Real Effects of Non-Concurrent Guidance from Accounting and Prudential Regulators: Evidence from CECL

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ABSTRACT

This paper examines the real effects of non-concurrent guidance from accounting standard setters and prudential regulators. Using the recent introduction of the Current Expected Credit Losses (CECL) standard, we examine whether uncertainty due to the lack of concurrent guidance from accounting standard setters and bank regulators on the implementation and implications of CECL had counterproductive real effects. We hypothesize and find that banks significantly reduce loan amounts and offer stricter loan terms for affected loan facilities during the uncertainty period compared to those of unaffected loan facilities. Furthermore, we show that the uncertainty period's reduced credit supply adversely affects investments for firms dependent exclusively on banks compared to those with term loans from both banks and non-banks. Cross-sectional tests based on the frequency of borrowing and financial constraints show that the effect is stronger for exclusive bank-dependent firms. The findings indicate that non-concurrence of guidance from different regulatory agencies may affect the smooth functioning of affected economic entities.

Keywords: Real Effects; Debt Contracting; CECL; Accounting Standards; Prudential Regulation

JEL Classification: G21, G28, M48

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I. Introduction

The Financial Accounting Standard Board (FASB) aims to provide financial information about the reporting entity that is useful to existing and potential investors (FASB Concepts Statement No. 8). Accounting standards from the FASB operate within a broader economic and regulatory context. The successful introduction and implementation of standards can depend on the extent to which the FASB's efforts are consistent with those of other pertinent regulators. For example, the literature has studied the FASB's interactions with the SEC, which enforces reporting standards (Smith 1981, Bens and Johnston 2009, Allen and Ramanna 2013), and the PCAOB, which audits financial reports based on these standards (Mayew et al. 2015, Palmrose and Kinney 2018). An important consideration arises from the growing literature documenting that accounting choices and in particular mandated accounting standards can have real consequences, sometimes unintendedly so, on firms' operational and investment decisions (see Roychowdhury, Shroff, and Verdi 2019 for a review of this literature). Real decisions and outcomes in certain industries are of interest to prudential regulators other than those involved with enforcing or auditing accounting standards. There are few studies examining the importance of concurrent guidance from both industry regulators and the accounting standard-setter when new accounting rules are issued. Our goal is to address this gap in the literature.

Our paper focuses on the banking industry. The FASB bears the primary responsibility of proposing and promulgating reporting standards for the banking industry. Bank operations fall under the regulatory purview of agencies such as the Federal Deposit Insurance Corporation (FDIC), Office of the Comptroller of Currency (OCC), and the Federal Reserve (Fed), hereafter collectively referred to as bank regulators or prudential regulators. The primary responsibility of prudential regulators is to monitor and ensure bank solvency and promote the stability of the financial system. Prudential regulators rely on

many factors to monitor bank solvency, a key aspect of which is bank profitability and regulatory capital. The computation of these key solvency indicators in turn relies on bank-issued financial statements prepared according to FASB guidance. Thus, when the FASB introduces new accounting rules for banks, there exists a regulatory spillover effect to the monitoring and enforcement efforts by the banks' prudential regulators.

Banks naturally expect prudential regulators to assess and explain how the effects of new reporting standards will be incorporated into regulatory monitoring and enforcement. When the FASB introduced the Current Expected Credit Loss (CECL) standard for estimating loan loss provisions, prudential regulators' guidance on how they would incorporate the effects of CECL in monitoring bank solvency and in stress tests arrived with a lag. This delayed guidance from prudential regulators provides us an opportunity to observe banks' lending decisions and the real effects on borrowers during the intervening period characterized by significant uncertainty.

Banks in the United States have traditionally relied on the incurred loss standard to calculate allowances for loan and lease losses (ALLL). In June 2016, FASB announced a shift to the current expected credit loss standard (CECL). Under CECL, once a bank originates a loan, ALLL represents the total expected credit losses over the contractual life of the exposure on that loan. CECL thus requires a forward-looking approach that would allow ALLL to include anticipated expected losses earlier than under the preceding incurred loss standard.

At the time of CECL's introduction, prudential regulators offered banks no publicly observable guidance on how they would factor in the altered loan loss provisioning methods into computing and enforcing regulatory capital requirements or into periodic stress tests. This is despite prudential regulators being very likely aware of the impending passage of CECL, given the widespread discussions that preceded the standard's introduction.

Immediately following the FASB's announcement of CECL but *before* its implementation, banking industry professionals vehemently voiced several concerns about the standard.[1] In the absence of any concurrent guidance from bank regulators, banks' primary concern centered on the difficulty in capital planning due to the uncertainty about the economic environment at the time of CECL adoption. In addition, banks raised concerns about the unpredictability of CECL's effect on regulatory capital and the volatility of its effect on bank earnings on a more continuing basis.[2] A critical issue the banks pointed to was banking regulators' silence on how they would view CECL's imminent effects on profitability and regulatory capital while determining a bank's solvency and while conducting supervisory stress tests.

