

Auditor Reporting to Bank Regulators: Effective Regulation or Regulatory Overreach?

Amir Amel-Zadeh
Saïd Business School
University of Oxford

Mary E. Barth*
Graduate School of Business
Stanford University

August 2021

Forthcoming in the *Journal of Accounting and Economics*

*Corresponding author: mbarth@stanford.edu.

This paper is based on our 2020 *Journal of Accounting and Economics* (JAE) Conference discussion of “Economic Consequences of Mandatory Auditor Reporting to Bank Regulators” by Balakrishnan, De George, Ertan, and Scobie. We thank the Editors of the JAE, especially John Core, for giving us this opportunity and Doron Israeli for helpful comments and suggestions.

Auditor Reporting to Bank Regulators: Effective Regulation or Regulatory Overreach?

Abstract

We discuss “Economic Consequences of Mandatory Auditor Reporting to Bank Regulators” by Balakrishnan, De George, Ertan, and Scobie (BDES, in this issue). BDES concludes that a key benefit of mandatory auditor reporting to bank regulators is reduced bank risk, and its costs include reduced profitability from less overall and less risky lending, and higher audit costs. BDES also provides evidence on the channels through which mandatory auditor reporting links to reduced bank risk. We scrutinize BDES’s analyses and inferences and suggest additional analyses to improve and deepen them. Most notably, we caution that effective bank regulation entails reducing risk for riskier banks; risk reduction for safer banks suggests regulatory overreach. Our evidence is more indicative of regulatory overreach. Thus, although BDES is an important step forward in understanding the role auditors can and do play in improving information available to key decision-makers other than through auditor reports on financial statements and internal controls, a comprehensive assessment of whether the benefits of mandatory auditor reporting to bank regulators exceed its costs is left for future research. Such an assessment is necessary before concluding whether mandatory auditor reporting leads to more effective bank regulation or regulatory overreach.

JEL Classifications: D8, M41, M48

Keywords: Bank risk, bank regulation, auditor reporting

Auditor Reporting to Bank Regulators: Effective Regulation or Regulatory Overreach?

1. Introduction

Concerns about bank riskiness during the global financial crisis of 2007 to 2009 led bank regulators in the European Union (EU) to identify steps they could take to enhance the effectiveness of bank regulation. One such step is to strengthen bank regulators' relationship with banks' external auditors, who have extensive knowledge of the banks whose financial statements they audit. Although auditor reporting to bank regulators had been mandatory in Austria and Germany since the late 1990s, most EU countries had mandated it by 2016. Balakrishnan, De George, Ertan, and Scobie (in this issue, hereafter BDES) exploits the staggered adoption of this regulatory mandate by countries in the EU to assess the economic consequences of mandatory auditor reporting to bank regulators.

Financial statement auditors know much about their clients' financial situation and controls. Typically, auditors reveal their knowledge through reports on financial statements and internal controls. Auditors also provide other types of assurance, for example signing tax returns, performing agreed-upon procedures on contract terms such as loan covenants, and writing "comfort letters" in public offerings. Thus, it is important to understand how auditor involvement improves information quality and decisions based on that information. By focusing on benefits and costs of mandatory auditor reporting to bank regulators in the EU, BDES is an important step forward in our understanding. The question also is timely. Bank regulators in an increasing number of countries seek to leverage auditors' information in making bank regulation more effective. Late in the study's sample period, the Institute of Chartered Accountants in England and Wales issued a discussion paper soliciting comments on whether the role of bank

auditors should be expanded (ICAEW, 2015). We commend BDES for tackling this important and timely question.

BDES's primary finding is that mandatory auditor reporting to bank regulators reduces bank risk, which the study views as a key economic benefit of the mandate. BDES also provides evidence on costs of mandatory auditor reporting. These costs include reduced profitability associated with less overall lending and more safer, i.e., less risky, lending, and higher audit costs stemming from increased auditor involvement. BDES also provides evidence on the channels through which various aspects of bank regulation link to mandatory auditor reporting and reduced bank risk.

Our discussion proceeds in three main steps. First, we overview the objective and pillars of bank regulation. We caution that although effective bank regulation entails reducing risk for riskier banks, risk reduction for safer banks suggests regulatory overreach. Second, we scrutinize BDES's findings regarding mandatory auditor reporting to bank regulators and reduction in bank risk. In this step, we (i) raise concerns about assessing the effects of bank regulation based on a measure of bank risk designed by bank regulators rather than on economic risk; (ii) provide evidence that is more consistent with mandatory auditor reporting being a manifestation of regulatory overreach than of effective bank regulation; and (iii) highlight econometric concerns that could affect BDES's inferences. Third, we overview BDES's tests relating to the channels through which mandatory auditor reporting reduces bank risk. These channels reflect the three pillars of the Basel regulatory framework: regulation-based monitoring, supervision and review, and market discipline. We suggest additional tests for each pillar and provide evidence on some of the tests we suggest. Our channel-related evidence also is more consistent with mandatory auditor reporting to bank regulators reflecting regulatory overreach.

We end by offering concluding remarks and opportunities for future research. In particular, we observe that BDES is an important step forward in understanding the role auditors can and do play in improving information available to key decision-makers other than through auditor reports on financial statements and internal controls. However, determining whether mandatory auditor reporting to bank regulators leads to more effective bank regulation or to regulatory overreach requires a comprehensive assessment of the costs and benefits associated with such reporting. This assessment is left for future research.

2. Objective and Pillars of Bank Regulation

BDES studies the economic consequences of mandatory auditor reporting to bank regulators in the context of the three pillars of bank regulation: regulation-based monitoring, supervision and review, and market discipline (BCBS, 2006). The study's main focus is on whether mandatory auditor reporting to bank regulators reduces bank risk, which BDES views as a key economic benefit of mandated auditor reporting to regulators. However, zero risk is not the objective of bank regulation and, thus, reducing bank risk is not always a benefit. If zero risk were the objective, a key bank function would be eliminated because banks would be unable to lend to private sector entities, which are not risk-free. This is why the regulation-based monitoring pillar requires each bank to maintain a ratio of regulatory capital to risk-weighted assets (RWA) that equals or exceeds the minimum specified by the regulator. There are five main categories of RWA, which are credit risk excluding counterparty credit risk, counterparty credit risk, market risk, operational risk, and other (BCBS, 2006).

