The Impact of Statutory Audit and Corporate Reporting Directives on Compliance Costs, Risk-taking and Reporting Quality of the EU Banks

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Abstract

The paper examines the effects of recently introduced Statutory Audit and Corporate Reporting Directives (SACORD) on compliance costs and risk taking of the EU banks. Using data of 80 EU banks and 71 non-EU banks for the period 2004 to 2013, we estimate the effects of SACORD regulation compliance costs, risk taking and quality of reporting. Our results show that the economic effects of SACORD on audit fees are approximately 19 to 33 percent higher relative to the non-EU banks. We also find robust evidence of significant increase in in total compliance costs. The findings are consistent with those reported in the previous literature mainly for the US banks that regulation increases compliance costs. Further, we find that post SACORD, there is a significant increase in risk-taking and a decline in reporting quality. Findings suggest that the SACORD regulation does not appear to have the desired effects of constraining risk-taking by banks.

Keywords: Statutory Audit and Reporting Directive, Compliance cost, Bank risk taking, Reporting quality, the EU

JEL Classification: G18, G21

1. Introduction

The importance of regulation for ensuring an efficient financial system is extensively discussed in the extant literature (see e.g. Dermine, 2006; Asaftei and Kumbhakar, 2008; and Klomp and Haan, 2012). How efficiently the financial system allocates capital has a significant impact on the nation's economic success (Levine, 2005). The recent financial crisis has clearly shown that banks play a central role in the financial system and have an unambiguous relation with systemic risk. Their effective regulation is therefore a key feature of a sound financial system.

The European Parliament and the Council of the European Union issued the directive 2006/43/EC (SAD) which aims to harmonise statutory audit requirements across the European Union (EU) member states. Further it also issued directive 2006/46/EC (CRD) which primarily deals with credible financial reporting processes. These two regulations (SACORD, hereafter) aim to improve internal controls of publicly traded corporations in the EU by increasing the disclosure quality[1]. Bushman and Williams (2015) argue that publicly disclosed financial reports are a key source of bank transparency and can help in reducing risk-taking and enhancing financial stability.[2] Greater disclosure requirements in SACORD are aimed at reducing information asymmetry by improving the quality of information in the financial statements and enable stakeholders to adequately appraise the risk.[3]

This paper empirically examines the impact of SACORD on the compliance costs, risk taking and quality of reported earnings of the EU banks. The following provisions in the SACORD motivate us to predict that the new regulation will have significant impact on audit costs, risk-taking and reporting quality.

[1] Majority of the EU countries in our sample adopted the SACORD from 2008. However, following countries adopted the SACORD after 2008; Austria (2009), Czech Republic (2009), Germany (2009), Poland (2009), Sweden (2009), Ireland (2010), Italy (2010), Spain (2010).

[2] Barth and Schipper (2008; p.173) define financial reporting quality as "the extent to which financial reports reveal an entity's underlying economics in a way that is readily understandable by those using the financial reports."

[3] See Leuz and Wysocki (2016) for a survey of the disclosure literature.

Article 26 of SAD and article 2 of CRD require adoption of the International Standards on Auditing (ISA) and the disclosure of off-balance sheet (OBS) arrangements and related party transactions (RPTs). Further, Article 1(7)(2) of CRD requires statutory auditors to verify that the board of directors have produced a corporate governance statement. Since the auditors are required to provide independent assurance of the credibility of financial statements, we expect them to charge higher audit fee to cover the costs of additional audit effort required to reduce risk of material misstatement and to counter litigation threats.

We also examine the effects of SACORD on bank risk-taking. Like most businesses, banks too are value-maximizing entities but they need to balance this with protecting the public interest (Mehran and Mollineaux, 2012) and the economy (Acharya and Ryan, 2016). One strand of the banking literature posits that increased disclosure can deter banks from excessive risk-taking through outside discipline (e.g., Blum, 2002; Chen and Hasan, 2006; Nier and Baumann, 2006; Bushman and Williams, 2012). Akhigbe et al. (2016) find evidence which suggests a decline in risk taking by banks and financial institutions following the introduction of the Dodd–Frank regulation.

On the other hand, extant research also reports a positive association between increase in regulation and increase in bank risk-taking. Evidence suggests that the illiquid and harder to observe nature of banks' portfolios make it is difficult for the market to discipline risk-taking (Morgan, 2002; Flannery et al., 2013), spurring bank managers to take on excessive risks. Bouvard et al. (2015) and Moreno and Takalo (2016) in their theoretical model argue that despite the benefits of increased disclosures, the associated costs are a significant financial burden which can influence banks to take more risks.

The evidence of the effects of regulation in the extant literature is mixed since while some studies find a positive impact while others report that disclosure regulations can increase managerial incentives to take more risks. The SACORD regulation will be implemented across the EU countries and a thorough investigation of its effects will offer rich insights to regulators and other stakeholders about the risk-taking behaviour of EU banks. Acharya and Ryan (2016) also suggest that more research on the impact of disclosure regulation on risk-taking by banks will help in understanding the true effects of financial regulation.

Finally, we examine whether SACORD regulation has improved the quality of financial reporting. This is important from a regulator's perspective because one of the objectives of

disclosure regulation is to improve the quality of financial information (e.g., Bischof, 2009; Bushman, 2014). However, there is empirical evidence to the contrary which suggests that increased information transparency can lead to a decline in reporting quality as banks attempt to avoid disclosure by changing assets composition and their classification in the financial reports (Hodder et al., 2002; Thakor, 2015 and Iselin and Nicoletti, 2016). Examination of EU banks' reporting quality due to the SACORD regulation will be highly valuable to the regulators in enhancing the robustness of the financial system in the EU.

Examining the impact of SACORD regulation on EU banks is important for several reasons. First, the combined assets of EU banks represent about half of global banking assets with branches and subsidiaries around the world networks (Lehmann and Nyberg, 2014). Effective regulation of EU banks therefore has global implications. Second, it is informative to regulators to gain insights into the potential costs and benefits of compliance with SACORD to know whether the benefits are commensurate with costs (e.g., LaFond and You, 2010). Both Posner and Weyl (2013) and Cochrane (2014) suggest that cost-benefit analysis of regulation is necessary to understand the economic consequences of the regulation. Finally, to the best of our knowledge, this is the first study that offers empirical evidence of the impact of SACORD on the compliance costs, risk-taking and reporting quality of EU banks thus contributing to the extant literature which dominated with research based mainly on the US market.

We employ a difference-in-differences (DID) estimation approach commonly used for examining the effects of changes in regulation (e.g., Altamuro and Beatty, 2010; Kross and Suk, 2012; Petacchi, 2015). In doing so, we control for firm-level characteristics i.e., firm size, leverage, business diversity, profitability, firm growth opportunities and global importance which could influence costs, risk taking and reporting quality of banks.

One of the challenges in using (DID) estimation is finding a control sample. We follow an approach similar to the one used by Bargeron et al. (2010) and Dambra et al. (2015) and include listed banks in the US and Canada as a control sample. Importantly, to mitigate the concern that changes in our sample composition might affect our results, we require our treatment and control sample to have at least one observation in the pre- and post-regulation period.

Our results a robust evidence of significant increase in compliance costs of EU banks following the SACORD. We find that on average the compliance costs are higher by 17 to 39

percent post-SACORD for the EU banks relative to control sample of non-EU banks. In terms of the impact on the risk-taking, we find an increase in risk-taking by the EU banks following the introduction of SACORD. Consistent with Moreno and Takalo (2016), this may suggest that increase in transparency increases rollover risk and banks compensate this adverse effect by increasing their risk-taking. Finally, we find a decline in the reporting quality post-SACORD which suggests that the increased disclosure requirements are counter-productive as far as quality of financial reporting is concerned.

The rest of the paper is organised as follows. Section 2 provides a discussion of relevant regulations in SACORD with regard to financial reporting, disclosures and risk taking and related literature. Section 3 explains data and methods used in the study. Section 4 presents and discusses empirical findings. Section 5 concludes the paper.

2. Literature review and hypotheses development

2.1 SACORD and compliance costs

The SACORD aims to improve auditing standards and increase transparency of off-balance sheet transactions. Banks perceive that these disclosure requirements will significantly increase compliance costs. HSBC's recent consideration to relocate its headquarters from the UK is a case in point of the effects of soaring compliance costs.[4] The following provisions of SACORD lead us to predict that the regulation will adversely affect the audit costs of the EU banks.

2.1.1 Auditing standards, off-balance sheet disclosure and related parties' transactions

Directive 2006/43/EC on statutory audits (SAD) aims to harmonise the quality of audit in the EU, whereas Directive 2006/46/EC on corporate reporting (CRD) aims to promote credible financial reporting processes. The overall objectives of SAD and CRD are to improve corporate governance, transparency and disclosure of accounting information to promote reliable financial reporting, increase comparability and enhance public confidence in the audit function.

With an aim to ensure consistently high audit quality within the EU, article 26 of SAD requires the adoption of the International Auditing Standards (IAS) also referred to as International Standards on Auditing (ISA). Also, article 2 of CRD requires disclosure of Off-

[4] FT.com (2015). HSBC threatens to move headquarters from UK, April 24.

Balance Sheet (OBS) arrangements and Related Party Transactions (RPTs) to enhance confidence in the audit quality and the credibility of financial reports.[5]

We argue that the adoption of the IAS will increase work required in auditing accounts as auditing firms would have to employ knowledgeable and experienced auditors. There has been a dramatic growth in the use of off-balance sheet (OBS) activities (e.g., standby letters of credit, guarantees, and special purpose entities (SPEs)) in the banking sector (Jagtiani et al., 1995; Mills and Newberry, 2005; Lozano-Vivas and Pasiouras, 2014). Banks do not disclose the OBS assets and liabilities in the financial statements. However post SACORD, banks will be required disclose these in the notes to the annual accounts.

Previous research suggests that banks view RPTs as instruments they can use to facilitate personal gains, profit expropriation and fraudulent reporting (e.g., OECD, 2009; 2012; Ryngaert and Thomas, 2012). According to AICPA (2001), RPTs are difficult to audit as it is difficult to identify such transactions, Auditors have to rely on management to provide information on RPTs. Lo and Wong (2016) suggest that adequate disclosure of RPTs complements weak corporate governance and improves the value relevance of financial information.

To the extent that the statutory auditors are now required to conduct their audit in accordance with IAS requirements, and carry out quality assurances on OBS and RPTs, we expect a significant increase in audit fees for banks operating in the EU.

A large number of studies offer evidence of increased compliance costs due to the adoption of new regulations (see, for example, Leuz et al., 2008; Ashbaugh-Skaife et al., 2009; Kamar et al., 2009; Battalio and Schultz, 2011; Gao et al., 2013; Hostak et al., 2013). Iliev (2010) investigates the effect of SOX on compliance costs in the United States and find that compliance with new regulation leads to a significant an increase in audit fees.

We expect that SACORD legislation will significantly increase both the extent and quality of statutory audit work, auditors will charge higher fee to compensate for the additional work. This will lead to a significant increase in audit costs post-SACORD. Thus first hypothesis is:

P1: The compliance costs for the EU banks would increase post-SACORD regulation.

