude of the disclosed AQR adjustment to their loan loss provisions. We estimate the following model:

$$LLP_t = \beta_0 + \beta_1\ SSM\_Treated + \beta_2\ SSM\_Treated*AQR + \beta_3\ SSM\_Treated * \Delta NPL_t + \beta_4\ SSM\_Treated*AQR* \Delta NPL_t + \beta_5\ AQR* \Delta NPL_t + \beta_6\ SSM\_Treated* \Delta NPL_{t+1} + \beta_7\ SSM\_Treated*AQR* \Delta NPL_{t+1} + \beta_8\ AQR* \Delta NPL_{t+1} + \beta_9\ \Delta NPL_t + \beta_{10}\ \Delta NPL_{t-1} + \beta_{11}\ \Delta NPL_{t+1} + \sum \beta_i\ Controls + \sum \beta_j\ Fixed\ Effects + \varepsilon \quad (4)$$

We regress current loan loss provisions scaled by total gross loans (LLP_t) on the change in non-performing loans over the previous financial year (ΔNPL_t) and the change in non-performing loans over the following year (ΔNPL_{t+1}). We interact both variables with *SSM_Treated* and *AQR*, defined as in model (1), to estimate the change in how timely managers incorporate information about delinquent loans in the loan loss provision around the supervisory AQR disclosures. In addition to the control variables specified in model (1), we include the lagged loan loss allowance ratio (*LLA*) to capture banks' prior loan loss accruals (Nichols et al., 2009) and changes in non-performing loans from year t–2 to t–1 (ΔNPL_{t-1}; Nicoletti, 2018) to control for managers' past expectations about loan losses.

Our results in Table 6, columns (1) and (2), generally support our prediction. While participation in the SSM per se appears to be associated with a decrease in timely loan loss provisioning, we observe an increase in timeliness corresponding to the magnitude of the disclosed AQR adjustments, which however is significant only for projection of losses from contemporary changes in non-performing loans.

5. Conclusion

When the ECB became the responsible supervisor for major Eurozone banks under the European Single Supervisory Mechanism in 2014, it publicly disclosed the results of an extensive Asset Quality Review that revealed adjustments to the financial statements of these banks. Although these adjustments were mostly nonbinding for future bank reporting, they indicate a shift in the supervisory preferences about the reporting of banks' portfolio quality relative to the national bank supervisors previously responsible. We use this setting to examine whether banks' reporting behavior and perceived transparency changed around the shift in supervisory institutions and the release of the supervisory disclosures. In addition, we explore the role of supervisory enforcement and market monitoring in this process.

The supervisory AQR disclosures reveal that, on average, the ECB favored a higher level of reporting conservatism than the local authorities, with the adjustments representing an increase in the loan loss allowance for the majority of affected SSM banks. Over the following reporting periods, we observe that banks with greater AQR adjustments increased their level of loan loss provisions and classified more loans as non-performing relative to other SSM banks. In addition, banks with large adjustments in the AQR also experienced a significant increase in stock liquidity after the SSM introduction, indicating a higher level of perceived reporting transparency.

In a series of cross-sectional tests, we explore potential determinants of these changes. We find that the adjustments in banks' reporting behavior vary with institutional characteristics of countries' supervisory infrastructure that likely determine enforcement intensity. More specifically, the increase in reporting conservatism is particularly pronounced where the prior national supervisors were likely to be captured by political interest, with the takeover of supervisory responsibility by the ECB constituting an increase in supervisory independence. On

the other hand, reporting changes are less pronounced when the overall regulatory quality of the previous national supervisor had already been high. We attribute this finding to the joint effect of prior leniency being explicit regulatory policy (instead of supervisory failure) and a higher bargaining power of the national supervisor relative to the ECB, which initially had to rely extensively on local supervisory resources. Together, these results point at the important role of supervisory reporting preferences (beyond simple compliance with given accounting standards) and institutional enforcement in shaping financial reporting characteristics.

However, we find that the observed increase in stock liquidity is associated with the intensity of potential market monitoring as indicated by firm-level funding structure and country-level capital market sophistication rather than with the change in supervisory enforcement. These findings suggest that the supervisory AQR disclosures can facilitate transparent reporting through the initiation of market discipline. Viewed collectively, our findings provide a textured picture of the effects of public enforcement and supervisory disclosures on firm transparency. While supervisory reporting preferences are an important determinant of accounting outcomes within a given accounting framework, supervisory disclosures can affect transparency beyond the implementation of a certain supervisory policy.

The European AQR setting offers unique features, but is also subject to certain limitations. Perhaps most importantly, our evidence on the channels through which reporting behavior and market liquidity are affected comes from purely cross-sectional variation and therefore remains largely descriptive. Moreover, the ECB only provides the supervisory disclosures for a specific group of large and systemically relevant banks. While we attempt to mitigate a potential selection bias through our sample composition and matching procedure, our setting does not allow any

statements about the generalizability of our results for smaller banks that tend to receive less public scrutiny. We leave these questions for future research.