Banks use different approaches to assign risk weights to assets. Under Basel I the regulator specifies risk weights by asset type and in the standardized approach of Basel II risk weights depend on external credit ratings, both of which suggest the auditor has limited input. In

the internal ratings-based (IRB) approach, which was added as a second approach in Basel II, the bank determines risk weights based on its internal models (CEBS, 2006). Although Basel III also uses both approaches, it increased the risk sensitivity of the standardized approach and reduced reliance on external credit ratings (BCBS, 2017). As a result, Basel III requires more reliance on the bank's information when determining risk weights than Basel II, including, for example, considering loan-to-value ratios for mortgage loans and assessing asset risk even when external credit ratings are available.

Specifying a required minimum capital ratio addresses the regulator's concern of whether a bank has sufficient capital to absorb losses from risky loans, not whether the bank's loans are risky. As a result, a bank's capital ratio indicates the extent to which the regulator views the bank as safer or riskier and, thus, the extent to which the regulator assesses that risk reduction is needed for the bank. For riskier banks, regulators assess the benefit of maintaining safety and soundness of banks and financial stability as being greater than the costs to the banks associated with reduced risk. These costs include lower levels of lending and lower interest rates charged to borrowers for loans. Thus, for riskier banks, risk reduction from auditor reporting would be more consistent with effective regulation, despite the documented costs. Safer banks do not need to reduce risk or bear those costs. Thus, for safer banks, risk reduction from mandatory auditor reporting would be more consistent with regulatory overreach, which results in safer banks bearing unnecessary costs.

3. Evaluating the Evidence on Bank Risk and Mandatory Auditor Reporting

BDES presents evidence indicating that mandatory auditor reporting to bank regulators is associated with lower bank risk, as measured by counterparty risk and credit default swap (CDS) spreads. In addition, the study reports that these findings apply to UK banks with assets greater

than £50 billion, which were subject to mandatory auditor reporting, relative to UK banks with assets less than £50 billion, which were not, and that the counterparty risk (CDS spreads) findings apply to medium (medium and large) banks.¹ Although BDES predicts significant results for medium banks, rather than large or small ones, the findings for UK banks relate to large banks. BDES also reports that the findings are robust to inclusion of bank sector control variables, and that the counterparty risk findings are robust to excluding observations from each treatment country, one at a time.

BDES's measure of auditor reporting, *Mandatory Auditor Reporting* (hereafter *MAR*), is a country-specific indicator variable that equals one for years in which a country requires mandatory auditor reporting to regulators in the form of additional reporting or by providing assurance on regulatory ratios.² *MAR* equals zero for country-years in which such reporting is not mandatory. BDES Table 1 lists 14 EU countries that mandate additional reporting or ratio assurance by 2018, which is the end of the study's sample period. Even though the table lists Lithuania as mandating ratio assurance in 2004, BDES treats it as a control country (see BDES footnote 11). The remaining 14 EU countries do not mandate auditor reporting to regulators. Thus, they, plus Lithuania and minus Romania, which has no sample observations, are the control countries.

3.1 Measure of Bank Risk

Given the focus of BDES on whether reduction of bank risk is an economic consequence of mandatory auditor reporting to bank regulators, one would expect the study to focus on bank

¹ BDES's full sample includes 115 UK observations (BDES Table 2, Panel B), whereas the within-country UK sample includes 749 (BDES Table 5, Panel B). Presumably, the full sample includes only UK banks subject to mandatory auditor reporting. However, BDES does not explain why.

² Although BDES views mandatory meetings between auditors and bank regulators as a channel through which mandatory auditor reporting to regulators reduces bank risk, the presence or absence of mandatory meetings does not affect the definition of *MAR*. See Section 4.2.

economic risk. However, BDES's main measure of bank risk is *Counterparty risk*.³ BDES Appendix A identifies *Counterparty risk* as the natural logarithm of data item #225242 in the SNL Financial database, which is the sum of risk-weighted assets for credit risk excluding counterparty credit risk, counterparty credit risk, and other risk. As Section 2 explains, these are three main categories of risk-weighted assets. A bank's risk-weighted assets is the weighted sum of the bank's assets, where the weights depend on the risk categories to which the bank's assets are allocated. The risk categories and risk weights are determined in accordance with bank regulations. Untabulated statistics reveal that unlogged *Counterparty risk* averages 88.5% of risk-weighted assets and is 99.8% correlated with it. Therefore, it is unclear whether lower *Counterparty risk* stems from lower economic risk of a bank's assets, such as its loan portfolio, or from changes in the regulatory risk categories or regulatory risk weights applied to the bank's assets.

Importantly, BDES views risk-weighted assets as a channel through which auditor involvement can enhance the effectiveness of bank regulation. BDES envisions auditors providing assurance on the accuracy of the bank's calculation of risk-weighted assets reported to the regulator, not providing assurance on the economic risk of the bank's assets. Yet, BDES's measure for the effectiveness of bank regulation, *Counterparty risk*, itself is part of the channel BDES tests. This dual role of *Counterparty risk* as an outcome of, and an input to, bank regulation clouds inferences from analyses based on it.

Based on a sample we construct following BDES (see Appendix for details), we provide evidence on the extent to which BDES's main inferences apply to bank economic risk. In

³ BDES's measure of CDS spreads, *CDS Spread*, is the percentage spread of a bank's five-year credit default swap contract. *CDS Spread* is a market measure of bank economic risk but is available only for some publicly listed banks, which comprise approximately 3½% of the study's observations.

particular, we estimate BDES equation (1) using equity volatility, *EqVol*, and cost of debt, *CDebt*, as measures of bank risk, in place of *Counterparty risk*.⁴ Untabulated findings reveal negative relations between *MAR* and both *EqVol* and *CDebt*, although the relation is significant only for *EqVol* (coefs. = -6.57 and -0.03 ; t-stats. = -2.02 and -0.61).⁵ These findings suggest it is important to determine which measure of economic risk bank regulators seek to reduce before inferring whether a particular regulatory requirement reduces bank risk.