[5] http://www.kapitalmarktrecht-im-internet.eu/en/Areas%20of%20Law/Company_Law/European_Law/96/Directive_2006_46_EG.htm

2.2 SACORD and bank risk taking

2.1.3 Audit committee provision

To ensure the effectiveness of the internal control systems and promote credible financial reporting processes, Article 41(1) of SAD requires that the audit committee should consist of at least one independent director with financial expertise. Article 41(2b) requires public-interest entities (PIEs) [6] to have an audit committee with a specific responsibility to monitor the effectiveness of internal control, internal audit, and risk management systems. Article 41(4) requires the statutory auditor to report to the audit committee any material weaknesses in internal control systems. Further, Article 1(7) of CRD requires the board to include in the annual financial report, a corporate governance statement that outlines the internal control and risk management systems.

The provisions as mentioned above, in addition to those outlined in Article 2 of CRD regarding OBS and RPTs will increase transparency and influence the risk-taking behaviour of EU banks. Extant literature has found a link between two. For instance, Sun and Liu (2014) examine the effect of audit committee on bank risk-taking and find a negative association between audit committee effectiveness and risk. Akhigbe et al. (2016) report reduction in risk-taking by US banks after the passage of Dodd–Frank regulation.

There is, however, a body of research which argues that increase in regulation can be counter-productive. Goldstein and Sapra (2013) develop a theoretical model to illustrate how increased disclosure can lead to sub-optimal behaviour in banks and cause management to make inefficient investment decisions. Morrison and White (2013) show that increased disclosure can cause interbank contagion where the failure of one bank may weaken creditors' confidence in regulator's competence. Further, Moreno and Takalo (2016) argue that increasing transparency can increase depositors' uncertainty about the solvency of banks, exacerbating panic and rollover risk that would eventually create incentives for banks to increase their risk-taking.[7]

[6] Article 2 of CRD defines public-interest entities (PIEs) as publicly listed companies, credit institutions, insurance entities and any other entities member states designate as public-interest entities that are of significant public relevance.

[7] Matutes and Vives (2000) argue that full transparency and a risk based depositor insurance schemes lead to an equal risk-taking incentive. Hyytinen and Takalo (2002) argue that costs associated with increasing disclosure may offset or over compensate the benefits accruing from transparency.

These competing arguments create a demand for empirical analysis. While SACORD is expected to facilitate the reduction of bank risk-taking behaviour through increased disclosure, the opacity of banks' risk assets exposures (Morgan, 2002), complexity of their financial structure and investment-risk choices (Boyd and Prescott, 1986; Bushman and Williams, 2015), the moral hazard created by the government backed financial safety nets (Dam and Koetter, 2012), the weak force of market discipline for excessive risk-taking (Dam and Koetter, 2012), and shareholders' short-run interests to maximise their share value (DeYoung et al., 2013) can undermine its intended effects and induce banks to take more risk. Thus our second hypothesis is:

P2: Risk-taking by EU banks will change post SACORD implementation.

Conventional wisdom suggests that more disclosure will enable investors to more effectively prevent managerial rent extraction, strengthen market discipline, and increase transparency of sensitive financial information. Prior literature also suggests increased disclosure is associated with improved financial reporting quality (see, Bischof, 2009). Gebhardt and Novotny-Farkas (2011) report a reduction in income smoothing behaviour of European banks post-IFRS adoption. Further, Altamuro and Beatty (2010) find an association between the implementation of the mandated internal control provisions of the Federal Depository Insurance Corporation Improvement Act (FDICIA) and higher reporting quality.

However, it is possible for the reporting quality to decline following introduction of new regulation. For instance, Vashishtha (2014) argue bank shareholders' demand for improved disclosure may decline because they profit from the cost savings from the reduced information disclosure. Thakor (2015) develops a theoretical model and demonstrates that banks may choose to disclose less information because more disclosure may increase their fragility.

Overall, given the focus of SACORD on reporting quality, we expect the adoption of SACORD will affect reporting quality. However, to the extent that shareholders may want to disclosure less information to protect the market value of the assets and revenue from competing lenders and management may desire to maximize their utility, the quality of reporting may decline (Laux, 2014). Thus our final hypothesis is:

P3: Quality of financial reporting will change post SACORD implementation.

3. Sample Selection, Methods, and Descriptive Statistics

3.1 Data and Sample Selection

We use annual financial statement data from 2004 to 2013 for all listed banks in the EU, US and Canada collected from DataStream. We extract the missing information from the annual report of firms from Perfect Filing database. We use listed banks because audit fees and stock return data are only available for listed banks in Datastream. We choose 2004 as the start date because prior to 2004, audit fee data is available only for a small number of EU banks. We classify all observations from 2004 to the year before SACORD adoption as the pre-SACORD and all observations from the year of implementation and enforcement to 2013 as post-SACORD.

For a bank to be included in our sample, we require at least five years of data on key accounting variables. Further, we exclude those banks which commenced their operation after 2008 and/or banks for which audit fees is not available. Our final sample comprises 151 listed banks, 80 banks (735 bank-years) from the EU and 71 banks (681 bank-years) from the US and Canada.

Although one of the main objectives of the paper is to study the effect of SACORD on audit costs, we also include non-audit fees to examine the impact on total fees since previous research has shown a significant positive association between audit fees and non-audit fees (Palmrose, 1986b; Schmidt, 2012).

3.2 Research Methods

3.2.1 Difference-in-differences

We use a DID analysis that is commonly used for examining the unique effects of regulatory changes (e.g., Daske et al., 2008; Low, 2009; Dambra et al., 2015; Petacchi, 2015). The DID estimation combines the difference and pre-post comparison evaluation methodology by estimating the change in outcome over time in the treatment and control samples and then taking the difference between these two samples. It assumes that both samples would have followed parallel paths over time if the treatment sample is not affected by a specific

intervention (Wooldridge, 2012). Thus, if the SACORD is the cause for increase in audit fees, this increase should be concentrated in EU Banks.

The empirical challenge of implementing the DID research design is to identify a control sample that is not affected by the regulation (e.g., Hochberg et al., 2009; Leuz and Wysocki, 2016). SACORD affects all EU firms and thus identifying a control sample not affected by SACORD regulation from the EU countries is not possible. There is a general agreement in the extant literature that developed economies like the US, UK and the EU are exposed to similar underlying economics (Gerakos et al., 2013) and financial regulation (Coates and Srinivasan, 2014). These countries also share similar institutional arrangements (La Porta et al., 2006), and have comparable market capital environments and regulations (Zhang, 2007; Bargeron et al., 2010). For example, Bargeron et al. (2010), Lee et al. (2014) and Dambra et al. (2015) use firms from the UK, Canada, Germany and France as control sample for investigating the effects of SOX and Fair Disclosure and JOBS Act on US firms. We follow a similar approach and use listed banks in the US and Canada as control since they are not affected by the SACORD regulation.

3.2.2 The SACORD and the Audit costs

For testing our first prediction, we estimate the following baseline DID model to examine whether the SACORD explains the cross-sectional time series variation in changes in the audit costs of EU banks:

$$Auditfees_{it} = \alpha_t + \theta_i + \beta_1 EUR * PsSACORD_t + \beta_2 FinCrs_{it} + \beta_3\, Revenue_{it} + \beta_4 Loss\_Ind_{it} + \beta_5 LTDebt/TA_{it} + \beta_6 NIR/Revenue_{it} + \beta_7 Nloan/TA_{it} + \beta_8 ROA_{it} + \beta_9 Geo\_Seg_{it} + \beta_{10} EconFreedm_{it} + \beta_{11} RPerCapInc_{it} + \beta_{12} BizDisclos\_Indx_{it} + \beta_{13} TobinQ_{it} + \beta_{14} STDCFO_{it} + \beta_{15} Accru/TA_{it} + \beta_{16} Asset\_grwth_{it} + \beta_{17} LLP/TA_{it} + \beta_{18} IFRS_{it} + \beta_{19} AuditCommN_{it} + \varepsilon_{it} \quad (1)$$

In the model, α_t is year fixed effects, θ_i is firm fixed effects, β_1 is the coefficient of our primary variable of interest which is interaction between the indicator for EU Banks (EUR=1 if EU Bank) and SACORD post-adoption period (PsSACORD=1 if post SACORD). If EU banks are subject to increase in audit fees post-SACORD, then the coefficient β_1 that captures the differential changes in audit fees should be positive.

To capture the differences in the effect of SACORD adoption, we use the natural logarithm of audit fees (Auditfees) as a proxy for compliance costs (see Iliev, 2010; De George et al., 2013) over the period 2004 to 2013 partitioned on pre-SACORD period (2004 to year prior adoption) and post-SACORD period (year of adoption to 2013). To account for any systematic difference in the compliance costs associated with the sample, we include additional company-specific characteristics in our model. We include the natural logarithm of sales (Revenue) as a control for firm size (Petacchi, 2015), we also include return on assets (ROA) and loss indicator (Loss_Ind), a dummy variable equal to one if a firm reports a loss for the year as a measure for profitability (De George et al., 2013, Lang and Stice-Lawrence, 2015). The standard deviation of cash flows from operations (STDCFO) and long term debt scaled by total assets (LTDebt/TA) are measures of financial distress (Beaver et al., 2005; Chen et al., 2016a). Accrual (Accrual/TA) and number of foreign business operations (Geo_Seg) are control variables for audit complexity (De George et al., 2013). In addition, we measure business risks using net loans to total assets (Nloan/TA) and loan loss provision to total assets (LLP/TA) (Soedarmono et al., 2013), we include the number of audit committee members (AuditCommN) as control for board effective oversight (Badolato et al., 2014). Tobin's q (TobinQ) is a measure of firm performance (Badertscher et al., 2014) and annual total asset growth ratio (Asset_grwth) is a proxy for growth opportunities (Guedhami et al., 2014). We include non-interest income scaled by revenue (NIR/Rev) to control for income diversity. Following Ho et al. (2016), we control for financial crisis (FinCrs) which equals one during the period 2007 to 2009, other period are non-crisis period. We also control for the impact of International Financial Reporting Standards (IFRS) with dummy equals 1 from 2005 for countries that have implemented IFRS.

To account for country specific effects, we include the natural logarithm of real GDP per capital (RperCapInc) and business extent of disclosure index (BizDisclos_Indx) obtained from World Development Indicator (WDI). We also include economic freedom index obtained from the Heritage Foundation (EconFreedm) to control for institutional factors that might affect the overall level of bank efficiency in a country.[8] We do not control for audit firms as almost all EU banks in our sample were audited by the BIG 4. Ghosh and Tang (2015) note that not including some controls in audit fees model is not a concerning issue because the model with R-squares greater than 70 percent is generally well-specified and thus

[8] http://www.heritage.org/index/explore

help mitigate concerns of potential omitted variables bias that may affect audit costs estimation. All bank characteristics are as defined in Appendix A.