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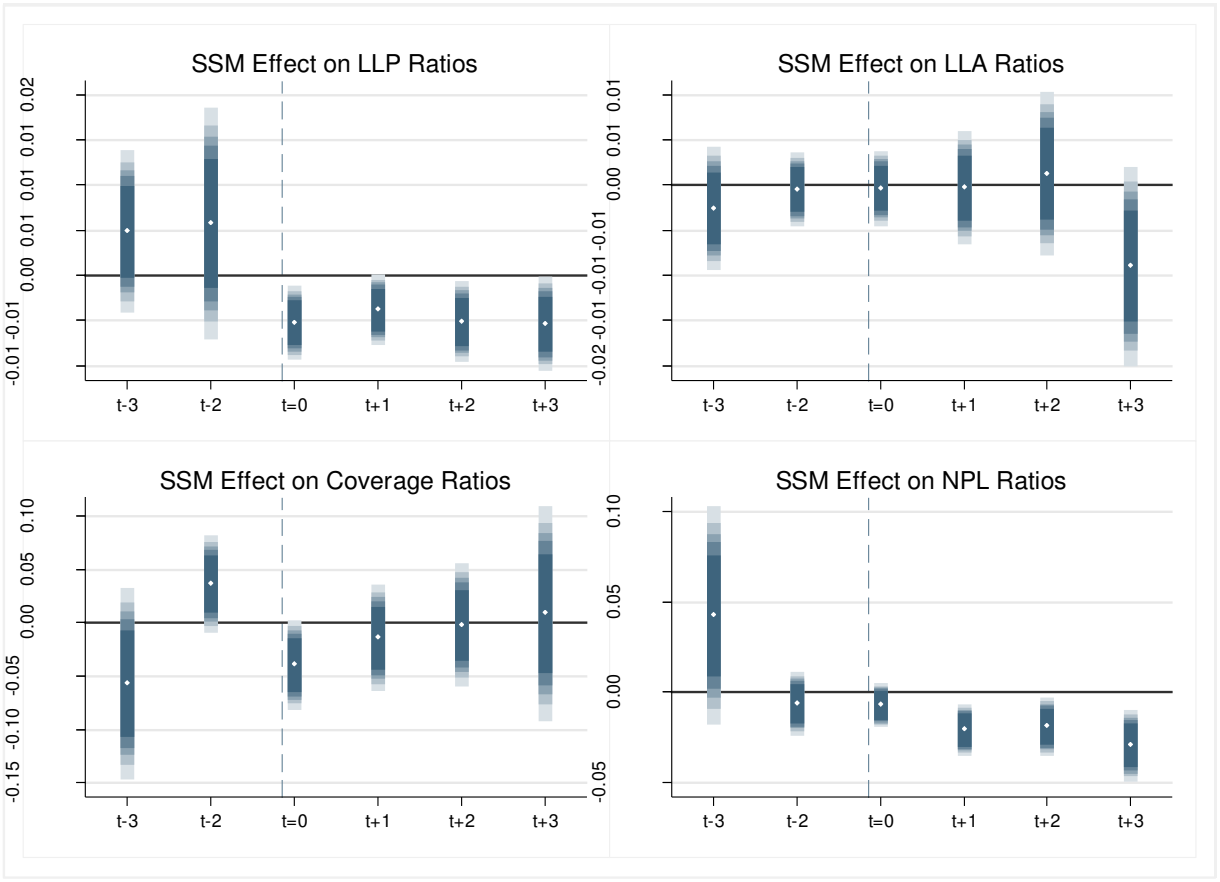
Figure 1: Accounting effects around SSM introduction and AQR disclosures



The figure shows the reporting patterns around the SSM adoption and the AQR disclosures. We estimate the model in Eq. (1) but replace the *SSM Treated* coefficient with seven separate indicator variables, each marking the year relative to the first treatment year over the 2011 to 2017 period. We omit the indicator for year t-1, which serves as benchmark for all other years. The figure plots the coefficient estimates for the seven years (except t-1) together with their confidence intervals for loan loss provisions, loan loss allowances, coverage ratios, and non-performing loans. We include all control variables and fixed effects from Eq. (1) in the estimation. Standard errors are clustered by bank.

Table 1: Sample selection

Panel A: Overview of AQR/SSM banks

	(1)	*(2)*	*(3)*	*(4)*	*(5)*
Year	*AQR*	*New SSM Banks*	*SSM Dropouts*	*SSM Banks*	*Overlap (1) & (2)*
2014	130	120	-	120	119*
2015	9	15	6	129	9**
2016	3	1	4	126	1
2017	0	0	1	125	0
Treatment Sample					**129**

Panel B: Sample selection procedure

	Treated Banks	*Treated Obs.*	*Control Banks*	*Control Obs.*
All SSM banks	136			
Less: banks not in AQR	(7)			
AQR & SSM banks	**129**	**903**		
Less: AQR Banks nationalized during sample period	(12)	(84)		
AQR & SSM Banks	117	819		
All other banks in Europe with data from S&P			4,600	32,200
Less: Owned by a treatment bank			(755)	(5,285)
Less: Missing data on dependent or control variables	(6)	(152)	(748)	(11,448)
Less: Bottom 5% TL/TA			(233)	(1,086)
Less: TA < smallest treatment bank			(1,297)	(6,627)
Total Sample (accounting analysis)	**111**	**667**	**1,567**	**7,754**