3.2 Bank Economic Risk and Riskier and Safer Banks

As Section 2 explains, although BDES views reducing bank risk as a key economic benefit of mandated auditor reporting to regulators, risk reduction is a regulatory benefit only for riskier banks. Thus, we provide evidence on the extent to which the reduction in bank risk BDES documents relates to riskier or safer banks. Such evidence helps to assess whether mandatory auditor reporting increases the effectiveness of bank regulation or is a manifestation of regulatory overreach.

To provide our evidence, we estimate BDES equation (1) including *RiskierBanks* and the interaction between *MAR* and *RiskierBanks*. We base *RiskierBanks* on the bank's regulatory capital ratio, *RegCapRatio*, because bank regulators have designed the ratio to identify whether the bank is safer or riskier.⁶ If mandatory auditor reporting increases the effectiveness of bank regulation (is a manifestation of regulatory overreach), we expect the *MAR* coefficient is significantly negative for riskier (safer) banks and not significantly different from zero for safer

⁴ We follow Badia et al. (2020) in using *EqVol* and *CDebt* as economic risk measures. *EqVol* is the standard deviation of the bank's daily returns using all available observations in the year, scaled by $\sqrt{252}$. *CDebt* is 100 times a bank's year $t + 1$ interest expense, scaled by year t total liabilities. *EqVol* is available for publicly listed banks and *CDebt* is available for publicly listed and unlisted banks.

⁵ These t-statistics are based on standard errors clustered by country-year, as in BDES. t-statistics double clustered by country and year reveal insignificant relations (t-stats. = -1.63 and -0.38). See Section 3.3.

⁶ We use two versions of *RiskierBanks*. The first is an indicator variable that equals one (zero) if the bank's regulatory capital ratio is in the top (bottom) four deciles that year; we exclude observations in the middle two deciles. The second is the decile rank of the regulatory capital ratio.

(riskier) banks. For purposes of comparison with BDES, we first estimate the equation using *Counterparty risk* as the bank risk measure. However, because Section 3.1 explains that unlogged *Counterparty risk* essentially is the denominator of the regulatory capital ratio and is part of the regulatory regime being studied, we also use equity volatility, *EqVol*, as a measure of bank economic risk.

Table 1 presents the findings. The findings based on *Counterparty risk* reveal that the *MAR* coefficient is significantly negative (t-stats. = -1.94 and -2.75), which indicates that mandatory auditor reporting is negatively associated with *Counterparty risk* for safer banks.⁷ The findings also reveal that the *MAR* \times *RiskierBanks* coefficients are significantly positive (t-stats. = 2.02 and 4.18), which indicates that the association between mandatory auditor reporting and *Counterparty risk* is significantly more positive for riskier banks. Also, the F-tests indicate that mandatory auditor reporting is not significantly related to *Counterparty risk* for riskier banks (p-values = 0.23 and 0.76).

The findings based on *EqVol* reveal similar inferences. In particular, the *MAR* coefficient is negative, and significantly so when *RiskierBanks* is an indicator, but not significant when it is decile ranks (t-stats. = -2.14 and -1.49). As with the *Counterparty risk*-based findings, these findings indicate that mandatory auditor reporting is negatively associated with *EqVol* for safer banks. The findings also reveal that although the *MAR* \times *RiskierBanks* coefficient is positive, it is insignificant in both specifications (t-stats. = 1.54 and 0.55), which indicates that the *MAR* coefficient is not significantly different for safer and riskier banks. However, as with the

⁷ All tabulated t-statistics are based on standard errors double clustered by country and year for reasons explained in Section 3.3.

Counterparty risk-based findings, the F-test indicates that mandatory auditor reporting is not significantly related to equity volatility for riskier banks (p-values = 0.25 and 0.34).⁸

Thus, both sets of findings in Table 1 reveal that mandatory auditor reporting is associated with significantly lower risk for safer banks, but is not significantly related to risk for riskier banks. These findings are more consistent with regulatory overreach than with reducing risk of riskier banks.

3.3 Measure of Mandatory Auditor Reporting

As BDES explains, *MAR* is essentially *Treatment*×*Post*, where *Treatment* equals one for banks in treatment countries and *Post* equals one for years in which the mandate was effective in the country. *Treatment* and *Post* equal zero otherwise. *MAR* equals zero for all 6,028 observations for banks in the control countries (hereafter All Off observations). Of the treatment countries, BDES Table 1 shows that four—Austria, Germany, Slovakia, and Portugal—mandated auditor reporting prior to the sample period. Thus, *MAR* equals one for all 9,480 observations for banks in these countries (hereafter All On observations). BDES’s analyses include bank fixed effects and each bank is associated with a single country in all years. Thus, observations from 19 countries—91.6% of the sample observations—do not contribute to the identification of the *MAR* coefficient.⁹ Rather, its identification comes from variation in the year that banks in Spain, Belgium, Luxemborg, Croatia, Estonia, Hungary, the Netherlands, Slovenia,

⁸ Untabulated findings reveal that in the same specification but with *CDebt* as the dependent variable, no coefficient is significantly different from zero (t-stats. range from –1.08 to 1.37) and the F-test p-values are 0.53 and 0.56.

⁹ Untabulated findings reveal that the *MAR* coefficient in BDES equation (1) is –0.05 when we include all observations, regardless of whether we assign *MAR* = 1 or *MAR* = 0 to the All On and All Off observations. These findings confirm that these observations do not contribute to the identification of the *MAR* coefficient. However, the coefficient is –0.08, –0.03, and –0.02 when we omit All Off, All On, and All Off and All On observations. BDES Online Appendix Table C2 also reveals a more negative *MAR* coefficient when All Off observations are omitted; BDES does not report findings based on omitting All On or All Off and All On observations.

and the UK implemented the auditor reporting mandate. The sample includes 1,419 observations for these banks.

BDES's estimation equation appropriately includes control variables to mitigate correlated omitted variable bias. However, it is unclear why BDES estimates the equation using banks in countries for which *MAR* equals zero or one for all years, i.e., the All Off and All On observations).¹⁰ Including these observations could increase estimation efficiency. However, including them could bias the *MAR* coefficient. This is because the variance/covariance structure of the regression variables for all observations affects the *MAR* coefficient, regardless of whether the observations help identify it. That is, the *MAR* coefficient will differ if the control variables in the All On or All Off countries have distributions different from those in the countries that adopted mandatory auditor reporting to bank regulators during the sample period. Thus, although BDES's analysis appears to depend on the staggered EU adoption of mandatory auditor reporting to bank regulators, the study's findings can be affected by the All Off and All On observations.