The analysis of the DID model is robust to firm and year fixed effects that account for any time-invariant and cross-sectional heterogeneity in audit fees and also addresses potential endogeneity concerns (Petacchi, 2015). The estimated standard errors are clustered at the firm level and corrected for heteroskedasticity (Petersen 2009).

To test the impact of SACORD on audit costs across the size (small, midsize and large) of banks, we distinguish banks by using the percentile value of total assets and introduce a size variable in our model that takes the value of one for small, midsize and large bank post-SACORD and zero otherwise. Banks with total assets in the lower quartile are classified as 'small banks' and banks with total assets in the upper quartile are classified as 'large banks'. All other banks with total assets between the lower and upper quartiles are classified as midsize banks for the treatment and control sample. This design holds year and firm effects constant and allows the study of the effect associated with regulatory change on compliance costs as bank size changes. We interact each of these variables with PsSACORD to capture the changes in compliance costs in response to the passage of SACORD.

3.2.3 The SACORD regulation and risk taking

In line with our second hypothesis, we estimate the regression model as specified in equation (2). We include firm fixed effects to control for unobserved firm-specific trends in bank risk taking and the firm-year fixed effects to control for unobserved time varying post treatment trends at the firm level in risk taking. Specifically, the basic regression model defined as:

$$RISK_{it} = \alpha_t + \theta_i + \beta_1 EUR * PsSACORD_t + \gamma X + \varepsilon_{it} \quad (2)$$

where RISK in equation (2) is our proxy for measuring bank risk taking. We include deposits scaled by total assets (Deposit/TA) to control for market power (Marrouch and Turk-Ariss, 2014) and cash flow from operations scaled by total assets (CFO/TA) as proxy for cash holding (Chen et al., 2016b). Further, we include an indicator variable equal to one if institutional shareholding (Inst_Investor) in a firm is more than five percent and zero otherwise to control for institutional holding influence on risk taking. Other controls remain the same as in equations (1) and (2) and all variables are as defined in Appendix A.

We construct three measures of risk taking. First, following Pathan (2009), we compute a Z-score for each bank that is also a composite risk measure of bank stability and measures bank's probability of insolvency.

$$Z - Score = Ln\left(\frac{ROA+CAR}{\sigma(SDSR)}\right) \quad (3)$$

where ROA is the return on assets, CAR is the capital asset ratio and $\sigma(SDSR)$ is one year standard deviation of daily stock returns for each bank. The Z-Score is constructed by adding the ROA to CAR and dividing by the standard deviation of stock returns. Since the Z-score is heavily skewed, we use its natural logarithm (e.g., Laeven and Levine, 2009; Houston et al., 2010) to reduce its skewness and we multiply by (-1) to make a higher Z-score reflects a higher risk-taking.[9]

Second, we use stock return volatility measured as the natural logarithm of the standard deviation of daily stock returns in a fiscal year to proxy for bank risk taking (Pathan, 2009). Higher volatility of stock returns would indicate higher risk taking and a lower value would suggest lower risk-taking.

Third, we use bank's credit rating as a proxy for risk taking. Following Iannotta et al. (2013), we use the average numerical value of Standard & Poor (S&P), Moody and Fitch credit ratings as a proxy for bank risk taking.[10] The credit rating is an independent opinion of rating agency on a firm's creditworthiness and incorporates forward-looking information about the effects of macroeconomic conditions on firm's financial health. Lower credit ratings would indicate a bank with a less risky projects and higher credit ratings would suggest a bank taking on riskier projects.

Further, we study the SACORD's impact on small, medium and large firms by introducing a dummy variable in the model:

$$RISK_{it} = \alpha_t + \theta_i + \beta_1 EUR * PsSACORD * Size_t + \gamma X + \varepsilon_{it} \quad (4)$$

where Size is the size indicator variable (SmBK, MsBK, LgBK) that takes the value of one for small, midsize or large bank post-SACORD and zero otherwise. RISK and

[9] 34 firm-year observations were less than zero, we left it as missing data.
[10] See Iannotta et al. (2013) for the numerical coding of credit ratings

EUR*PsSACORD are as previously defined, and X is a vector of control variables previously defined in equation (2).

4. Empirical results

4.1 Descriptive Statistics

Table 1 reports the descriptive statistics for the variables used in our analyses. Panel A shows the descriptive statistics for all key variables of interest for treatment and control groups. The average (median) audit fees of €9.0 (€1.8) million for the EU banks (treatment) is significantly higher than €5.1 (€1.0) million for the benchmark banks (control) before logarithmic transformation. The mean (median) total fees in our treatment sample is €10.8 (€2.3) million, and is significantly higher than €5.8 (€1.0) million for control sample respectively. Further, treatment sample mean (median) revenue of €13.8 (€3.1) billion, are significantly higher than €6.9 (€0.6) billion for control sample respectively, suggesting that our sample is somewhat skewed toward larger banks.

The sample banks long-term debt to total assets (LTDebt/TA) mean (median) of 2.54 (2.73) percent is significantly higher relative to control sample of 1.69 (1.83) percent. On average, 12 percent of treatment and control sample made losses (Loss_Ind) annually. Treatment (control) sample income diversity (NIR/Rev) is significantly higher with mean ratio of 31.07 (23.77) percent, suggesting that treatment group generate more revenue from non-interest generating activities relative to control sample.

Panel B of Table 1 shows summary statistics of treatment and control groups selected variables average for the pre- and post-SACORD periods. The mean audit fees for the treatment (control) sample increased from €8.0 million to €9.8 million (€4.2 million to €5.6 million), respectively. While the average revenue is marginally lower at €13.7 billion from €14.0 billion. In contrast, the average revenue of the control sample increased from €6.5 billion to €7.1 billion.

The treatment and control group average profitability as measured by ROA declined between the pre- and post-SACORD sample periods. In addition, both treatment and control groups have a higher rate of reported losses (Loss_Ind), increased business risks (LLP/TA), and lower growth opportunities (TA_Growth) post SACORD. The decline in ROA and Asset_grwth, and increase in Loss_Ind and LLP/TA post SACORD can also be associated

with the 2008 financial crisis (Fahlenbrach et al., 2012). For example, Ivashina and Scharfstein (2010) show that banks' lending declined during the financial crisis and Beltratti and Stulz (2012) show that the financial crisis of 2007-2009 affected the overall performance of banks. In sum, the current financial crisis had a huge impact on banks' profitability and performance.

Panel C presents the Pearson correlations of key variables. Audit fee (Auditfees) is positively correlated (0.90) with firm size (Revenue) and (0.64) with audit complexity (Geo_Seg). This is consistent with the idea that firm size and audit complexity are determinants of audit fee.[11] We also find some variables are also correlated. To address concerns of multicollinearity in our regression analyses, we calculate the variance inflation factors (unreported) and find they are less than 10 for all regressions, indicating that multicollinearity is not an issue in any of our tests (Kennedy, 2008).

[INSERT Table 1 (Panel A to C]

4.2 Matched sample analysis

To mitigate concerns that the difference-in-differences estimation parallel trends assumption is satisfied in the pre-treatment years spanning 2004-2007, we adapt Kausar et al. (2016) and match our sample variables by year before the regulatory adoption. Specifically, we considered firm size (Ln(Revenue)), financial performance (ROA), business risks (Nloan/TA), growth opportunities (Asset_grwth) and financial distress (LTDebt/TA, Ln(STDCFO)) documented in prior research to control for audit fees and risk-taking outcomes. We use nearest neighbor matching without replacement, using a caliper distance of 0.01 to avoid bad matches. To analyse the differences in matching covariate balance between EU and non-EU banks, we follow Focke et al. (2016) and compute the normalized differences in the pre-SACORD periods. Imbens and Wooldridge (2009) suggest computed normalized differences should not exceed 0.25 to remove specification sensitivity in the regression model.

Panel A (B) of Table 2 presents the mean values of the matching variables for our treatment and control sample pre (post) regulation. The table indicates that our matching procedure

[11] See Hay et al. (2006) for a survey of the literature on the determinants of audit fees

results in no statistical difference at the 0.01 level between the two groups with respect to the matched variables in the pre-treatment years. Also, the table shows that the absolute value of the normalized differences (Δx) for any of the matched criteria variables for the matched sample are all below the 0.25 threshold, indicating that the economic differences in the covariates between the two groups are not economically significant. Thus, our treatment and control sample are observably similar before the regulatory change in terms of the compliance costs and risk-taking.

[INSERT Table 2]

4.3 The effect of SACORD on compliance costs

Table 3 presents our main results of the regression analyses. In Panels A and B, we tabulate the results concerning the effect of SACORD regulation on compliance costs. In each panel, we present three sets of regression results that correspond to using (i) a baseline specification without control sample, (ii) the full sample DID model with control variables, and (iii) the matched sample DID model with control variables. The dependent variables, Auditfees (Panel A) and TAudFees (Panel B), represent the natural logarithm of the audit fees and total fees respectively incurred by the firm.

In Panel A, our baseline specification without control sample (column (1)) shows a positive and significant coefficient on PsSACORD (β=0.17, t= 2.91), the finding suggests the increase of audit fees for the treatment sample following the regulation. All standard errors are clustered at the bank level. In column (2), we present the baseline D-in-D OLS specification for audit fees based on the full sample. The key variable of interest is the interaction between the indicators for the EU listed banks and post-SACORD adoption period ($EUR * PsSACORD$). The coefficient captures the effect on audit fees of firms that are affected by the regulation. The coefficient on EUR∗ PsSACORD is positive (β=0.19) and highly significant (t =3.41). The result suggests that SACORD adoption significantly increase treatment group audit fees by 21.2 percent relative to the control sample.[12]

[12] Kennedy (1981) suggests the appropriate transformation to get a similar interpretation for dummy variables: $\hat{P} = 100 * \left(\exp\{\hat{c} - 0.5 * \hat{V}(\hat{c})\} - 1\right)$ where $\hat{P}$ is the percentage change in the dependent variable given a change in the dummy variable from zero to one, $\hat{c}$ is the coefficient estimate for the dummy variable, and $\hat{V}(\hat{c})$ is the OLS estimate of the variance of the coefficient. It is this transformed coefficient that is always discussed in the text.

In column (3), we estimate the effect of SACORD regulation on audit fees based on the matched sample. We find that coefficient on the key variable of interest remains positive and statistically significant at 5 percent level (β=0.16, t=2.25). The results suggest that the economic effect of SACORD regulation on audit fees is 17.0 percent.[13] Taken together, these results indicate that independent auditors respond relatively quickly to changes in SACORD regulation by increasing audit fees.

Similar to Panel A of Table 3, we examine the effect of SACORD regulation on compliance costs using natural logarithm of total fees (audit and non-audit fees) paid as our dependent variable. Panel B presents our results from estimating Eq. (1) over the full sample period. In column (1), our regression estimates shows a positive and statistically significant coefficient on PsSACORD (β=0.16, t= 2.78). The coefficient on EUR*PsSSCORD in column (2) is positive and statistically significant (β=0.20, t=3.45), suggesting that total fees paid by the EU banks to the independent auditors increased by 21.3 percent following the regulation relative to control sample. In column (3), the coefficient estimate of our key variable of interest ($\mathrm{EUR} * \mathrm{PsSACORD}$) is positive and significant at the 1 percent level (β=0.20, t= 2.85). The result suggests that the fees paid by the EU banks increased 22.3 percent post SACORD. The results support those in columns (1) and (2) and suggest that audit fees increases relative to changes in disclosure regulation.