Table 1 Panel A shows the number of banks that participated in an AQR or became subject to the SSM. Column (1) indicates the number of participants in the point-in-time AQR in a given year, column (2) shows how many new banks became subject to ECB supervision under the SSM, column (3) indicates how many banks previously in the SSM dropped out of the SSM again, column (4) presents the total number of banks in the SSM in a given year, and column (5) shows how many banks became subject to ECB supervision under the SSM and also participated in an AQR during the sample period.*Out of these 119 banks 5 participated in the CA in 2015 but joined the SSM in 2014. **Out of these 9 banks, 5 were assessed in 2014 but joined the SSM in 2015, 1 bank was assessed in 2016 but joined the SSM in 2015. Panel B illustrates the sample selection procedure for the treatment and the control group. The sample period includes all years over the 2011-2017 period using all European banks as control that are at least as large as the smallest SSM/AQR bank. We exclude banks that are owned by a treatment bank or that are in the bottom 5th percentile of the total loans to total assets ratio, and bank observations that have missing data on any control variable or all dependent variables.

Table 2: Descriptive statistics

Panel A: Descriptive statistics for firm-level variables

	Bank-years	*Mean*	*Std. Dev.*	*P1*	*P25*	*Median*	*P75*	*P99*
Accounting Analysis								
Tier 1	8421	0.149	0.066	0.066	0.112	0.135	0.165	0.505
Size	8421	14.821	1.506	13.094	13.718	14.405	15.461	19.754
Cost-to-Income	8421	0.658	0.158	0.232	0.585	0.665	0.735	1.230
RoA	8421	0.006	0.008	-0.017	0.002	0.005	0.009	0.037
Risk-weighted Assets	8421	0.560	0.165	0.125	0.466	0.569	0.657	0.961
GDP	8421	0.014	0.017	-0.028	0.005	0.017	0.021	0.052
ΔNPL	5910	0.002	0.020	-0.054	-0.006	-0.001	0.004	0.097
Loan loss provision (LLP) Ratio	8385	0.005	0.012	-0.026	0.000	0.002	0.008	0.056
Loan loss allowance (LLA) Ratio	8392	0.033	0.040	0.000	0.008	0.018	0.042	0.209
Non-performing loans (NPL) Ratio	6180	0.066	0.076	0.000	0.018	0.035	0.082	0.365
Coverage Ratio (LLA/NPL)	6163	0.562	0.409	0.138	0.384	0.492	0.620	3.217
AQR	667	0.259	0.927	0.000	0.021	0.084	0.221	5.606
Firm-Level Partitioning Variables								
Junk Rating	2444	0.065	0.247	0.000	0.000	0.000	0.000	1.000
Short-term Funding	1479	0.226	0.224	0.000	0.045	0.139	0.368	0.809
Funding Cost Volatility	8026	0.003	0.002	0.000	0.002	0.002	0.003	0.011
Liquidity Analysis	*Bank-months*							
Bid-Ask Spread	6141	0.010	0.015	0.000	0.001	0.004	0.013	0.089
Abs(Abnormal Stock Return)	6141	0.065	0.071	0.001	0.019	0.043	0.084	0.431
Market Value (EUR million)	6141	7634.528	13862.092	23.200	336.539	1638.144	7264.929	70025.555
Share Turnover	6141	0.250	1.660	0.000	0.000	0.001	0.004	15.175
Return Variability	6141	0.023	0.015	0.002	0.014	0.019	0.028	0.089

(continued)

Table 2 (cont.)
Panel B: Sample composition and country-level partitioning variables

					Country-Level Partitioning Variables						
Country	*Control Banks (Bank-years)*		*Treatment Banks (Bank-years)*		*Distrust EU*	*Distrust ECB*	*Anti-EU Party*	*Recession*	*Reg. Quality*	*Equity Ownership*	*Listed Firms*
Austria	45	(201)	7	(40)	0.49	0.41	1	0.018	1.488	–	0.186
Belgium	4	(13)	5	(29)	0.49	0.46	0	0.011	1.158	0.160	0.213
Bulgaria	12	(67)	–	–	0.34	0.30	0	0.010	0.568	–	6.706
Croatia	6	(30)	–	–	0.51	0.45	0	-0.012	0.395	–	3.346
Cyprus	6	(27)	3	(17)	0.68	0.64	0	-0.012	1.099	–	4.023
Czech Republic	7	(40)	–	–	0.48	0.41	0	0.005	1.006	0.020	0.063
Denmark	42	(250)	–	–	0.40	0.24	0	0.008	1.687	0.140	0.504
Estonia	2	(8)	2	(14)	0.18	0.20	0	0.060	1.677	0.040	0.526
Finland	18	(100)	4	(26)	0.34	0.25	1	0.005	1.884	0.310	0.492
France	20	(82)	11	(71)	0.52	0.48	0	0.012	1.079	0.180	0.174
Germany	845	(4160)	19	(118)	0.53	0.53	1	0.018	1.703	0.120	0.153
Greece	6	(18)	4	(27)	0.76	0.75	1	-0.082	0.329	0.100	1.013
Hungary	7	(35)	–	–	0.43	0.42	0	0.000	0.752	0.060	0.343
Ireland	7	(33)	3	(19)	0.47	0.52	1	0.015	1.765	–	0.166
Italy	257	(1303)	14	(88)	0.54	0.50	1	-0.012	0.642	0.070	0.135
Latvia	6	(18)	3	(9)	0.36	0.32	0	0.053	1.172	0.000	1.787
Lithuania	5	(16)	3	(9)	0.25	0.24	1	0.051	1.194	0.110	0.928
Luxembourg	11	(56)	4	(23)	0.38	0.31	1	0.011	1.631	0.060	0.378
Malta	3	(17)	4	(23)	0.29	0.15	0	0.020	1.083	0.230	2.127
Netherlands	23	(116)	4	(26)	0.45	0.29	1	0.004	1.769	–	0.110
Poland	18	(75)	–	–	0.29	0.25	0	0.033	1.055	0.110	1.599
Portugal	12	(44)	3	(20)	0.51	0.51	1	-0.028	0.750	0.120	0.205
Romania	11	(55)	–	–	0.31	0.28	0	0.017	0.581	–	0.406
Slovakia	7	(40)	3	(21)	0.42	0.37	1	0.022	0.890	0.000	0.664
Slovenia	10	(46)	4	(27)	0.49	0.51	1	-0.010	0.662	0.210	1.022
Spain	44	(189)	11	(60)	0.61	0.68	0	-0.020	0.750	0.150	2.483
Sweden	48	(273)	–	–	0.40	0.30	0	0.011	1.811	0.250	0.484
United Kingdom	85	(442)	–	–	0.61	0.44	0	0.015	1.826	0.110	0.612
Total	**1,567**	**(7,754)**	**111**	**(667)**							