BDES's inferences also should be interpreted with caution because they are based on t-statistics unadjusted for within-country and within-year residual correlations. Neither correlation is likely to be zero because auditor reporting to bank regulators is a country-level mandate and banks in different countries face similar economic conditions in any given year. BDES's main tables report t-statistics clustered by country-year, which controls for neither type of correlation (Gow, Ormazabal, and Taylor, GOT 2010).¹¹ Although BDES Online Appendix Table C3

¹⁰ BDES states that its approach is similar to the differences-in-differences framework in Bertrand and Mullainathan (BM, 2003). However, BM does not include observations for which *Treatment* always equals one.

¹¹ Cameron et al. (2008) shows bootstrapping can overcome concerns about few clusters. However, GOT finds double clustering yields reliable inferences with 10 clusters. BDES has 10 years and more than 10 countries.

reports significant results based on standard errors double clustered by country and year, we are unable to replicate these results.¹²

4. Evaluating the Evidence on Channels for Auditor Reporting to Affect Bank Risk

BDES uses a variety of measures to link aspects of the three pillars of bank regulation to mandatory auditor reporting to bank regulators and reduced bank risk. Taken as a whole, the evidence lends support to the existence of a link between the channels, auditor reporting, and bank risk. For some reason, BDES's channel analyses take on various forms, including the sample on which they are estimated.

4.1 Regulation-based Monitoring

For regulation-based monitoring, BDES's channel measure is *Risk-weighted assets*, which is the bank's risk-weighted assets, scaled by total assets. In this test, BDES estimates a regression of *Risk-weighted assets* on *MAR* and finds a significant negative relation. However, BDES does not test for a link between bank risk and *Risk-weighted assets*, as one would expect for a channel test. Recall from Section 3.1 that unlogged *Counterparty risk* effectively is *Risk-weighted assets*. Thus, the negative relation between *MAR* and *Risk-weighted assets*, which BDES offers as evidence of regulation-based monitoring being a channel through which mandatory auditor reporting lowers bank risk, is difficult to distinguish from the negative relation between *Counterparty risk* and *MAR*, which BDES offers as evidence of mandatory auditor reporting lowering bank risk.

¹² BDES Table 3 reports a significant *MAR* coefficient of -0.07 (t-stat. = -2.93). Untabulated findings based on our sample and standard errors clustered by country-year as in BDES also reveal a significantly negative coefficient (coef. = -0.05 , t-stat. = -2.30). However, untabulated findings also reveal that the coefficient is insignificant based on standard errors double clustered by country and year (t-stat. = -1.33). In addition, BDES footnote 15 indicates its inferences are unaffected if counterparty risk scaled by total equity is the dependent variable. We are unable to replicate this finding. Untabulated findings based on our sample reveal the *MAR* coefficient is insignificant based on either clustering by country-year or double clustering by country and year (t-stats. = -1.57 and -0.91).

One could view risk-weighted assets more appropriately as a channel than as bank economic risk, provided there is a reason auditor reporting would result in lower risk-weighted assets. However, banks have incentives to report lower risk-weighted assets to reduce the apparent risk of their assets and increase their regulatory capital ratios. Thus, if a bank manipulates asset risk weights to reduce the apparent risk of its assets, one would expect the bank to report risk-weighted assets that are lower than the bank's actual asset risk justifies. In this case, observing lower risk-weighted assets would mean more manipulation, not less. If auditors prevent this manipulation, then with auditor involvement we would observe higher reported risk-weighted assets, not lower. If the bank does not manipulate asset risk weights downward, then lower risk-weighted assets would correspond to lower actual risk of the banks' assets, assuming regulatory risk weights reflect actual asset risk. Thus, depending on whether banks manipulate risk-weighted assets, observing lower risk-weighted assets could mean more manipulation or lower actual risk. BDES seems to assume that with more auditor involvement, manipulation is ruled out and thus lower risk-weighted assets means lower actual risk. However, this line of reasoning does not explain how auditor involvement in the bank's calculation of risk-weighted assets is a channel for reducing actual bank risk.

BDES's estimation equations include a control variable for the Basel accord applicable to a bank in a given year, but do not consider that differences in the accords could affect the implications of mandatory auditor reporting. It seems plausible that auditors play a larger role in regulation-based monitoring for banks that use internal models to estimate credit risk. For example, auditors can help assess the appropriateness of the bank's models or resulting risk weights. Thus, testing whether any association between risk-weighted assets and mandatory auditor reporting is stronger for banks that use internal models might provide more direct

evidence on the auditor's role in regulation-based monitoring. As discussed in Section 2, the IRB approaches in Basel II and III require more internal model inputs than the standardized approach, and Basel III requires banks to rely more on internal models than Basel I or Basel II.¹³ Thus, we provide evidence on whether mandatory auditor reporting is associated with greater reduction in *Counterparty risk* for banks applying IRB approaches, *IRB*, and applying Basel III, *BaselIII*.¹⁴

Table 2 presents the findings. The table reveals that for both *IRB* and *BaselIII* as the *InternalEstimates* measures, the *MAR* coefficients are significantly negative and the *MAR*×*InternalEstimates* coefficients are significantly positive (t-stats. = −2.52 and 2.12; −2.25 and 4.12).¹⁵ In addition, both total *MAR* coefficients are insignificant (p-values = 0.22 and 0.90). These findings reveal that mandatory auditor reporting is significantly negatively associated with *Counterparty risk* for banks applying the standardized approach to determine asset risk weights. This finding is opposite to expectations because auditors presumably play a smaller role in regulation-based monitoring for banks that use standardized risk weights rather than estimate risk weights based on their own internal models. In addition, there is no evidence that mandatory auditor reporting is significantly negatively associated with bank risk for banks using internal estimates, which presumably require more input by auditors.

¹³ There are two IRB approaches, Foundation and Advanced. In the Foundation approach, a bank uses its own estimate of the probability of default, but uses other model inputs set by the regulator. In the Advanced approach, a bank also is allowed to model other inputs such as loss-given-default and exposure-at-default.