INSERT Table 3 (Panel A and B)

Collectively, in terms of compliance costs, the DID specifications suggest that the average increase in compliance costs of EU Banks ranges from 17.0 percent to 22.3 percent of audit and total fees paid relative to control sample following SACORD regulation. The results in Table 3 provide evidence to support our prediction (P1) indicating that, relative to control sample, SACORD legislation has a significant positive effect on direct compliance costs for the EU banks. By way of comparison, De George et al. (2013) examine the effect of IFRS adoption in Australia and find that audit costs increased by 23 percent in the year of IFRS transition. In sum, our results are economically plausible when compared to findings in the literature.

[13] Calculated based on Kennedy (1981) suggestion for dummy variables: $\hat{P} = 100 * \left(\exp\{\hat{c} - 0.5 * \hat{V}(\hat{c})\} - 1\right)$ where $\hat{P}$ is the percentage change in the dependent variable given a change in the dummy variable from zero to one, $\hat{c}$ is the coefficient estimate for the dummy variable, and $\hat{V}(\hat{c})$ is the OLS estimate of the variance of the coefficient. It is this transformed coefficient that is always discussed in the text.

Coefficients of the control variables are generally consistent with the prior literature. For instance, the coefficients for Revenue, STDCFO, Asset_grwth and LLP/TA are positive and statistically significant at the 10 percent level or better except for STDCFO and LLP/TA variables of the matched sample that are not statistically significant. These results suggest that higher revenue, issues of financial distress, growth opportunities and higher loan loss provisioning is associated with increased audit fees.

4.4 Robustness Tests

We conduct three additional tests to assess the robustness of our results. First, the implementation of SACORD regulation coincides with the recent global financial crisis and economic recession. Consequently, to mitigate the concerns of confounding events driving the results, we follow Petacchi (2015) and rerun the analyses with hypothetical implementation years around SACORD adoption. To the extent that the increase in audit fees is not confounded by other contemporaneous events but by a relatively exogenous event, the measured effects should lead to a weaker or statically insignificant result.

Results in Table 4 results show that rerunning the test with the supposed implementation years, the measured effects around SACORD were insignificant or weaker. In columns (1) and (2), the result for using 2006 as the supposed implementation year of SACORD (i.e., pre-SACORD period is from 2004 to 2005 and post-SACORD period is from 2006 to 2014) shows that the coefficient on $\mathrm{TUK} * \mathrm{PsSACORD}$ is statistically insignificant for audit fees (β =0.07, t=0.89) and total fees (β =0.03, t=0.40). Columns (3) and (4) presents the results using matched sample. In column (3), $\mathrm{TUK} * \mathrm{PsSACORD}$ is significant only at the 10 percent level for audit fees (β =0.18, t=1.84) and statistically insignificant for total fees in column (4). With 2007 as the hypothetical implementation year of SACORD rule, the coefficient on $TUK * PsSACORD$ is statistically insignificant in all four regressions.

Using year 2011 as the implementation year (i.e. pre-SACORD period is from 1994 to 2010 and post-SACORD from 2011 to 2013), the coefficient on $TUK * PsSACORD$ is insignificant for all four regressions.[14] Overall, our test results provide additional support that confounding events are not responsible for the year 2008 results. To the extent year 2008 gives the

[14] We use 2011 because as mentioned in session one, some countries in our sample - Austria, Czech Republic, Germany, Poland, Sweden adopted SACORD in 2009, while Ireland, Italy and Spain adopted SACORD in 2010.

strongest result significantly strengthens our inference that SACORD legislation is the main driving force behind the findings.

Second, audit fees could increase due to increase in bank assets and thus increase audit efforts needed to satisfy the requirements of the regulation. To ensure that this does not drive our results, we rerun the tests after deleting observations with increase of 10 percent in total assets of current year relative to the prior year, starting from the year of the implementation of regulatory change (94 and 130 firm-years from treatment and control sample respectively) because average total assets increase by about 10 percent pre-SACORD. Untabulated results show that our main inferences are unchanged.

Finally, as a robustness check to address the concerns of control sample, we redefine the control sample, composed of listed banks in Australia and China. Untabulated results using control sample of listed banks in Australia and China yield results similar in tables 3.

INSERT Table 4

4.5 The effects of SACORD on bank risk-taking

The previous section provides evidence consistent with SACORD imposing additional compliance costs on the EU banks. In this section we examine SACORD's impact on risk-taking. Table 5 provides summary statistics of the three risk-taking variables that we have used in the study. The average (median) annual natural logarithm of credit rating is 1.82 (1.79), and the average annual negative natural log of Z-score and stock return volatility of -3.19 and -3.30 respectively.

INSERT Table 5 (Panel A and B)

In this section, we provide empirical evidence for our second prediction (P2). In Panel A of Table 6, we present the full sample DID estimates of bank risk taking behaviour as measured by the natural logarithm of Z-Score, Stock return volatility and credit rating. The regression results show that all the specifications yield similar results; the coefficients of the variable of interest (EUR*PsSACORD) are positive and statistically significant at the 1 percent level in columns (1) through (3). In economic terms, the adoption of SACORD regulation increases

bank risk-taking by approximately 11 percent (=1*0.35/3.19) relative to control sample when using Z-score (column (1)). Turning to column (2), we find that bank risk taking increased by about 34 percent (=1*0.387/1.14) relative to control sample, when using stock return volatility. Similarly, column (3) shows that banks' risk-taking increased by 20 percent post-SACORD for treatment firms relative to control firms.[15]

INSERT Table 6 (Panel A and B)

Similarly, Panel B of Table 6 presents the results of regressions of the three measures of bank risk-taking for the matched sample. The coefficients for the key variable of interest (EUR*PsSACORD) are positive and statistically significant at the 1 percent level in column (1), Z-score assumes a positive and highly significant coefficient in columns (1) through (3) respectively. The legislation effects on audit fees are similar with that of the full sample at 10 percent, 30 percent, and 23 percent for Z-Score, Stock return volatility and Credit Rating respectively. These results provide further support that EU banks' management continue to take more risk after the passage of SACORD. Our findings are not surprising. Moreno and Takalo (2016) argue that the adverse effect arising from increasing transparency may motivate banks to take more risks. In sum, these results suggest that bank risk-taking activities increased following the passage of SACORD.

4.6 The effect of SACORD on reporting quality

We next examine the effects of SACORD on banks reporting quality. Our proxies for quality reporting focus on firm's reporting behaviour and earning smoothness. Following Daske et al. (2013), we measure reporting behaviour (Reprt_Behvr) as the ratio of the absolute value of accruals to the absolute value of cash flows from operation. We measure earning smoothness (Smooth), as the ratio of the standard deviation of net income before extraordinary items scaled by total assets divided by the standard deviation of cash flow from operations scaled by total assets over the years *t–4* through *t* (Hribar et al., 2014) with a minimum of three years. Due to the skewed distributions of the accounting quality measures, we use the natural logarithm of Reprt_Behvr and Smooth in our analysis. We multiply by (-1) so that higher values indicate more transparent reporting. To examine the effect of SACORD on reporting quality, we implement the following D-I-D regression:

[15] Calculated based on Kennedy (1981) suggestion

$$Rpt\_Qlty_{it} = \alpha_t + \theta_i + \beta_1 EUR * PsSACORD_t + \gamma X + \varepsilon_{it} \quad (5)$$

were Rpt_Qlty in equation (5) is our proxy for measuring bank reporting quality. EUR*PsSACORD is as previously defined, and X is a vector of control variables previously defined in equation (2).

In Table 7, Panel A reports that DID regression results for reporting behaviour (Ln(rReport_Behvr)) as dependent variable for the full and matched samples. In Panel A, the coefficients of EUR*PsSAORD in columns (2) and (3) is negative and statistically significant at the 1 percent level (β=-0.59, β=-0.49) respectively. In economic terms, our regressions suggest that banks reporting quality declined by 40 to 45 percent post-SACORD.[16] Rerunning equation (5) using earning smoothness (Ln(Smooth) as dependent variable. Results for the coefficient of the variable of interest in Panel B are statistically significant at the 10 percent level for columns (2) and (3) respectively. The results thus far offer empirical evidence that SACORD adoption has significant effects on banks financial reporting quality. Thakor (2015) argues that banks may choose to disclose less information if such information disclosure will increase their fragility.

INSERT Table 7 (Panel A and B)

5. Robustness

5.1 Alternative measure of bank size

We test the robustness of the results by using alternative measure of bank size. We use the bank's market capitalization as its measure of size. The results are consistent with those reported in tables where Revenue (LnRevenue) is used as the measure of bank size; these results are available from the authors upon request.

5.2 Alternative measure of bank risks

We also test the robustness of bank risk taking variables by using loan loss provision (LLP/TA) as a proxy for risk taking (e.g., Williams, 2004). In untabulated tests, we examine the effects of post-SACORD on risk taking using LLP/TA as dependent variable. The results

[16] Calculated based on Kennedy (1981) suggestion for dummy variables: $\hat{P} = 100 * \left(\exp\{\hat{c} - 0.5 * \hat{V}(\hat{c})\} - 1\right)$ where $\hat{P}$ is the percentage change in the dependent variable given a change in the dummy variable from zero to one, $\hat{c}$ is the coefficient estimate for the dummy variable, and $\hat{V}(\hat{c})$ is the OLS estimate of the variance of the coefficient. It is this transformed coefficient that is discussed in the text.

are consistent with those reported in tables where Z-score, STK_RTN_VOL and CR Rating are used as a measure of risk taking.

6. *Conclusions*

The paper examines the effects of SACORD on compliance costs and risk taking of the EU banks. Using data of 80 EU banks and 71 non-EU banks for the period 2004 to 2013, we estimate the effects of SACORD regulation compliance costs, risk taking and quality of reporting. Our results show that the economic effects of SACORD on audit fees are approximately 19 to 33 percent higher relative to the non-EU banks. We also find robust evidence of significant increase in in total compliance costs. The findings are consistent with those reported in the previous literature mainly for the US banks that regulation increases compliance costs. Further, we find that post SACORD, there is a significant increase in risk-taking and a decline in reporting quality. Findings suggest that the SACORD regulation does not appear to have the desired effects of constraining risk-taking by banks.

As far as we are aware, this is the first study to investigate the impact of the new SACORD regulations on the EU banks. Further, there are relatively very few papers which have examined the impact of financial regulation on compliance costs, risk-taking and reporting quality. The key findings reported in the study have significant implications for policy makers concerned with developing financial disclosure regulation. The findings imply that the SACORD regulation has had a detrimental impact on banks by increasing their compliance costs and on the market in terms of both increased risk taking and a decline in the financial reporting quality by the EU banks.