Table 2 Panel A shows descriptive statistics for all firm-level variables used in our accounting and liquidity tests. Panel B shows the distribution of banks, bank-years, and raw values of the country-level partitioning variables across countries. All variables are defined in Appendix A.

Table 3: Loan loss reporting following SSM introduction and AQR disclosures

	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*
Dependent Variable:	*LLP Ratio*	*LLP Ratio*	*LLA Ratio*	*LLA Ratio*	*Coverage Ratio*	*Coverage Ratio*	*NPL Ratio*	*NPL Ratio*
Test Variables:								
SSM Treated	-0.005**	-0.005***	0.000	-0.002	-0.017	-0.027	-0.012**	-0.016***
	(0.012)	(0.005)	(0.968)	(0.538)	(0.457)	(0.264)	(0.033)	(0.006)
SSM Treated*AQR	–	0.003***	–	0.010**	–	0.041***	–	0.016***
		(0.000)		(0.022)		(0.001)		(0.000)
Control Variables:								
ΔNPL	0.077***	0.078***	–	–	–	–	–	–
	(0.000)	(0.000)						
Tier 1	0.027***	0.028***	-0.121***	-0.120***	-0.542*	-0.541*	-0.254***	-0.252***
	(0.002)	(0.001)	(0.000)	(0.000)	(0.081)	(0.082)	(0.000)	(0.000)
Size	0.004***	0.004***	-0.012***	-0.012***	-0.082	-0.083	-0.013**	-0.014**
	(0.003)	(0.004)	(0.000)	(0.000)	(0.189)	(0.182)	(0.041)	(0.029)
Cost-to-Income	-0.011***	-0.012***	-0.009**	-0.009**	-0.081	-0.083	-0.025***	-0.026***
	(0.000)	(0.000)	(0.031)	(0.021)	(0.288)	(0.277)	(0.001)	(0.000)
RoA	-0.059	-0.062	0.564***	0.557***	-0.624	-0.645	0.959***	0.942***
	(0.145)	(0.122)	(0.000)	(0.000)	(0.585)	(0.573)	(0.000)	(0.000)
GDP	-0.052**	-0.049**	0.250***	0.254***	0.412	0.452	0.607***	0.619***
	(0.014)	(0.019)	(0.000)	(0.000)	(0.425)	(0.383)	(0.000)	(0.000)
Risk-weighted Assets	0.005*	0.005*	-0.066***	-0.067***	-0.388***	-0.391***	-0.096***	-0.098***
	(0.066)	(0.079)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Fixed Effects	Year, Firm	Year, Firm	Year, Firm	Year, Firm	Year, Firm	Year, Firm	Year, Firm	Year, Firm
N	5,783	5,783	8,300	8,300	6,069	6,069	6,097	6,097
Adj. R^2	0.569	0.569	0.828	0.828	0.709	0.709	0.911	0.911

Table 3 shows regression results for the effect of SSM supervision, depending on the magnitude of the AQR impact, on the level of banks' loan loss provision ratio, loan loss allowance ratio, non-performing loan ratio, and coverage ratio. The sample comprises 1,678 treatment and control banks. *SSM Treated* is a binary indicator variable that takes the value of '1' beginning in the first year that a treatment bank is under SSM supervision. *AQR* is the impact of the AQR adjustment on loan loss provisions (i.e., additionally required loan loss provisions) scaled by the amount of the loan loss allowance in the year preceding the AQR. All other variables are defined in Appendix A. All bank-level control variables are lagged by one year. We include year and firm fixed effects in the regressions, but do not report the coefficients. We winsorize all variables at the 1% and at the 99% level. The table reports OLS coefficient estimates and (in parentheses) *p-values* based on robust standard errors clustered by bank. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels (two-tailed), respectively.