¹⁴ *IRB* equals 0.25 if the bank uses only the standardized approach in Basel II and Basel III to calculate risk weights, 0.5 if it uses a combination of standardized and Foundation IRB approaches, 0.75 if it uses only the Foundation IRB approach, and 1 if it uses the Advanced IRB approach. Thus, *IRB* is not captured by any of BDES's Basel fixed effects. The lower number of observations for the *IRB* specification results from missing data for the *IRB* variable in the SNL database. *BaselIII* is an indicator variable that equals one if the bank applies Basel III, and zero otherwise. Although BDES's estimation equation includes a Basel III fixed effect, it does not consider whether the relation between *MAR* and *Counterparty risk* differs for banks applying Basel III.

¹⁵ When *BaselIII* is the *InternalEstimates* measure, the estimation equation includes a Basel II (Pillar 3) fixed effect, but not the remaining BDES Basel fixed effects. This is because *InternalEstimates* is the Basel III fixed effect, and no sample banks apply Basel I. The Basel II fixed effect is absorbed by the intercept.

4.2 Supervision and Review by Bank Regulators

For supervision and review by bank regulators, BDES uses three measures: (i) *Number of on-site examinations*, (ii) whether the regulator is resource constrained as reflected in the regulator's number of employees being below the median, and (iii) whether auditor meetings with regulators must occur at least annually. For number of examinations, *Number of on-site examinations* is the dependent variable and *MAR* is the explanatory variable in a regression estimated using country-year observations. However, as with *Risk-weighted assets*, BDES does not test for a link between bank risk and *Number of on-site examinations*. For mandatory annual meetings and resource-constrained regulators, *Counterparty risk* is the dependent variable, *MAR* is the explanatory variable, and the channel is used to partition the sample.¹⁶

BDES reports that all three measures are negatively associated with *MAR*. However, it is difficult to think of fewer on-site examinations and more resource-constrained regulators as evidence of more effective supervision. An alternative interpretation is that mandatory auditor reporting is a substitute for on-site examinations and other regulator staff activities. This interpretation suggests mandatory auditor reporting results in cost savings for the regulator, which makes supervision and review more efficient for the regulator.

Mandatory meetings between auditors and regulators could be a venue for sharing soft information and interpreting hard information. Thus, these meetings could make bank supervision more effective. However, BDES's test of this relation is a bit mysterious. The mystery largely involves the sample composition and variable assignment. When defining treatment countries, BDES ignores required meetings. Apparently, the auditor meeting requirement is not part of the regulation mandating additional reporting or ratio assurance. Thus,

¹⁶ The number of observations for these analyses is 22,955 (15,969 + 6,986 and 7,603 + 15,352), which exceeds the total number of observations of 16,927. BDES does not explain the reason for these additional observations.

as BDES Table 1 reveals, BDES discards any insights obtainable from the existence of required meetings in control countries. However, because BDES does not identify the year required meetings began for banks in each country, it is not possible for us to determine whether that is the case. Regardless, not digging deeper into the meetings channel could be a missed opportunity, depending on when the meeting requirement begins in each country.¹⁷

4.3 Market Discipline

For market discipline, BDES uses *Information imprecision*, which is the ratio of short-term to long-term CDS spreads. In this test, *Information imprecision* is the dependent variable and *MAR* is the explanatory variable. As with *Risk-weighted assets* and *Number of on-site examinations*, there are no tests of a link between bank risk and *Information imprecision*. Unfortunately, *Information imprecision* is available for only 542 observations. Alternative measures might be differences between publicly listed and unlisted banks and variation in commonly employed information environment, information asymmetry, and audit quality measures, such as restatements and qualified opinions. It seems plausible that publicly listed banks and banks with higher audit quality, richer information environments, and lower information asymmetry would be more affected by market discipline than other banks.

To explore whether this is the case, we provide evidence on whether mandatory auditor reporting is associated with greater reduction in *Counterparty risk* for publicly listed banks. Table 3 presents the findings. The table reveals that the total *MAR* coefficient is insignificant for unlisted banks (t-stat. = -0.93), but is significantly negative for publicly listed banks (p-value = 0.09). These findings indicate that mandatory auditor reporting is associated with bank risk, as

¹⁷ BDES does not provide details on the number of on-site examinations or regulator resource constraints, which also makes these tests a bit mysterious. More generally, it would have helped a reader if the study had reported descriptive statistics, including correlations, for all variables.

measured by *Counterparty risk* for banks with arguably more market discipline.¹⁸ Together with the findings in Table 1, the Table 3 findings are more consistent with regulatory overreach in that mandatory auditor reporting is associated with bank risk only for banks with already strong market discipline.

5 Additional Comments

5.1 Nonperforming and Problem Loans

As corroborative evidence for its main inference that mandatory auditor reporting reduces bank risk, BDES Table 7, Panel A, reports that the interaction between *MAR* and future change in nonperforming loans is significantly positively associated with the current period loan loss provision. The notion is that loan loss provisions that are more predictive of nonperforming loans stem from better auditing and provide better information to the market, thereby enhancing market discipline. However, during the sample period, banks applied the incurred loss model for determining the loan loss provision, which is designed to reflect incurred losses, not to be predictive of future losses. Thus, it is unclear why auditing enhances the predictive ability of loan loss provisions for future nonperforming loans.

BDES Table 7, Panel B, reports that the relation between *MAR* and future short (long) window problem loans is significantly positive (insignificant). However, the study does not test whether the difference in these relations is significant. More importantly, BDES describes problem loans as “the amount of loans that have not yet been impaired but that require close monitoring” and, thus, interprets the finding as evidence that improved audit outputs enhance the monitoring of bank risk. However, the SNL database defines problem loans as “[t]he problem

¹⁸ If publicly listed banks were riskier than unlisted banks, this finding would contrast with the findings in Table 2. However, Barry et al. (2011) finds no significant differences in asset risk and default risk between publicly held and privately owned European banks, and Berger et al. (2017) finds that public status is associated with less risk as measured by Z-score for US banks.

loan value that the company most commonly presents. If the company commonly reports multiple values, SNL selects based on the following priority (at SNL’s discretion):

Nonperforming Loans, Gross Impaired Loans, Net Impaired Loans, and Other Problem Loans.”