Table 1
Panel A: Summary statistics for treatment and control groups

		Treatment					Control					Difference	
Variable	**Units**	**Q1**	**Mean**	**Median**	**Q3**	**Std. Dev.**	**Q1**	**Mean**	**Median**	**Q3**	**Std. Dev.**	**Mean**	**Median**
Auditfees	€'000	542	8,961	1,783	8,800	15,796	464	5,122	1,008	3,668	11,867	3,838***	775***
TAudFees	€'000	699	10,829	2,342	11,213	18,464	468	5,846	1,032	4,155	13,535	4,983***	1,310***
Revenue	€'mill	911	13,800	3,109	14,600	22,300	158	6,876	637	3,900	17,900	6,924***	2,473***
IFRS	Integer	1.00	0.92	1.00	1.00	0.27	0.00	0.10	0.00	0.00	0.30	0.82	1.00
FinCrs	Integer	0.00	0.32	0.00	1.00	0.47	0.00	0.31	0.00	1.00	0.46	0.01	0.00
Loss_Ind	Integer	0.00	0.12	0.00	0.00	0.32	0.00	0.12	0.00	0.00	0.32	0.00	0.00
Ln(Geo_Seg)	Integer	0.69	1.31	1.39	1.79	0.50	0.69	0.79	0.69	0.69	0.30	0.53	0.69
LTDebt/TA	Percent	2.03	2.54	2.73	3.28	1.17	0.91	1.69	1.83	2.47	1.16	0.85***	0.90***
Nloans/TA	Percent	57.29	66.45	68.29	80.34	17.49	56.29	63.82	65.50	72.17	13.10	2.63***	2.80***
EcoFreedm	Integer	63.00	69.33	69.60	75.30	6.87	77.80	79.10	79.90	81.00	1.90	-9.77***	-10.30***
Ln(RPerCapInc)	Integer	10.46	10.53	10.61	10.73	0.36	10.75	10.76	10.78	10.82	0.09	-0.23***	-0.17***
Ln(BizDisclos_Index)	Integer	1.79	1.90	2.08	2.30	0.64	2.13	1.94	2.13	2.13	0.62	-0.04	-0.05***
TobinQ	Integer	0.91	0.92	0.93	0.96	0.07	0.89	0.90	0.90	0.92	0.04	0.02***	0.03***
TA_Growth	Percent	-0.42	8.44	6.42	13.87	15.57	-3.14	7.22	4.09	14.40	15.73	1.22	2.33***
ROA	Percent	0.21	0.61	0.52	0.93	2.56	0.44	0.65	0.86	1.16	1.16	-0.04***	-0.34***
Ln(STDCFO)	Integer	-5.99	-5.40	-5.53	-4.92	0.92	-6.25	-5.64	-5.78	-5.11	0.92	0.24***	0.25***
NIR/Rev	Percent	22.93	30.74	29.12	37.17	12.47	13.84	23.95	23.61	32.75	12.79	6.79***	5.51***
Ln(Accrual/TA)	Integer	-5.89	-5.24	-5.12	-4.39	1.28	-5.81	-5.18	-5.24	-4.47	1.14	-0.07	0.11
Ln(AuditCommN)	Integer	0.00	1.22	1.61	1.79	0.76	1.61	1.67	1.79	1.79	0.34	-0.45***	-0.18***
Ln(LLP/TA)	Integer	-1.70	-1.14	-1.02	-0.34	1.20	-2.11	-1.36	-1.42	-0.48	1.31	0.22***	0.41***
Firm-Years						**735**					**681**		

Panel B: Primary variable descriptive statistics of the sample pre-SACORD and post-SACORD

	OK	Treatment Group					Control Group				
Variable	**Units**	**Pre-**	**Std. Dev.**	**Post-**	**Std. Dev.**	**Diff.**	**Pre-**	**Std. Dev.**	**Post-**	**Std. Dev.**	**Diff.**
Auditfees	€'000	7,982	15,899	9,772	15,684	-1,790	4,154	8,681	5,759	13,532	-1,605*
TAudFees	€'000	9,610	17,785	11,839	18,970	-2,229*	4,900	10,249	6,468	15,295	-1,568
Revenue	€'mill	14,000	22,600	13,700	22,200	300	6,499	17,400	7,123	18,200	-624
IFRS	Integer	0.83	0.38	1.00	0.00	-0.17***	0.25	0.43	0.00	0.00	0.25***
FinCrs	Integer	0.42	0.49	0.25	0.43	0.17	0.26	0.44	0.35	0.48	-0.08**
Loss_Ind	Integer	0.02	0.14	0.20	0.40	-0.18***	0.04	0.19	0.17	0.38	-0.14***
Ln(Geo_Seg)	Integer	1.30	0.48	1.32	0.53	-0.02	0.79	0.30	0.79	0.30	0.00
LTDebt/TA	Percent	2.52	1.33	2.55	1.02	-0.03	1.78	1.13	1.63	1.18	0.15
Nloans/TA	Percent	67.75	16.99	65.36	17.85	2.38	64.83	12.97	63.15	13.16	1.67
EcoFreedm	Integer	69.20	7.17	69.44	6.63	-0.24	79.83	1.61	78.62	1.92	1.21***
Ln(RPerCapInc)	Integer	10.48	0.39	10.58	0.33	-0.10***	10.70	0.09	10.81	0.05	-0.11***
Ln(BizDisclos_Index)	Integer	1.68	0.83	2.08	0.33	-0.40***	1.65	0.90	2.14	0.02	-0.49***
TobinQ	Integer	0.92	0.06	0.92	0.07	0.00	0.91	0.04	0.90	0.04	0.01**
TA_Growth	Percent	15.20	15.40	2.84	13.35	12.37***	9.25	18.51	5.89	13.47	3.35**
ROA	Percent	1.09	1.29	0.20	3.20	0.89***	1.04	0.59	0.39	1.36	0.65***
Ln(STDCFO)	Integer	-5.50	0.89	-5.33	0.93	-0.17	-5.66	1.00	-5.64	0.88	-0.02
NIR/Rev	Percent	30.44	13.03	30.98	12.00	-0.55	22.58	12.96	24.85	12.61	-2.27**
Ln(Accrual/TA)	Integer	-5.48	1.31	-5.05	1.22	-0.44***	-5.57	0.98	-4.92	1.17	-0.65***
Ln(AuditCommN)	Integer	1.12	0.79	1.30	0.73	-0.18	1.62	0.44	1.70	0.25	-0.09
Ln(LLP/TA)	Integer	-1.61	1.24	-0.77	1.03	-0.85***	-2.05	1.08	-0.93	1.25	-1.12***

Panel C: Pearson correlations for variables in main regression.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. Ln(AuditFees)	1																			
2. EUR*PsSACORD	**0.11**	1.00																		
3. IFRS	**0.12**	**0.60**	1.00																	
4. FinCrs	-0.03	**-0.10**	0.00	1.00																
5. LnGeo_Seg	**0.64**	**0.33**	**0.45**	-0.01	1.00															
6. Loss_Ind	**0.09**	**0.16**	0.00	**0.10**	0.04	1.00														
7. Ln(Revenue)	**0.90**	**0.20**	**0.29**	0.01	**0.68**	0.00	1.00													
8. LTDebt/TA	0.03	**0.21**	**0.31**	**0.09**	**0.12**	**0.09**	**0.14**	1.00												
9. Nloans/TA	**-0.54**	0.01	**0.07**	**0.07**	**-0.37**	-0.01	**-0.44**	**0.24**	1.00											
10. EcoFreedm	-0.02	**-0.41**	**-0.57**	**0.09**	**-0.28**	0.04	**-0.21**	**-0.18**	**-0.10**	1.00										
11. Ln(RPerCapInc)	0.00	**-0.14**	**-0.30**	**0.08**	**-0.11**	**0.06**	**-0.13**	0.02	**-0.09**	**0.61**	1.00									
12. Ln(BizDisclos_Ind)	0.03	**0.16**	**0.24**	**0.19**	0.00	**0.11**	0.01	0.03	-0.03	**0.09**	**0.26**	1.00								
13. TobinQ	**0.29**	**0.12**	**0.17**	0.04	**0.27**	**0.13**	**0.32**	0.00	**-0.07**	**-0.13**	0.00	-0.04	1.00							
14. Asset_grwth	0.00	**-0.20**	**0.14**	-0.03	0.04	**-0.25**	0.03	-0.05	-0.01	-0.01	**-0.12**	**-0.06**	-0.03	1.00						
15. ROA	**-0.09**	**-0.13**	-0.01	**-0.10**	**-0.05**	**-0.44**	-0.04	0.02	-0.03	0.01	**-0.07**	**-0.07**	**-0.61**	**0.16**	1.00					
16. Ln(STDCFO)	**0.15**	**0.13**	**0.13**	0.00	**0.14**	**0.17**	**0.13**	**0.11**	**-0.07**	-0.03	**-0.15**	0.03	**-0.14**	-0.05	**-0.07**	1.00				
17. Ln(LLP/TA)	**0.07**	**0.24**	0.04	**0.16**	0.02	**0.42**	0.04	**0.13**	**0.11**	-0.01	-0.03	**0.12**	**-0.06**	**-0.19**	**-0.27**	**0.21**	1.00			
18. NIR/Revenue	**0.36**	**0.17**	**0.21**	**-0.16**	**0.25**	**-0.06**	**0.42**	**-0.09**	**-0.36**	**-0.30**	**-0.22**	-0.02	**0.09**	0.03	**0.14**	**0.09**	**0.06**	1.00		
19. Ln(AuditCommN)	**0.30**	**-0.14**	**-0.29**	-0.03	0.02	0.03	**0.15**	**-0.17**	**-0.25**	**0.45**	**0.26**	0.03	0.00	-0.04	-0.01	-0.04	0.02	-0.03	1.00	
20. Ln(Accrual/TA)	0.04	**0.09**	-0.02	**0.07**	-0.01	**0.39**	-0.01	**0.09**	0.03	0.03	-0.02	**0.09**	**-0.14**	**-0.12**	**-0.19**	**0.31**	**0.55**	0.02	0.02	1.00

Panel A in Table 1 presents the summary statistics for the treatment and control groups. The difference column reports the difference in means and median between the treatment and control groups and is tested for significance using a two-tailed t-test and the Wilcoxon rank test respectively. The sample has 735 treatment and 681 control group firm-year observations. Panel B presents the descriptive statistics of the pre-SACORD and post-SACORD for the two sample groups. Test statistics are computed using a t-test (two-tailed test) for a significant change in means, statistically significance denoted as ***, **, and * for 1%, 5% and 10% respectively, assuming independence. Panel C presents the Pearson correlations. All variables are as defined in Appendix A. Ln(Auditfees), Ln(LLP/TA), NIR/Rev and Asset_grwth are winsorized at the 1st and 99th percentile.