Table 4: Liquidity effects following SSM introduction and AQR disclosures

Log(Bid-Ask Spread) as Dependent Variable	*(1)*	*(2)*
Test Variables:		
SSM Treated	-0.185*	-0.037
	(0.054)	(0.741)
SSM Treated*AQR	–	-0.865**
		(0.037)
Control Variables:		
Log(Market Value$_{t-12}$)	-0.117**	-0.111*
	(0.038)	(0.052)
Log(Share Turnover$_{t-12}$)	-0.057**	-0.062***
	(0.015)	(0.009)
Log(Return Variability$_{t-12}$)	0.025	0.032
	(0.568)	(0.459)
Abs(Abnormal Stock Return$_t$)	0.250	0.253
	(0.115)	(0.113)
Fixed Effects	Firm, Country*Month	Firm, Country*Month
N	5,565	5,565
Adj. R^2	0.922	0.922

Table 4 presents regression results for the effect of SSM supervision, depending on the magnitude of the AQR impact, on banks' stock liquidity. The sample comprises 104 treatment and control banks with publicly listed equity. The sample period is from 2011 to 2017. We use the natural logarithm of a firm's monthly median quoted daily *Bid-Ask-Spread* as the dependent variable. *SSM Treated* is a binary indicator variable that takes on the value of '1' beginning in the first month that a treatment bank is under SSM supervision. *AQR* is the impact of the AQR adjustment on loan loss provisions (i.e., additionally required loan loss provisions) scaled by the amount of the loan loss allowance in the year preceding the AQR. All other variables are defined in Appendix A. In the regression analyses, we use the natural logarithm of *Market Value, Share Turnover,* and *Return Variability*, and lag all control variables by 12 months. We include country-month and firm fixed effects in the regressions, but do not report the coefficients. The table reports OLS coefficient estimates and (in parentheses) p-values based on robust standard errors clustered by bank. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels (two-tailed), respectively.

Table 5: Cross-sectional variation in accounting and liquidity effects: political influence and market monitoring

Panel A: LLP ratio

	Institutional Setup					*Market Monitoring*				
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*
LLP Ratio as Dependent Variable	*Regulatory Quality*	*Recession*	*Distrust EU*	*Distrust ECB*	*Anti-EU Party*	*Junk Rating*	*Short-term Funding*	*Funding Cost Volatility*	*Listed Firms*	*Equity Ownership*
Test Variables:										
SSM Treated	-0.013**	-0.002**	-0.004***	-0.003**	-0.005*	-0.004***	-0.000	-0.005***	-0.002	-0.002
	(0.017)	(0.040)	(0.007)	(0.042)	(0.055)	(0.006)	(0.964)	(0.001)	(0.175)	(0.124)
SSM Treated*AQR	0.038*	0.002***	0.002***	0.002***	0.002***	0.008	0.019*	0.005	0.004	0.012*
	(0.066)	(0.000)	(0.000)	(0.000)	(0.000)	(0.244)	(0.057)	(0.503)	(0.339)	(0.070)
SSM Treated*Split	0.011*	-0.010*	-0.003	-0.006*	-0.002	0.002	-0.006	-0.004	-0.006*	-0.009*
	(0.057)	(0.059)	(0.326)	(0.093)	(0.604)	(0.625)	(0.150)	(0.490)	(0.084)	(0.088)
SSM Treated*AQR*Split	-0.036*	0.023*	0.017*	0.025*	0.016	0.018	0.008	0.020	-0.001	-0.009
	(0.080)	(0.084)	(0.099)	(0.060)	(0.130)	(0.256)	(0.636)	(0.212)	(0.844)	(0.183)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects	Year, Firm	Year, Firm	Year, Firm	Year, Firm	Year, Firm	Year, Firm	Year, Firm	Year, Firm	Year, Firm	Year, Firm
N	5,783	5,783	5,783	5,783	5,783	1,825	1,308	4,157	5,437	5,267
Adj. R^2	0.571	0.571	0.570	0.570	0.570	0.357	0.588	0.575	0.575	0.556

(continued)

Table 5 (cont.)

Panel B: LLA ratio

	Institutional Setup					*Market Monitoring*				
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*
LLA Ratio as Dependent Variable	*Regulatory Quality*	*Recession*	*Distrust EU*	*Distrust ECB*	*Anti-EU Party*	*Junk Rating*	*Short-term Funding*	*Funding Cost Volatility*	*Listed Firms*	*Equity Ownership*
Test Variables:										
SSM Treated	-0.009	-0.009***	-0.008***	-0.010***	-0.008*	-0.002	-0.006	-0.008*	0.002	0.001
	(0.266)	(0.004)	(0.001)	(0.000)	(0.061)	(0.577)	(0.284)	(0.064)	(0.659)	(0.765)
SSM Treated*AQR	0.140***	0.007***	0.006***	0.007***	0.008***	0.026**	0.077**	0.046*	0.037	0.048*
	(0.006)	(0.000)	(0.000)	(0.000)	(0.000)	(0.040)	(0.017)	(0.053)	(0.188)	(0.054)
SSM Treated*Split	0.000	0.007	-0.001	0.002	0.002	0.011	0.005	0.001	-0.007	-0.016***
	(0.959)	(0.369)	(0.797)	(0.748)	(0.745)	(0.379)	(0.566)	(0.950)	(0.277)	(0.005)
SSM Treated*AQR*Split	-0.132***	0.062*	0.083**	0.078**	0.048*	0.147***	-0.040	-0.003	-0.028	-0.038
	(0.009)	(0.058)	(0.019)	(0.026)	(0.054)	(0.001)	(0.372)	(0.923)	(0.324)	(0.127)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects	Year, Firm	Year, Firm	Year, Firm	Year, Firm	Year, Firm	Year, Firm	Year, Firm	Year, Firm	Year, Firm	Year, Firm
N	8,300	8,300	8,300	8,300	8,300	2,438	1,310	6,147	7,653	7,105
Adj. R^2	0.831	0.830	0.830	0.830	0.829	0.877	0.860	0.823	0.829	0.831