Untabulated statistics reveal that *problem loans* equals nonperforming loans 76.5% of the time and the variables are 99.8% correlated. The statistics also reveal that the correlations of *problem loans* with unlogged *Counterparty risk* and *Risk-weighted assets* are 76.0% and 75.3%. Thus, as with *Counterparty risk*, *problem loans* effectively is part of risk-weighted assets.

5.2 Bank Regulators Survey

We applaud BDES for conducting a survey of bank regulators to gain a clearer understanding of what auditors report to bank regulators (see BDES Online Appendix).

However, there are two areas in which the responses could have been incorporated further into the study’s research design to yield additional insights.

First, some national regulators say they do not require additional information from auditors in their countries, but the European Central Bank (ECB) says it does. BDES suggests that this difference could arise because the ECB is responsible for the largest banks in each country and requirements of the ECB and national regulators could differ. This difference is consistent with our Section 4.3 finding of a negative relation between *MAR* and bank risk for publicly listed, but not unlisted, banks. The question for BDES’s design is whether different types of banks within a country—e.g., large versus small—face different regulatory requirements that were implemented at different times. For example, if the ECB requires additional information from auditors of large banks, then such requirements likely were implemented across the EU at the same time, regardless of national regulation. This would result in within-country variation in mandatory auditor reporting to bank regulators that could be exploited.

Second, one survey question posed to regulators was whether the regulator required the auditor to provide a “long-form” audit report. Beginning in 2017, auditors’ reports are required to include Key Audit Matters (KAM), which sound similar to the long-form reports described in the survey. Thus, it is unclear whether auditor reporting effectively was mandatory in all countries in the last two sample years. If the information in KAMs differs from that in the long-form reports mandated by regulators, it would be interesting to understand those differences and why they matter. Similarly, regarding ratio assurance, it would be interesting to understand the level of assurance regulators required auditors to provide and, if the level differs across countries, whether the level of assurance matters.

6. Concluding Remarks and Opportunities for Future Research

BDES provides evidence on economic consequences of auditor reporting to bank regulators. The findings reveal that the mandate has benefits as well as costs. The key benefit BDES identifies is the reduction of bank risk. However, that benefit comes with costs to the banks of reduced lending and decreased profitability, as well as higher audit fees. Regarding the channels through which mandatory auditor reporting to bank regulators reduces risk, BDES finds benefits to bank regulators in the form of lower costs associated with substituting auditor involvement for regulator on-site bank examinations, particularly for more resource-constrained regulators. BDES also finds that the capital market has better information, as evidenced by lower CDS spread ratios.

A cost BDES acknowledges, but does not pursue, relates to whether and, if so, the extent to which mandatory auditor reporting to bank regulators could be costly to the financial reporting system. Currently, banks pay auditors for auditing services and provide auditors direct access to whatever information they need from the bank to provide assurance on the bank’s financial

statements. Auditors hold in confidence the information they obtain during the audit.

Mandatory auditor reporting to bank regulators could result in diminishing the flow of information from banks to auditors if banks have information they do not want to be shared with bank regulators. This diminished information flow could, in turn, adversely affect the quality of the audit and, thus, the information in financial statements, which is so crucial to the functioning of the capital market. This cost is important to factor into any decision to mandate auditor reporting to regulators.

Our discussion confirms that auditors can help regulators strengthen all three pillars of bank regulation, thereby helping to make bank regulation more effective. However, we raise several questions about BDES's analyses and inferences and suggest additional analyses to help resolve these questions. We observe that although risk reduction for riskier banks would be consistent with more effective regulation, risk reduction for safer banks would be more consistent with regulatory overreach. We present evidence that is more consistent with regulatory overreach. We also emphasize the importance of assessing risk reduction based on bank economic risk measures, rather than regulatory risk measures that are part of the regime being examined. Our evidence highlights the importance of determining which measure of economic risk bank regulators seek to reduce before inferring whether a particular regulatory requirement enhances the effectiveness of bank regulation.

Regarding the channels through which mandatory auditor reporting reduces bank risk, we suggest additional tests and provide evidence on some of the tests we suggest. Contrary to expectations, our evidence reveals that mandatory auditor reporting is more effective at reducing bank risk for banks using the standardized approach for determining asset risk weights, which likely requires less input by auditors, and for publicly listed banks, which likely have greater

market discipline. The evidence for listed, but not unlisted, banks also is consistent with mandatory auditor reporting reflecting regulatory overreach. We point out that BDES does not fully utilize the data regarding the existence of mandatory annual meetings between auditors and bank regulators. This is a missed opportunity, which is left open for future research. Finally, we caution that BDES's inferences relating to the relation between mandatory auditor reporting to bank regulators and bank risk could be affected by including in the estimation equation observations that do not contribute to the identification of the coefficient on the study's key experimental variable.

In sum, BDES is an important step forward in understanding the role auditors can and do play in improving information available to key decision-makers other than through auditor reports on financial statements and internal controls. This role is likely to increase in the future with the push for more non-financial reporting, such as relating to ESG matters. However, a comprehensive assessment of whether the benefits of mandatory auditor reporting to bank regulators exceed its costs is left for future research. Such an assessment is necessary before concluding whether mandated auditor reporting leads to more effective bank regulation or to regulatory overreach.

Appendix

Constructed Sample

To provide evidence on whether suggestions we have for additional analyses might be worth investigating further, we construct a sample following BDES's sample and variable descriptions. Specifically, we obtain our sample of banks in the 28 EU countries for 2009-2018 from SNL Financial. The initial sample comprises 80,820 bank-year observations for 6,735 banks, of which 204 are publicly listed. The number of observations reduces to 18,189 because we require non-missing values for the BDES variables we need for our analyses. Also, we drop duplicate observations relating to a bank holding company and its subsidiaries if SNL reports the same data for both. The sample reduces to 17,708 bank-year observations for 2,911 banks once we require UK banks' total assets to exceed £50 billion and eliminate singleton observations.¹⁹

Following BDES, we merge the bank-year panel dataset with country-year data from the World Bank's Doing Business and Global Financial Development data sets (<https://databank.worldbank.org/home.aspx>). For publicly listed banks, we obtain stock returns, stock prices, and number of shares outstanding from SNL. We construct the mandatory auditor reporting indicator variable following BDES Table 1 and explanations in BDES Section 3.