Table 2, Panel A: Propensity score matching covariate balance test and normalized differences

	Full sample					Matched sample				
	EU Banks	Non-EU Banks	Diff	Δx	P-value	EU Banks	Non-EU Banks	Diff	Δx	P-value
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(-4 years, 0) Ln(Revenue)	15.07	13.69	1.38	0.51	0.00***	14.72	14.71	0.01	0.00	0.979
(-4 years, 0) Nloans/TA (%)	67.75	64.83	2.92	0.09	0.12	64.84	64.87	-0.03	0.00	0.990
(-4 years, 0) ROA (%)	1.09	1.04	0.05	0.11	0.07*	1.05	1.15	-0.10	0.10	0.270
(-4 years, 0) Ln(STDCFO)	-5.50	-5.66	0.16	0.12	0.06*	-5.50	-5.63	0.13	0.11	0.223
(-4 years, 0) Asset_grwth (%)	15.20	9.25	5.95	0.33	0.00***	14.09	15.81	-1.73	0.08	0.406
(-4 years, 0) LTDebt/TA (%)	2.44	1.78	0.66	0.36	0.000***	2.13	1.98	0.15	0.08	0.384
Firm-year		544					242			

This table provides mean values of the matching variables for the treatment and control samples for the pre-treatment period (2004-2007). In total, we identified 121 firm-year matches (242 pairs) using one-to-one nearest neighbour matching by year approach with a 0.01 caliper and without replacement. Following Imbens and Wooldridge (2009), normalized differences (Δx) are also reported and used to assess the economic significance of the reported differences. The normalized difference (Δx) is calculated as $\frac{\overline{X}_{EU}-\overline{X}_{NEU}}{\sqrt{S^2_{EU}+S^2_{NEU}}}$ where $\overline{X}$ and S^2 are the sample mean and variance. The matched sample normalized differences are below the recommended threshold of 0.25 (Imbens and Wooldridge (2009). Matched sample analysis is based on Fiscal Year, size (Ln(Revenue), profitability (ROA), financial distress (LTDebt/TA, Ln(STDCFO)), growth opportunities (Asset_grwth) and business risk (Nloans/TA). All variables are as defined in Appendix A. Asset_grwth is winsorized at the 1st and 99th percentiles.

Table 2, Panel B: Propensity score matching covariate balance test and normalized differences

	Full sample					Matched sample				
	EU Banks	Non-EU Banks	Diff	Δx	P-value	EU Banks	Non-EU Banks	Diff	Δx	P-value
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(0, +6 years) Ln(Revenue)	15.08	13.71	1.37	0.52	0.000	14.78	14.83	-0.05	0.02	0.804
(0, +6 years) Nloans/TA (%)	66.17	63.15	3.02	0.14	0.004	63.40	63.69	-0.29	-0.01	0.862
(0, +6 years) ROA (%)	0.25	0.39	-0.14	0.04	0.366	-0.05	0.373	-0.423	0.10	0.175
(0, +6 years) Ln(STDCFO)	-5.35	-5.64	0.29	0.23	0.000	-5.44	-5.44	0.00	0.00	0.974
(0, +6 years Asset_grwth (%)	3.21	5.89	-2.68	0.14	0.002	3.35	4.70	1.35	0.07	0.327
(0, +6 years) LTDebt/TA (%)	2.60	1.63	0.97	0.63	0.000	2.18	2.18	0.00	0.00	0.983
Firm-year		872					384			

This table provides mean values of the matching variables for the treatment and control samples for the pre-treatment period (2008-2013). In total, we identified 192 firm-year matches (384 pairs) using one-to-one nearest neighbour matching by year approach with a 0.01 caliper and without replacement. Following Imbens and Wooldridge (2009), normalized differences (Δx) are also reported and used to assess the economic significance of the reported differences. The normalized difference (Δx) is calculated as $\frac{\overline{X}_{EU}-\overline{X}_{NEU}}{\sqrt{S^2_{EU}+S^2_{NEU}}}$ where $\overline{X}$ and S^2 are the sample mean and variance. The matched sample normalized differences are below the recommended threshold of 0.25 (Imbens and Wooldridge (2009). Matched sample analysis is based on Fiscal Year, size (Ln(Revenue), profitability (ROA), financial distress (LTDebt/TA, Ln(STDCFO)), growth opportunities (Asset_grwth) and business risk (Nloans/TA). All variables are as defined in Appendix A. Asset_grwth is winsorized at the 1st and 99th percentiles.

Table 3 (Panel A)

Multivariate analysis of audit fee differences between EU banks and control sample

This table presents SACORD effect on audit fees and total fees. The dependent variables are the Natural logarithm of Audit Fees. In estimating (1) to (4), EUR*PsSACORD is an interaction dummy variable equals to one if the bank is EU and the period is from 2008/adoption year to 2013. We include year and firm fixed effects to control for any fundamental differences in audit fees across years and firms. Implied audit fee increase refers to the effect of implementing SACORD regulation on mean banks in EU in € thousands. Matched sample analysis is based on Fiscal Year, size (Ln(Revenue), profitability (ROA), financial distress (Ln(STDCFO), LTDebt/TA), growth opportunities (Asset_grwth) and business risk (Nloans/TA). All other firm characteristics are as defined in Appendix A. The models are estimated by difference-in-differences with standard errors that are robust to heteroskedasticity and clustered at the firm level. Statistically significance denoted as ***, **, and * for 1%, 5% and 10% respectively (using a two-sided test). Ln(Auditfees), Ln(LLP/TA), NIR/Revenue and Asset_grwth are winsorized at the 1st and 99th percentile.

	Full Sample				**Matched Sample**			
	Ln(Auditfees)		**Ln(Auditfees)**		**Ln(Auditfees)**		**Ln(Auditfees)**	
	No Controls		**With controls**		**No Controls**		**With controls**	
	(1)		**(2)**		**(3)**		**(4)**	
	Coeff.	**t-value**	**Coeff.**	**t-value**	**Coeff.**	**t-value**	**Coeff.**	**t-value**
EUR*PsSACORD	0.283***	5.29	0.193***	3.41	0.323***	4.35	0.160**	2.25
IFRS			0.049	1.11			-0.021	-0.34
FinCrs			-0.064**	-2.37			-0.080**	-2.02
LnGeo_Seg			0.137	1.54			0.078	0.24
Loss_Ind			0.015	0.31			0.041	0.46
Ln(Revenue)			0.476***	7.18			0.543***	7.99
LTDebt/TA			0.016	0.89			-0.002	-0.09
Nloans/TA			-0.002	-0.97			-0.002	-0.53
EcoFreedm			-0.022**	-2.16			-0.017	-1.28
Ln(RPerCapInc)			1.041***	6.41			0.931***	4.64
Ln(BizDisclos_Ind)			-0.042	-1.52			0.016	0.50
TobinQ			0.328	0.39			0.531	0.34
Asset_grwth			0.001	1.16			0.000	0.45
ROA			-0.028	-1.50			-0.050	-1.43
Ln(STDCFO)			0.058***	3.13			0.030	0.96
Ln(LLP/TA)			0.033***	2.71			0.004	0.22
NIR/Revenue			0.001	0.66			0.005	1.45
Ln(AuditCommN)			-0.037	-0.89			-0.108**	-2.49
Ln(Accrual/TA)			-0.014	-1.12			0.004	0.22
Intercept	7.424***	489.02	-8.668***	-4.05	7.658***	372.64	-9.111***	-3.09
Impact (%)	32.54		21.15		37.80		17.03	
Number of observations	1416		1164		626		541	
R-squared	0.01		0.78		0.001		0.80	
Firm fixed effects	YES		YES		YES		YES	
Year fixed effects	YES		YES		YES		YES	

Table 3 (Panel B)

Multivariate analyss of Total fees differences between EU banks and control group

This table presents SACORD effect on audit fees and total fees. The dependent variables are the Natural logarithm of Total Fees. In estimating (1) to (4), EUR*PsSACORD is an interaction dummy variable equals to one if the bank is EU and the period is from 2008/adoption year to 2013. We include year and firm fixed effects to control for any fundamental differences in audit fees across years and firms. Implied audit fee increase refers to the effect of implementing SACORD regulation on mean banks in EU in € thousands. Matched sample analysis is based on Fiscal Year, size (Ln(Revenue), profitability (ROA), financial distress (Ln(STDCFO), LTDebt/TA), growth opportunities (Asset_grwth) and business risk (Nloans/TA). All other firm characteristics are as defined in Appendix A. The models are estimated by difference-in-differences with standard errors that are robust to heteroskedasticity and clustered at the firm level. Statistically significance denoted as ***, **, and * for 1%, 5% and 10% respectively (using a two-sided test). Ln(Auditfees), Ln(LLP/TA), NIR/Rev and Asset_grwth are winsorized at the 1st and 99th percentile.

	Full Sample				**Matched Sample**			
	Ln(TotalFees)		**Ln(TotalFees)**		**Ln(TotalFees)**		**Ln(TotalFees)**	
	No Controls		**With controls**		**No Controls**		**With controls**	
	(1)		**(2)**		**(3)**		**(4)**	
	Coeff.	**t-value**	**Coeff.**	**t-value**	**Coeff.**	**t-value**	**Coeff.**	**t-value**
EUR*PsSACORD	0.261***	4.41	0.195***	3.45	0.329***	4.28	0.204***	2.85
IFRS			0.051	1.11			-0.028	-0.46
FinCrs			-0.070**	-2.41			-0.093**	-2.16
LnGeo_Seg			0.141	1.42			0.166	0.52
Loss_Ind			-0.003	-0.05			0.038	0.39
Ln(Revenue)			0.507***	7.91			0.543***	7.53
LTDebt/TA			0.007	0.42			-0.005	-0.19
Nloans/TA			-0.003	-1.19			-0.001	-0.27
EcoFreedm			-0.021**	-2.11			-0.014	-1.07
Ln(RPerCapInc)			1.145***	6.68			1.004***	4.64
Ln(BizDisclos_Ind)			-0.073***	-2.65			-0.048	-1.32
TobinQ			0.387	0.43			0.493	0.32
Asset_grwth			0.001	1.57			0.001	1.27
ROA			-0.024	-1.30			-0.045	-1.22
Ln(STDCFO)			0.049**	2.51			0.012	0.35
Ln(LLP/TA)			0.033***	2.71			0.011	0.59
NIR/Revenue			0.001	0.41			0.002	0.68
Ln(AuditCommN)			-0.063	-1.53			-0.129***	-2.73
Ln(Accrual/TA)			-0.004	-0.32			0.006	0.31
Intercept	7.564****	449.69	-10.109***	-4.52	7.785***	366.28	-9.919***	-3.09
Impact (%)	29.66		21.28		38.52		22.33	
Number of observations	1416		1164		626		541	
R-squared	0.02		0.80		0.001		0.82	
Firm fixed effects	YES		YES		YES		YES	
Year fixed effects	YES		YES		YES		YES	