(continued)

Table 5 (cont.)

Panel C: Coverage ratio

	Institutional Setup					*Market Monitoring*				
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*
Coverage Ratio as Dependent Variable	*Regulatory Quality*	*Recession*	*Distrust EU*	*Distrust ECB*	*Anti-EU Party*	*Junk Rating*	*Short-term Funding*	*Funding Cost Volatility*	*Listed Firms*	*Equity Ownership*
Test Variables:										
SSM Treated	-0.068*	-0.011	-0.074*	-0.097**	-0.099**	0.027	-0.056	-0.016	0.026	0.008
	(0.086)	(0.715)	(0.095)	(0.034)	(0.016)	(0.556)	(0.306)	(0.764)	(0.537)	(0.815)
SSM Treated*AQR	0.379**	0.038***	0.052***	0.051***	0.057***	-0.136	0.006	0.053	-0.170	0.003
	(0.023)	(0.000)	(0.000)	(0.000)	(0.000)	(0.431)	(0.971)	(0.783)	(0.289)	(0.982)
SSM Treated*Split	0.042	-0.039	0.061	0.063	0.118**	-0.181*	-0.021	-0.020	-0.067	-0.085
	(0.395)	(0.453)	(0.265)	(0.251)	(0.023)	(0.075)	(0.741)	(0.759)	(0.194)	(0.189)
SSM Treated*AQR*Split	-0.345**	0.036	-0.031	0.219	-0.108	0.888**	0.153	-0.086	0.222	0.054
	(0.038)	(0.866)	(0.860)	(0.111)	(0.514)	(0.018)	(0.507)	(0.739)	(0.164)	(0.672)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects	Year, Firm	Year, Firm	Year, Firm	Year, Firm	Year, Firm	Year, Firm	Year, Firm	Year, Firm	Year, Firm	Year, Firm
N	6,069	6,069	6,069	6,069	6,069	1,943	591	4,358	5,694	5,502
Adj. R^2	0.709	0.709	0.709	0.710	0.710	0.557	0.853	0.707	0.704	0.711

(continued)

Table 5 (cont.)

Panel D: NPL ratio

	Institutional Setup					*Market Monitoring*				
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*
NPL Ratio as Dependent Variable	*Regulatory Quality*	*Recession*	*Distrust EU*	*Distrust ECB*	*Anti-EU Party*	*Junk Rating*	*Short-term Funding*	*Funding Cost Volatility*	*Listed Firms*	*Equity Ownership*
Test Variables:										
SSM Treated	-0.034***	-0.014*	-0.021	-0.024**	-0.019***	0.003	-0.006	-0.012*	0.005	0.001
	(0.003)	(0.073)	(0.106)	(0.032)	(0.009)	(0.387)	(0.424)	(0.054)	(0.493)	(0.817)
SSM Treated*AQR	0.132***	0.013***	0.014***	0.016***	0.015***	0.025*	0.063***	0.046	0.018	0.033*
	(0.007)	(0.000)	(0.000)	(0.000)	(0.000)	(0.092)	(0.007)	(0.124)	(0.317)	(0.091)
SSM Treated*Split	0.022	-0.014	-0.000	0.003	-0.000	0.003	-0.017	-0.015	-0.032***	-0.036***
	(0.120)	(0.342)	(0.991)	(0.814)	(0.994)	(0.817)	(0.333)	(0.393)	(0.002)	(0.002)
SSM Treated*AQR*Split	-0.119**	0.070**	0.057**	0.075**	0.035	0.116*	-0.009	0.021	-0.000	-0.015
	(0.015)	(0.032)	(0.046)	(0.042)	(0.223)	(0.052)	(0.879)	(0.668)	(0.999)	(0.456)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects	Year, Firm	Year, Firm	Year, Firm	Year, Firm	Year, Firm	Year, Firm	Year, Firm	Year, Firm	Year, Firm	Year, Firm
N	6,097	6,097	6,097	6,097	6,097	1,956	592	4,382	5,717	5,516
Adj. R^2	0.911	0.911	0.911	0.911	0.911	0.938	0.927	0.909	0.914	0.917

(continued)