Using this process, we are unable to replicate exactly the BDES sample. Our sample comprises 17,708 observations, whereas BDES's sample comprises 16,927, and the distributions of observations across countries and years both differ somewhat. However, Table A1 reveals that descriptive statistics for the two samples are similar, except for *Size*. Importantly, estimating the BDES Table 3 specification, including clustering standard errors by country-year, using our

¹⁹ We eliminate 124 observations that are singletons with respect to any fixed effect. However, BDES does not eliminate them. Thus, we include these observations when directly comparing our findings to those of BDES. Excluding them does not affect our inferences from these comparisons.

sample reveals that the *MAR* coefficient (t-statistic) is -0.05 (-2.30), whereas BDES reports it is -0.07 (-2.93). Regardless, the results of our analyses should be interpreted with caution.

BDES Appendix A indicates that *Size* is the natural logarithm of total assets. As Section 3.1 explains, *Counterparty risk* is the natural logarithm of a major subset of total assets, i.e., the sum of three components of risk-weighted assets. Thus, it is unsurprising that untabulated statistics reveal *Size* and *Counterparty risk* are 97% correlated. In addition, *Size* and *Counterparty risk* are the only variables BDES uses that are not ratios. Thus, *Size* is an important control variable in BDES equation (1). To construct *Size*, BDES multiplies the SNL total assets variable—which is stated in thousands—by 1,000 before taking the natural logarithm. However, for some reason BDES does not do the same to construct *Counterparty risk* (see BDES’s discussion of its Table 2). Because the logarithmic function is nonlinear, using different units for the two variables potentially introduces measurement error in the estimation of BDES equation (1). Thus, we use the same units for both, which explains why the Table A1 *Size* statistics differ noticeably between the two samples (means = 21.19 and 14.12), but the *Counterparty risk* statistics do not (means = 13.52 and 13.36). BDES Table 3 suggests *MAR* and *Size* are negatively correlated because *MAR* (*Size*) is negatively (positively) correlated with *Counterparty risk*. Thus, measurement error in *Size* biases downwards the *MAR* coefficient (Levi, 1973; Maddala, 1992).²⁰

²⁰ Untabulated statistics reveal that the standard deviation of *Size* in our sample is about 10% smaller than in BDES’s sample, which is consistent with more measurement error in BDES’s *Size* variable. Because BDES states that it expresses *Size* and *Counterparty risk* in USD, we do as well.

Table A1: Comparison of Descriptive Statistics

| | BDES sample | | Constructed sample | |
|--|-------------|-------|--------------------|-------|
| | mean | stdev | mean | stdev |
| <i>Mandatory Auditor Reporting (MAR)</i> | 0.61 | 0.49 | 0.63 | 0.48 |
| <i>Counterparty risk</i> | 13.52 | 2.13 | 13.36 | 2.00 |
| <i>Size</i> | 21.82 | 2.21 | 14.12 | 2.02 |
| <i>Capital</i> | 9.73 | 5.77 | 10.13 | 5.76 |
| <i>Profitability</i> | 3.36 | 8.33 | 2.65 | 8.50 |
| <i>Loan intensity</i> | 58.06 | 18.59 | 59.20 | 16.97 |
| <i>Loan growth</i> | 5.37 | 18.37 | 5.21 | 15.99 |
| <i>Loan loss provisions</i> | 0.59 | 1.61 | 0.94 | 0.72 |
| <i>Employees</i> | 5.29 | 1.88 | 5.19 | 1.89 |
| <i>Cost-to-income ratio</i> | 67.05 | 17.63 | 68.21 | 16.34 |
| <i>GDP growth</i> | 0.26 | 8.42 | 0.35 | 7.62 |
| <i>Bank concentration</i> | 80.21 | 8.85 | 81.19 | 8.39 |
| <i>Market volatility</i> | 21.54 | 5.75 | 20.65 | 5.62 |
| <i>Legal rights</i> | 5.73 | 1.93 | 5.65 | 1.91 |
| <i>Credit information</i> | 6.09 | 1.44 | 6.26 | 1.50 |
| <i>Insolvency resolution</i> | 80.57 | 14.03 | 83.00 | 11.43 |
| <i>Significant reform</i> | 0.80 | 0.40 | 0.59 | 0.49 |
| Observations | 16,927 | | 17,708 | |

This table compares the mean and standard deviation for the main variables in BDES Table 2 to summary statistics for the same variables in our constructed sample.

References

- Badia, M., Barth, M.E., Duro, M., Ormazabal, G., 2020. Firm risk and disclosures about dispersion of asset values: Evidence from oil and gas reserves. *The Accounting Review*, 95(1), 1-29.
- Balakarishnan, K., De George, E.T., Ertan, A., and Scobie, H., 2021. Economic consequences of mandatory auditor reporting to bank regulators. *Journal of Accounting and Economics* this issue.
- Barry, T.A., Lepetit, L., and Tarazi, A., 2011. Ownership structure and risk in publicly held and privately owned banks. *Journal of Banking & Finance* 35, 1327-1340.
- Basel Committee on Banking Supervision (BCBS), 2006. *International Convergence of Capital Measurement and Capital Standards. A Revised Framework. Comprehensive Version*. Bank for International Settlements, June 2006.
- Basel Committee on Banking Supervision (BCBS), 2017. *Basel III: Finalising Post-crisis Reforms*. Bank for International Settlements, December 2017.
- Berger, A.N., Ghoul, S.E., Guedhami, O., and Roman, R.A., 2017. Internationalization and bank risk. *Management Science* 63(7), 2283-2301.
- Bertrand, M., Mullainathan, S., 2003. Enjoying the quiet life? Corporate governance and managerial preferences. *Journal of Political Economy* 111(5), 1043-1075.
- Cameron, A., Gelbach, J.B., and Miller, D.L., 2008. Bootstrap-based improvements for inference with clustered errors. *The Review of Economics and Statistics* 90 (3), 414-427.
- Committee of European Banking Supervisors (CEBS), 2006. *Guidelines on the Implementation, Validation and Assessment of Advanced Measurement (AMA) and Internal Ratings Based (IRB) Approaches*, Committee of European Banking Supervisors, April 2006.
- Gow, I.D., Ormazabal, G., and Taylor, D.J., 2010. Correcting for cross-sectional and time-series dependence in accounting research. *The Accounting Review* 85(2), 483-512.
- Institute of Chartered Accountants in England and Wales (ICAEW). 2015. Reporting on regulatory capital: choices for assurance. Discussion Paper. Inspiring Confidence in Financial Services Initiative.
- Levi, M.D., 1973. Errors in the variables bias in the presence of correctly measured variables. *Econometrica*, 41(5), 985-986.
- Maddala, G.S., 1992. Introduction to Econometrics. 2nd ed., MacMillan: New York.