Table 4	Full Sample		Matched Sample	
	Ln(Auditfees)	Ln(Totalfees)	Ln(Auditfees)	Ln(Totalfees)
EUR*PsSACORD[2006]	0.074	0.031	0.182*	0.097
	[0.89]	[0.40]	[1.84]	[0.78]
EUR*PsSACORD[2007]	0.029	0.035	-0.034	0.070
	[0.39]	[0.46]	[-0.33]	[0.58]
EUR*PsSACORD[2008]	0.253***	0.272***	0.171**	0.188**
	[4.26]	[4.17]	[2.25]	[2.18]
EUR*PsSACORD[2011]	-0.014	0.001	-0.071*	-0.036
	[-0.45]	[0.02]	[-1.88]	[-0.82]
EUR*PsSACORD[2012]	-0.012	-0.024	0.014	-0.012
	[-0.32]	[-0.61]	[0.26]	[-0.21]
Observation	1164	1164	541	541
R-squared	0.77	0.81	0.80	0.83
Controls	YES	YES	YES	YES
Firm fixed effects	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES

Table 5 (Panel A)

Descriptive statistics for full sample

This table presents the distribution of variables by showing mean, median (Median) standard deviation (SD), minimum (Min.), and maximum (Max). The sample consists of publicly listed banks in DataStream from 2004 to 2013 for treatment and control firms. All variables in the regressions are defined in the Appendix A.

variable	Obs.	Mean	Median	Std. Dev.	Min	Max
Ln(STK_RTN_Vol)	1402	-1.14	-1.20	0.55	-2.32	0.41
Ln(Z-score)	1382	-3.19	-3.30	0.90	-5.41	3.55
Ln(Credit Rating)	1056	1.82	1.79	0.42	0.69	3.00
Ln(LLP/TA)	1305	-1.24	-1.24	1.26	-5.06	1.51
Ln(NPL/TA)	1230	-0.18	-0.10	1.54	-10.41	2.63
EUR*PsSACORD	1416	0.28	0.00	0.45	0.00	1.00
IFRS	1416	0.53	1.00	0.50	0.00	1.00
FinCrs	1416	0.32	0.00	0.47	0.00	1.00
Ln(Geo_Seg)	1416	1.06	0.69	0.50	0.69	2.40
Loss_Ind	1416	0.12	0.00	0.32	0.00	1.00
Ln(Revenue)	1416	14.41	14.20	2.01	10.95	18.53
Ln(LTDebt/TA)	1392	2.13	2.32	1.24	-7.33	4.54
Nloans/TA (%)	1395	65.16	66.65	15.56	2.82	97.82
EcoFreedm	1416	74.03	76.50	7.08	55.40	82.60
Ln(RPerCapInc)	1416	10.64	10.73	0.29	8.80	11.07
Ln(BizDisclos_Ind)	1416	1.92	2.13	0.63	0.00	2.40
TobinQ	1405	0.91	0.92	0.06	0.45	1.77
Ln(AuditCommN)	1331	1.45	1.61	0.62	0.00	2.48
CFO/TA (%)	1416	1.41	1.32	1.20	-2.38	7.82
Asset_grwth	1415	7.85	5.55	15.66	-21.76	75.82
Ln(STDCFO)	1399	-5.52	-5.63	0.93	-8.15	-1.58
DEPOSIT/TA (%)	1350	57.62	59.22	19.18	0.93	91.39
Inst_Investor	1416	0.40	0.00	0.49	0.00	1.00
ROA (%)	1416	0.63	0.71	2.01	-47.79	12.74

Table 5 (Panel B)

Descriptive statistics for matched sample

This table presents the distribution of variables by showing mean, median (Median) standard deviation (SD), minimum (Min.), and maximum (Max). The sample consists of publicly listed banks in DataStream from 2004 to 2013 for treatment and control firms. All variables in the regressions are defined in the Appendix A.

variable	Obs.	Mean	Median	Std. Dev.	Min	Max
Ln(STK_RTN_Vol)	620	-1.15	-1.25	0.58	-2.32	0.41
Ln(Z-score)	610	-3.20	-3.33	0.90	-5.11	0.90
Ln(Credit Rating)	515	1.81	1.79	0.41	0.69	3.00
Ln(LLP/TA)	597	-1.21	-1.21	1.25	-5.06	1.51
Ln(NPL/TA)	566	-0.13	-0.05	1.48	-5.76	2.63
EUR*PsSACORD	626	0.28	0.00	0.45	0.00	1.00
IFRS	626	0.53	1.00	0.50	0.00	1.00
FinCrs	626	0.30	0.00	0.46	0.00	1.00
Ln(Geo_Seg)	626	1.05	0.69	0.50	0.69	2.40
Loss_Ind	626	0.12	0.00	0.32	0.00	1.00
Ln(Revenue)	626	14.77	14.60	1.93	11.20	18.53
Ln(LTDebt/TA)	626	2.13	2.28	1.13	-6.23	4.54
Nloans/TA (%)	626	64.05	65.60	16.31	13.59	97.82
EcoFreedm	626	73.96	76.95	7.26	55.40	82.20
Ln(RPerCapInc)	626	10.64	10.74	0.33	8.80	11.07
Ln(BizDisclos_Ind)	626	1.93	2.13	0.62	0.00	2.40
TobinQ	622	0.92	0.92	0.05	0.59	1.77
Ln(AuditCommN)	584	1.44	1.61	0.65	0.00	2.48
CFO/TA (%)	626	1.42	1.37	1.02	-2.38	7.82
Asset_grwth	626	8.25	6.25	15.52	-21.76	75.82
Ln(STDCFO)	626	-5.49	-5.58	0.85	-7.56	-1.58
DEPOSIT/TA (%)	609	56.86	59.53	17.32	5.65	89.18
Inst_Investor	626	0.37	0.00	0.48	0.00	1.00
ROA (%)	626	0.52	0.72	2.49	-47.79	7.36

Table 6 (Panel A: Full sample**)**

The SACORD regulation and banks' risk taking with full sample

This table shows the regression results for the risk taking behaviour of banks post-SACORD. The dependent variables are the natural log value of bank Z-score computed as bank's return on assets plus the capital asset ratio divided by the standard deviation of daily stock return from Pathan (2009) and multiplied by (-1) to make a larger Z-score reflects a higher risk taking; stock return volatility computed as the natural log value of the standard deviation of daily stock returns for each firm-year; and credit rating calculated as the natural log value of the average numerical value of Standard & Poor (S&P), Moody and Fitch (Long Term Issuer) credit ratings. Z-score coefficients is standardized, i.e., the coefficient displays how many standard deviations the dependent variable changes for a one-standard deviation change in the independent variable. Standard errors are clustered at the firm level. *, **, *** denote significance at 10%, 5% and 1%, respectively. All other firm characteristics are as defined in Appendix A. Ln(LLP/TA) and Asset_grwth are winsorized at the 1st and 99th percentile.

	(1)		(2)		(3)	
	Ln(Z-Score)		Ln(Stock Return Vol.)		Ln(Credit Rating)	
	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
EUR*PsSACORD	0.352***	5.92	0.387***	8.02	0.182***	5.44
IFRS	-0.150***	-3.25	-0.094***	-2.78	-0.041	-1.54
FinCrs	0.587***	19.23	0.537***	23.08	-0.096***	-5.26
LnGeo_Seg	-0.186*	-1.68	-0.091	-1.57	-0.011	-0.21
Loss_Ind	0.715***	9.04	0.193***	4.00	0.091***	2.81
Ln(Revenue)	-0.164*	-1.91	-0.127**	-2.11	-0.055	-0.92
LTDebt/TA	0.019	0.80	0.028	1.44	0.000	0.02
Nloans/TA	-0.010***	-4.22	-0.006***	-3.15	-0.004**	-2.05
EcoFreedm	0.013	1.43	-0.001	-0.14	-0.028***	-4.00
Ln(RPerCapInc)	-0.010	-0.06	-0.031	-0.20	-0.099	-0.86
Ln(BizDisclos_Ind)	0.127***	4.00	0.101***	4.21	0.067***	4.43
TobinQ	10.654***	6.36	0.809	1.31	-0.675	-1.10
Ln(AuditCommN)	-0.070*	-1.80	-0.085**	-2.40	0.068***	3.15
CFO/TA	-0.011	-0.60	0.008	0.53	-0.006	-0.59
Asset_grwth	0.002*	1.80	0.001*	1.89	-0.002***	-3.52
Ln(LLP/TA)	0.195***	9.23	0.145***	9.21	0.018*	1.93
Ln(STDCFO)	0.055***	2.71	0.034**	2.10	0.017	1.09
Deposit/TA	-0.001	-0.43	0.000	0.03	0.007***	3.21
Inst_Investor	0.087**	2.04	0.043	1.42	-0.014	-0.63
ROA			-0.066***	-3.33	-0.048***	-4.70
Intercept	-10.416***	-3.91	0.902	0.49	6.190***	4.65
Number of observations	1140		1155		893	
R-squared	0.52		0.53		0.29	
Impact (%)	11.0		33.9		20.0	
Firm fixed effects	YES		YES		YES	
Year fixed effects	YES		YES		YES	

Table 6 (**Panel B**: Matched sample analysis is based on Fiscal Year, size (Ln(Revenue), profitability (ROA), financial distress (Ln(STDCFO)), growth opportunities (Asset_grwth) and business risk (Nloans/TA).

The SACORD regulation and banks' risk taking with control sample

This table shows the regression results for the risk taking behaviour of banks post-SACORD. The dependent variables are the natural log value of bank Z-score computed as bank's return on assets plus the capital asset ratio divided by the standard deviation of daily stock return from Pathan (2009) and multiplied by (-1) to make a larger Z-score reflects a higher risk taking; stock return volatility computed as the natural log value of the standard deviation of daily stock returns for each firm-year; and credit rating calculated as the natural log value of the average numerical value of Standard & Poor (S&P), Moody and Fitch (Long Term Issuer) credit ratings. Z-score coefficients is standardized, i.e., the coefficient displays how many standard deviations the dependent variable changes for a one-standard deviation change in the independent variable. Standard errors are clustered at the firm level. *, **, *** denote significance at 10%, 5% and 1%, respectively. All other firm characteristics are as defined in Appendix A. Ln(LLP/TA) and Asset_grwth are winsorized at the 1st and 99th percentile.