Table 5 (cont.)
Panel E: Stock liquidity

	Institutional Setup					*Market Monitoring*				
Log(Bid-Ask Spread) as Dependent Variable	*(1) Regulatory Quality*	*(2) Recession*	*(3) Distrust EU*	*(4) Distrust ECB*	*(5) Anti-EU Party*	*(6) Junk Rating*	*(7) Short-term Funding*	*(8) Funding Cost Volatility*	*(9) Listed Firms*	*(10) Equity Ownership*
Test Variables:										
SSM Treated	-0.086	0.159	0.140	-0.311	-1.285***	-0.214***	0.018	-0.219**	-0.076	-0.170
	(0.497)	(0.266)	(0.842)	(0.662)	(0.002)	(0.002)	(0.856)	(0.037)	(0.514)	(0.154)
SSM Treated*AQR	-0.832*	-1.120*	-3.287***	-0.716*	6.853	-0.254*	-0.335**	-0.371*	-0.586	-0.485
	(0.057)	(0.082)	(0.000)	(0.089)	(0.205)	(0.065)	(0.033)	(0.076)	(0.103)	(0.114)
SSM Treated*Split	0.143	-0.291	-0.209	0.290	1.149***	0.448***	0.002	0.555***	0.362	0.455***
	(0.433)	(0.115)	(0.767)	(0.687)	(0.009)	(0.003)	(0.992)	(0.000)	(0.109)	(0.008)
SSM Treated*AQR*Split	-0.080	0.310	2.713***	-0.143	-7.662	-2.162***	-2.021***	-2.074***	-1.648***	-1.928***
	(0.932)	(0.690)	(0.000)	(0.783)	(0.155)	(0.000)	(0.000)	(0.000)	(0.006)	(0.005)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects	Firm, Country* Month	Firm, Country* Month	Firm, Country* Month	Firm, Country* Month	Firm, Month	Firm, Country* Month	Firm, Country* Month	Firm, Country* Month	Firm, Country* Month	Firm, Country* Month
N	5,565	5,565	5,417	5,417	6,111	2,464	4,517	5,142	5,417	5,138
Adj. R^2	0.922	0.923	0.923	0.923	0.814	0.929	0.929	0.926	0.923	0.927

Table 5, Panels A-E show the results from regressions investigating the differential effect of SSM supervision, depending on the magnitude of the AQR impact, on banks' loan loss provision ratio (Panel A), loan loss allowance ratio (Panel B), non-performing loan ratio (Panel C), coverage ratio (Panel D) and the logarithm of monthly median quoted daily Bid-Ask Spread (Panel E), including interaction terms with a set of bank and country-specific binary indicator variables as defined in Appendix A. The maximum sample in Panel A-D comprises 1,678 treatment and control banks. All control variables in Panel A-D are identical to Table 3. The maximum sample in Panel E comprises 104 treatment and control banks with publicly listed equity. All control variables in Panel E are identical to Table 4. We include year and firm fixed effects in the regressions in Panel A-D, and country-month and firm fixed effects in the regressions of Panel E, but do not report the coefficients. The table reports OLS coefficient estimates and (in parentheses) p-values based on robust standard errors clustered by bank. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels (two-tailed), respectively.

Table 6: Timeliness of loan loss provisions

	(1)	*(2)*
Dependent Variable:	*LLP*	*LLP*
Test Variables:		
SSM Treated	-0.007**	-0.006*
	(0.037)	(0.052)
SSM Treated*AQR	0.021***	0.004
	(0.000)	(0.709)
SSM Treated*ΔNPL_t	-0.141**	-0.174***
	(0.011)	(0.009)
SSM Treated*AQR*ΔNPL_t	1.625***	2.469***
	(0.000)	(0.002)
Control Variables:		
AQR*ΔNPL_t	-0.007	-0.488**
	(0.156)	(0.043)
SSM Treated* ΔNPL_{t+1}		0.196
		(0.263)
SSM Treated*AQR*ΔNPL_{t+1}		-0.767
		(0.286)
AQR*ΔNPL_{t+1}		-0.301**
		(0.045)
ΔNPL_t	0.074***	0.075***
	(0.000)	(0.000)
ΔNPL_{t-1}	0.050***	0.050***
	(0.000)	(0.000)
ΔNPL_{t+1}	-0.011	-0.011
	(0.434)	(0.417)
LLA	0.006	0.006
	(0.390)	(0.387)
Tier 1	0.030***	0.030***
	(0.002)	(0.002)
Size	0.002	0.002
	(0.370)	(0.387)
Cost-to-Income	-0.010***	-0.010***
	(0.000)	(0.000)
RoA	-0.190***	-0.187***
	(0.000)	(0.000)
GDP	-0.038	-0.040*
	(0.121)	(0.088)
Risk-weighted Assets	0.001	0.001
	(0.753)	(0.809)
Fixed Effects	Year, Firm	Year, Firm
N	3,298	3,298
Adj. R^2	0.664	0.664

Table 6 shows regression results for the effect of SSM supervision, depending on the magnitude of the AQR impact, on the timeliness of banks' loan loss provision. *SSM Treated* is a binary indicator variable that takes the value of '1' beginning in the first year that a treatment bank falls under SSM supervision. *AQR* is the impact of the AQR adjustment on the loan loss provision (additionally required loan loss provisions) scaled by the amount of the loan loss allowance in the year preceding the AQR. All other variables are defined in Appendix A. All bank-level control variables are lagged by one year. We include year and firm fixed effects in the regressions, but do not report the coefficients. We winsorize all variables at the 1% and at the 99% level. The table reports OLS coefficient estimates and (in parentheses) *p-values* based on robust standard errors clustered by bank. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels (two-tailed), respectively.