Table 1: Mandatory Auditor Reporting and Bank Risk for Riskier and Safer Banks

| Dependent variable: | <i>Counterparty risk</i> | | <i>EqVol</i> | |
|---|--------------------------|----------------------------|----------------------------|---------|
| | <i>RiskierBanks</i> : | Indicator Decile Rank | Indicator Decile Rank | |
| <i>Mandatory Auditor Reporting (MAR)</i> | −0.08* | −0.10** | −9.44* | −8.71 |
| | (−1.94) | (−2.75) | (−2.14) | (−1.49) |
| <i>RiskierBanks</i> | 0.10*** | 0.24*** | −4.90 | −1.43 |
| | (5.07) | (7.23) | (−1.43) | (−0.24) |
| <i>MAR</i> × <i>RiskierBanks</i> | 0.04* | 0.12*** | 5.56 | 4.37 |
| | (2.02) | (4.18) | (1.54) | (0.55) |
| p-value F-test: | | | | |
| <i>MAR</i> + <i>MAR</i> × <i>RiskierBanks</i> = 0 | 0.23 | 0.76 | 0.25 | 0.34 |
| Controls | Yes | Yes | Yes | Yes |
| Observations | 14,020 | 17,572 | 630 | 849 |
| Within Adj. R ² | 0.556 | 0.605 | 0.157 | 0.148 |
| Basel, Bank, and Year FE | Yes | Yes | Yes | Yes |

This table presents summary statistics from estimating BDES equation (1) with different risk measures as dependent variable—BDES’s *Counterparty risk* and equity volatility, *EqVol*. *EqVol* is the standard deviation of the bank’s daily returns using all available observations in the year, scaled by $\sqrt{252}$. *Counterparty risk* is defined in BDES Appendix A. The specification permits the *MAR* coefficient to differ for riskier banks—represented by *RiskierBanks*—using *RegCapRatio*. *RegCapRatio* is the bank’s regulatory capital ratio obtained from SNL Financial measured as (i) an indicator that equals one (zero) if the bank’s ratio is in the top (bottom) four deciles in that year and (ii) decile rank. Controls are the same as in BDES Table 3 and defined in BDES Appendix A. Standard errors are double clustered by country and year. ***, **, * denotes significance at the 0.01, 0.05, and 0.1 confidence levels.

Table 2: Mandatory Auditor Reporting and Bank Risk for Banks Using Internal Estimates to Determine Asset Risk Weights

| Dependent variable: | <i>Counterparty risk</i> | |
|---|---------------------------|--------------------|
| | <i>InternalEstimates:</i> | |
| | <i>IRB</i> | <i>BaselIII</i> |
| <i>Mandatory Auditor Reporting (MAR)</i> | −0.15** (−2.52) | −0.10** (−2.25) |
| <i>InternalEstimates</i> | −0.29** (−2.47) | −0.07 (−1.62) |
| <i>MAR</i> × <i>InternalEstimates</i> | 0.27* (2.12) | 0.09*** (4.12) |
| p-value F-test: <i>MAR</i> + <i>MAR</i> × <i>InternalEstimates</i> = 0 | 0.22 | 0.90 |
| Controls | Yes | Yes |
| Observations | 16,513 | 17,586 |
| Within Adj. R ² | 0.564 | 0.573 |
| Bank and Year FE | Yes | Yes |
| Basel FE | Yes | No |
| Basel II (Pillar 3) FE | No | Yes |

This table presents summary statistics from estimating BDES equation (1) permitting the *MAR* coefficient to differ depending on the extent to which banks use internal estimates in their risk-weighted asset calculation—represented by *InternalEstimates*—using *IRB* and *BaselIII*. *IRB* equals 0.25 if the bank uses only the standardized approach in Basel II and Basel III to calculate risk weights, 0.5 if it uses a combination of standardized and Foundation IRB approaches, 0.75 if it uses only the Foundation IRB approach, and 1 if it uses the Advanced IRB approach. *BaselIII* is an indicator variable that equals one if the bank applies Basel III, and zero otherwise. The control variables are the same as in BDES Table 3 and defined in BDES Appendix A. Basel FE refers to BDES’s Basel fixed effects. Standard errors are double clustered by country and year. ***, **, * denotes significance at the 0.01, 0.05, and 0.1 confidence levels.

Table 3: Relation between Mandatory Auditor Reporting and Bank Risk for Publicly Listed and Unlisted Banks

| Dependent variable: <i>Counterparty risk</i> | |
|---|------------------|
| <i>Mandatory Auditor Reporting (MAR)</i> | −0.03 (−0.93) |
| <i>PublicBanks</i> | 0.09 (1.17) |
| <i>MAR</i> × <i>PublicBanks</i> | −0.11 (−1.49) |
| p-value F-test: <i>MAR</i> + <i>MAR</i> × <i>PublicBanks</i> = 0 | 0.09 |
| Controls | Yes |
| Observations | 17,585 |
| Within Adj. R ² | 0.565 |
| Basel, Bank, and Year FE | Yes |

This table presents summary statistics from estimating BDES equation (1) permitting the *MAR* coefficient to differ for publicly listed banks. *Counterparty Risk* is defined in BDES Appendix A. *PublicBanks* is an indicator variable that equals one for publicly listed banks, and zero otherwise. The control variables are the same as in BDES Table 3 and defined in BDES Appendix A. Standard errors are double clustered by country and year. ***, **, * denotes significance at the 0.01, 0.05, and 0.1 confidence levels.