	(1)		(2)		(3)	
	Ln(Z-Score)		Ln(Stock Return Vol.)		Ln(Credit Rating)	
	Coef.	t-value	Coef.	t-value	Coef.	t-value
EUR*PsSACORD	0.325***	3.49	0.343***	4.59	0.207***	4.40
IFRS	-0.274***	-3.77	-0.153***	-2.83	-0.063*	-1.90
FinCrs	0.628***	11.03	0.562***	12.34	-0.088***	-3.06
LnGeo_Seg	0.07	0.20	0.198	0.60	0.037	0.32
Loss_Ind	0.743***	6.06	0.151*	1.75	0.075**	2.16
Ln(Revenue)	-0.228**	-2.00	-0.184**	-2.14	-0.095	-1.22
LTDebt/TA	0.005	0.11	0.017	0.48	-0.016	-0.84
Nloans/TA	-0.014***	-3.57	-0.008***	-2.80	-0.002	-1.20
EcoFreedm	-0.003	-0.19	-0.014	-1.20	-0.042***	-4.59
Ln(RPerCapInc)	-0.262	-0.93	-0.081	-0.37	0.003	0.02
Ln(BizDisclos_Ind)	0.209***	4.51	0.13***	3.71	0.06**	2.59
TobinQ	9.853***	5.79	-0.012	-0.01	-1.242	-1.36
Ln(AuditCommN)	-0.059	-0.91	-0.102**	-2.01	0.075***	3.26
CFO/TA	0.001	0.02	0.043**	2.12	-0.005	-0.46
Asset_grwth	0.003*	1.79	0.001	1.24	-0.002***	-2.97
Ln(LLP/TA)	0.21***	6.20	0.147***	5.52	0.012	1.11
Ln(STDCFO)	0.05	1.25	0.043	1.38	0.015	0.75
Deposit/TA	-0.004	-0.71	-0.004	-0.90	0.002	0.86
Inst_Investor	0.079	0.94	0.02	0.38	-0.047	-1.46
ROA			-0.133***	-3.37	-0.045***	-2.90
Intercept	-4.799*	-1.73	4.124**	2.01	7.437***	4.56
Number of observations	530		536		460	
R-squared (%)	0.58		0.48		0.16	
Impact (%)	10.2		30.1		23.0	
Firm fixed effects	YES		YES		YES	
Year fixed effects	YES		YES		YES	

Table 7 (Panel A)
The effect of SACORD on reporting quality

This table presents regression analysis of changes in actual reporting behaviour associated with SACORD regulation. The dependent variable is measured as the absolute value of accruals scaled by the absolute value of cash flows from operations (multiplied by –1 so that higher values indicate more transparent reporting) from Daske et al. (2013). Earning smoothness (Smooth) is measured as the natural logarithm of the of the standard deviation of net income before extraordinary items (scaled by total assets) divided by the standard deviation of cash flow from operations (scaled by total assets) over the years t – 4 through t from Hribar et al., (2014). We include year and firm fixed effects; standard errors are clustered at the firm level. *, **, *** denote significance at 10%, 5% and 1%, respectively. All other firm characteristics are as defined in Appendix A.

	Ln(Report_Behvr)					
	(1)		**(2)**		**(3)**	
	No Control Sample		**Full Sample**		**Matched Sample**	
	Coeff.	**t-value**	**Coeff.**	**t-value**	**Coeff.**	**t-value**
PsSACORD	-0.590***	-5.05				
EUR*PsSACORD			-0.587***	-5.90	-0.491***	-3.95
IFRS	0.549	1.07	0.240**	2.23	0.419***	2.92
FinCrs	-0.110	-1.17	-0.113	-1.62	0.126	1.24
LnGeo_Seg	0.291*	1.94	0.236	1.61	0.029	0.09
Loss_Ind	-0.325**	-2.27	-0.362***	-3.44	-0.211	-1.32
Ln(Revenue)	0.157	0.91	0.086	0.67	0.085	0.43
LTDebt/TA	-0.065	-1.00	-0.074*	-1.78	-0.144**	-2.08
Nloans/TA	0.005	0.72	0.011**	2.45	0.009	1.53
EcoFreedm	-0.042	-1.44	0.002	0.09	-0.031	-1.02
Ln(RPerCapInc)	1.222**	2.24	0.587	1.61	0.513	1.22
Ln(BizDisclos_Ind)	-0.471*	-1.87	-0.213***	-3.16	-0.216**	-2.11
TobinQ	0.408	0.08	1.453	0.94	3.321	1.26
Ln(AuditCommN)	-0.039	-0.50	-0.109	-1.33	-0.165	-1.37
Asset_grwth	-0.002	-0.59	-0.004**	-2.01	-0.004	-1.13
Deposit/TA	-0.016***	-2.96	-0.01*	-1.97	-0.004	-0.59
Inst_Investor	0.228	1.66	0.04	0.58	0.116	1.18
ROA	0.310***	3.47	0.34***	6.44	0.456***	6.54
Intercept	-15.849**	-2.45	-12.469***	-3.01	-11.027**	-2.12
Number of observations	584		1244		567	
R-squared (%)	0.09		0.23		0.22	
Impact (%)			-44.7		-39.7	
Firm fixed effects	YES		YES		YES	
Year fixed effects	YES		YES		YES	

Table 7 (Panel B)
The effect of SACORD on reporting quality

This table presents regression analysis of changes in actual reporting behaviour associated with SACORD regulation. The dependent variable is measured as the absolute value of accruals scaled by the absolute value of cash flows from operations (multiplied by –1 so that higher values indicate more transparent reporting) from Daske et al. (2013). Earning smoothness (Smooth) is measured as the natural logarithm of the of the standard deviation of net income before extraordinary items (scaled by total assets) divided by the standard deviation of cash flow from operations (scaled by total assets) over the years t – 4 through t from Hribar et al., (2014). We include year and firm fixed effects; standard errors are clustered at the firm level. *, **, *** denote significance at 10%, 5% and 1%, respectively. All other firm characteristics are as defined in Appendix A.

	Ln(Smooth)					
	(1)		**(2)**		**(3)**	
	No Control Sample		**Full Sample**		**Matched Sample**	
	Coeff.	**t-value**	**Coeff.**	**t-value**	**Coeff.**	**t-value**
PsSACORD	-0.152	-1.55				
EUR*PsSACORD			-0.174*	-1.69	-0.271*	-1.71
IFRS	0.725	0.88	0.417***	3.60	0.299*	1.74
FinCrs	-0.039	-0.50	-0.113**	-2.20	-0.155	-1.66
LnGeo_Seg	-0.500	-0.72	-0.44	-0.64	-0.59	-0.73
Loss_Ind	-0.258**	-2.44	-0.264***	-2.75	-0.219*	-1.71
Ln(Revenue)	-0.024	-0.12	0.254	1.57	0.27	1.20
LTDebt/TA	-0.072	-1.30	-0.073	-1.49	-0.082*	-1.71
Nloans/TA	-0.003	-0.29	0.003	0.55	-0.007	-0.85
EcoFreedm	-0.034	-1.44	0.037	1.57	0.067**	2.06
Ln(RPerCapInc)	0.531	0.82	-0.194	-0.41	-0.335	-0.50
Ln(BizDisclos_Ind)	-0.362	-0.84	-0.197***	-2.69	-0.132	-1.02
TobinQ	-6.449*	-1.70	0.483	0.26	-0.308	-0.10
Ln(AuditCommN)	-0.042	-0.38	-0.056	-0.55	-0.049	-0.35
Asset_grwth	0.000	-0.22	-0.001	-0.93	-0.001	-0.68
Deposit/TA	-0.025***	-2.90	-0.019***	-2.82	-0.015*	-1.75
Inst_Investor	-0.146	-1.10	-0.081	-0.84	-0.035	-0.25
ROA	0.181***	4.17	0.183***	4.90	0.236***	4.10
Intercept	5.959	0.94	-2.652	-0.52	-2.487	-0.33
Number of observations	576		1233		567	
R-squared (%)	0.02		0.17		0.07	
Impact (%)			-16.5		-24.7	
Firm fixed effects	YES		YES		YES	
Year fixed effects	YES		YES		YES	

Appendix A. Variable definitions

Variables	Description
AuditCommN	Natural logarithm of 1 plus the size of the audit committee. Data for this variable come from BoardEx.
Accru/TA	The natural logarithm of the ratio of the absolute value of accruals (difference between net income before extraordinary items and cash flow from operations) scaled by ending total assets (Leuz et al., 2003)
Asset_grwth	The rate of growth in total assets between the current year and the prior year.
Auditfees	Natural logarithm of total audit and audit-related fees charged by the external auditor for audit related work winsorized at the 1st and 99th percentiles.
BizDisclos_Ind	Natural log of Business extent of disclosure index from World Development Indicators.
Capital/TA	Natural logarithm of equity capital scaled by total assets.
CFO/TA	Cash flow from operations scaled by total assets
CR_Rating	Average numerical value of Standard & Poor (S&P), Moody and Fitch (Long Term Issuer) credit ratings as a proxy for bank risk taking construed by Iannotta et al., 2013.
Deposit/TA	Total bank deposits scaled by total assets.
EconFreedm	Economic freedom index from the Heritage Foundation (EconFreedm)
FinCrs	Financial crisis dummy equals 1 between 2007-2009.
Geo_seg	Natural logarithm of 1 plus the number of geographical segments from Datastream.
IFRS	International Financial Reporting Standards dummy equals 1 when IFRS was implemented in EU in 2005-2013 and 2011-2013 in Canada.
Inst_Investor	Dummy variable equal 1 if institutional shareholding is greater than 5 percent
LLP/TA	Natural logarithm of loan loss provision scaled by total assets.
Loss_Ind	Dummy variable equal 1 if the bank reported a loss in the current year.
LTDebt/TA	Leverage ratio, measured as natural logarithm of long term debts scaled by total assets.
NIR/Revenue	Non-interest-revenue scaled by total revenue winsorized at the 1st and 99th percentiles.
Nloan/TA	Net loans scaled by Total assets.
Reporting Behaviour	The natural logarithm of the ratio of the absolute value of accruals scaled by the absolute value of cash flows (multiplied by –1 so that higher values indicate more transparent reporting) and winsorized at the 1st and 99th percentiles. Accruals is the difference between net income before extraordinary items and the cash flow from operations (from Daske et al., 2013, Hope et al., 2013).
Revenue	Natural logarithm of net revenue of the financial year.

ROA	Return on assets. Net income divided by total assets.
RPerCapInc	Natural logarithm of real per capital income. Source: World Development Indicators (WDI) of the World Bank and Eurostat.
Smooth	Earning smoothness is measured as the natural logarithm of the of the standard deviation of net income before extraordinary items (scaled by total assets) divided by the standard deviation of cash flow from operations (scaled by total assets) over the years t – 4 through t (Francis et al. 2004; Hribar et al., 2014). We (multiplied by –1 so that higher values indicate more transparent reporting).
STDCFO	Natural logarithm of the standard deviation of cash flows from operations scaled by total assets where the standard deviation is calculated using the prior years *t-4* to *t* with a minimum of three years.
STK_RTN_VOL	Natural logarithm of the standard deviation of daily stock returns measured over one year.
TA	Natural logarithm of total assets of firm.
TobinQ	Tobin' q is measured as the market value (MV) of equity less the book value (BV) of equity, plus the book value of assets, all scaled by the book value of assets ((MV of equity − BV of equity + BV of assets)/BV of assets) (Mclean and Zhao, 2014).
TtlAudFees	Natural logarithm of total audit fees, audit related fees and non-audit fees paid to the auditors winsorized at the 1st and 99th percentiles.
Z-score	It is measured as the natural logarithm of return-on-assets and the ratio of equity over total assets divided by the standard deviation of daily stock market returns over one year ((Net income / Assets (book value) + Capital / Assets (book values))/ (Standard deviation of daily market returns over one year).

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