Appendix A: Variable definitions

Variable	Definition	Data Source
Firm-level Variables		
Tier 1	Tier 1 capital / total risk-weighted assets	S&P Global MI
Size	Ln(total assets)	S&P Global MI
Cost-to-Income Ratio	Operating expenses / operating income	S&P Global MI
RoA	Pre-provision net income / total assets	S&P Global MI
Risk-weighted Assets	Risk-weighted assets / total assets	S&P Global MI
ΔNPL	Non-performing loans / Non-performing loans$_{t-1}$	
Loan loss provisions (LLP) Ratio	Loan loss provision / total gross loans	S&P Global MI
Loan loss allowance (LLA) Ratio	Loan loss allowance / total gross loans	S&P Global MI
Non-performing loans (NPL) Ratio	Non-performing loans / total gross loans	S&P Global MI
Coverage Ratio	Loan loss allowance / non-performing loans	S&P Global MI
Junk Rating	Binary variable that takes the value of '1' for banks with a S&P rating below BBB-	S&P Global MI
Short-term Funding	Binary variable that takes the value of '1' for firms with above median short-term deposit ratio (as of 2013)	S&P Global MI
Funding Cost Volatility	Binary variable that takes the value of '1' for firms with above median funding cost volatility between 2011-2013	S&P Global MI
AQR Adjustment	AQR adjustment on the loan loss provision (additionally required loan loss provisions) / loan loss allowance in 2013	ECB & S&P Global MI
Liquidity Variables		
Bid-Ask Spread	Monthly median of the quoted spread between the bid and ask price	Datastream
Abs(Abnormal Stock Return)	Absolute abnormal monthly stock return	Datastream
Market Value	Monthly median of daily market value	Datastream
Share Turnover	Monthly median of daily share turnover	Datastream
Return Variability	Monthly standard deviation of daily returns	Datastream
Country Variables		
Distrust EU	Binary variable that takes the value of '1' for countries with below median trust in the ECB as of 2014	Eurobarometer Survey
Distrust ECB	Binary variable that takes the value of '1' for countries with below median trust in the EU as of 2014	Eurobarometer Survey
Anti-EU Party	Binary variable that takes the value of '1' for countries with at least one Anti-EU party that is represented in the European Parliament with at least 5% of the seats within the country as of 2014	Manifesto Project, Manual Collection
Recession	Binary variable that takes the value of '1' for all countries with negative GDP growth over the two years before the SSM introduction (2011 and 2012)	World Bank
GDP	Yearly Growth in Gross Domestic Product	World Bank
Regulatory Quality	Binary variable that takes the value of '1' for countries with above median regulatory quality over the sample period from 2011-2017	Kaufmann, Kraay, and Mastruzzi, (2011)
Equity Ownership	Binary variable that takes the value of '1' for countries with above median ratio of household equity ownership (2008-2010)	Christensen, Maffett and Vollon (2019)
Listed Firms	Binary variable that takes the value of '1' for countries with above median ratio of listed firms to GDP in 2014	World Bank

Appendix B: Loan loss reporting following SSM introduction and AQR disclosures using entropy balancing

	(2)	*(4)*	*(6)*	*(8)*
Dependent Variable:	*LLP Ratio*	*LLA Ratio*	*Coverage Ratio*	*NPL Ratio*
Test Variables:				
SSM Treated	-0.003	0.002	-0.028	0.012*
	(0.245)	(0.567)	(0.426)	(0.067)
SSM Treated*AQR	0.013*	0.043**	-0.047	0.036**
	(0.052)	(0.012)	(0.741)	(0.023)
Control Variables:				
ΔNPL	0.077***			
	(0.003)			
Tier 1	-0.000	-0.000	0.003	-0.001
	(0.820)	(0.329)	(0.455)	(0.365)
Size	0.010***	-0.007	-0.130	0.020
	(0.008)	(0.243)	(0.125)	(0.175)
Cost-to-Income	-0.000	0.000	0.001	0.000***
	(0.687)	(0.557)	(0.448)	(0.006)
RoA	0.065	0.584***	1.009	1.312***
	(0.399)	(0.004)	(0.415)	(0.000)
GDP	-0.001*	0.001**	0.006	-0.000
	(0.094)	(0.032)	(0.162)	(0.640)
Risk-weighted Assets	0.000***	0.000	-0.002	0.001
	(0.006)	(0.162)	(0.179)	(0.119)
Fixed Effects	Year, Firm	Year, Firm	Year, Firm	Year, Firm
N	4,122	6,085	4,329	4,353
Adj. R^2	0.636	0.843	0.835	0.930

Appendix B replicates Table 3 using an entropy balanced sample. We use the entropy balancing approach to reweight the observations in our sample in a way such that the distribution of values of the control variables in the treatment group is as similar as possible to the distribution in the control group along the first three moments (mean, variance and skewness). We include year and firm fixed effects in the regressions, but do not report the coefficients. We winsorize all variables at the 1% and at the 99% level. The table reports OLS coefficient estimates and (in parentheses) *p-values* based on robust standard errors clustered by bank. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels (two-tailed), respectively.

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