Eventually, to address banks' concerns and reduce uncertainty, on December 21, 2018, the Fed, the FDIC, and the OCC released a joint final rule to revise their regulatory capital rules to address CECL's upcoming implementation. The joint rule provided an optional three-year phase-in period for the day-one adverse regulatory capital effects that banks were expected to experience upon adopting CECL. The Fed also allowed banks to maintain the current framework for calculating allowances on loans in the supervisory stress tests until the impact of CECL on banking organizations' financial reporting is better known and understood.[3]

We identify FASB's initial announcement of CECL in June 2016 as an event that

[1] Even before the introduction of CECL (i.e., before June 2016), several banks had expressed concerns in their comment letters to FASB when they had requested comments on CECL proposal in 2013. However, they only voted to proceed with a final accounting standard update in late 2015. Available at https://www.fasb.org/cs/ContentServer?c=FASBContent_C&cid=1176167531729&d=Touch&pagename=FASB%2FFASBContent_C%2FNewsPage

[2] OCC, Regulatory Capital Rules: Implementation and Transition of the Current Expected Credit Losses Methodology for Allowances and Related Adjustments to the Regulatory Capital Rules and Conforming Amendments to Other Regulations, April 17, 2018, p. 20. Available at https://www.occ.treas.gov/news-issuances/news-releases/2018/nr-ia-2018-39.html

[3] The Federal Reserve expects that maintaining the current framework, which takes into account a banking organization's allowances at the beginning of the planning horizon (based on probable incurred losses as of the balance sheet date), will largely offset any impact in the supervisory stress test that may result from the expected increase in the allowances under the CECL standard. Available at https://www.federalreserve.gov/newsevents/pressreleases/files/bcreg20181221b1.pdf

lacked the concurrent guidance from prudential regulators that banks were seeking. The relief provided by banking regulators' clarifications in December 2018 significantly resolved uncertainty for banks and represented a credible attempt to coordinate banking regulations with CECL's implementation. Notably, both dates preceded the actual implementation of CECL, which eventually occurred in March 2020. Thus, the period between June 2016 and December of 2018, which we refer to as the *"uncertainty period"*, allows us to observe the impact of non-concurrent guidance on banks' operations without the confounding effect of the standard itself.

Our primary analysis studies two specific effects, namely (a) the influence of the uncertainty period on banks' lending decisions and (b) the spillover effects of the uncertainty period on their borrowers' investment decisions. The CECL standard applies to *all* financial institutions. To facilitate identification, we rely on the fact that facilities in the syndicated lending market are originated as a mixture of credit lines, Term Loan As (typically held by banks, hereafter TLAs), as well as Term Loan Bs (typically sold in the secondary market to nonbank investors immediately after origination, hereafter TLBs). Following prior literature, we focus on the comparison between TLAs and TLBs (e.g., Ivashina and Sun 2011, Nini 2008). Both TLAs and TLBs are issued by banks but while banks hold on to TLAs in their portfolio, which would then become subject to CECL stipulations, banks act exclusively as arrangers for TLBs. Therefore, unlike TLAs, TLBs have no implications for bank's regulatory capital, making them less susceptible to CECL-induced uncertainty.

As mentioned, the period between July 2016 and December 2018 is the designated uncertainty period. January 2014 to June 2016 serves as the pre-uncertainty period, and January 2019 and March 2020 serve as the post-resolution period (with the two collectively designated as the no-uncertainty periods). We study the differential effect of the uncertainty

period on the lending decisions by banks for TLAs relative to TLBs, and on the investment decisions of corporates borrowing exclusively borrowing exclusively using TLAs to those borrowing using both TLAs and TLBs.[4]

For our primary analysis, we use data from the US syndicated loan market during the period 2014 – 2020. We define an indicator variable *Uncertain* that is set equal to one for the time between July 2016 and December 2018 i.e., the uncertainty period. *Uncertain* is set equal to zero for the no-uncertainty period, that is, for periods designated as pre-uncertainty (January 2014 to June 2016) and post-resolution (January 2019 to March 2020).

We begin our analysis by investigating the terms of the loan contracts. Our difference-in-difference test indicates that relative to TLBs, TLAs observe higher spreads and smaller loan amounts during the uncertainty period than during the no-uncertainty period. In terms of economic magnitude, we find that relative to TLBs, TLAs have 32 bps higher spread and lower lending amount by 17.8 percentage points, during the uncertainty period than during the no-uncertainty period. Our results are robust to the inclusion of a variety of lender, firm, loan-purpose, and time-fixed effects.

We confirm our results using a battery of additional tests. First, we perform a subsample analysis where we estimate two sets of tests. The first compares bank loans and borrowers' decisions during the uncertainty period relative to that in the pre-uncertainty period (Event 1 sample). The second test compares bank loans and borrowers' decisions during the post-resolution period relative to that in the uncertainty period (Event 2 sample). Our results from these two tests further confirm our results. Specifically, we find that relative to TLBs, TLAs experience higher spreads and lower loan amounts during the uncertainty period relative to the pre-uncertainty period. We also find that relative to TLBs,

[4] Borrowers' dependent on both TLAs and TLBs are a reasonable control group for two reasons. First, these borrowers have the flexibility to borrow from both banks (TLAs) and non-banks (TLBs), and hence less impacted by CECL related uncertainty that is likely to affect bank dependent borrowers. Second, anticipating the muted effect on these borrowers, banks are less likely to change their lending terms.

banks decrease spread and increase loan amounts for TLAs during the post-resolution period relative to the uncertainty period.

Second, we segregate lenders based on their listing status (public or private) and whether they are a bank or non-bank to understand the differential effect of uncertainty based on lender type. The predictions with respect to private versus public banks are ambiguous. On the one hand, private banks, being systematically smaller, were more likely to receive a temporary reprieve on the deadline for CECL implementation.[5] On the other hand, relative to public banks, private banks also faced a more severe shortage in labor and computing skills to put the information systems in place for effective CECL implementation. For our cross-sectional analysis based on lender's listing status, we find that our results are more pronounced for private lenders compared to public lenders. Specifically, we find that the increase in spread by private lenders is significantly higher by 30 bps compared to the increase in spread by public lenders.[6] These results suggest that the cost of CECL implementation results in higher uncertainty for private lenders, who lack in-house technical and labor capabilities that public lenders typically have.

Further, we predict and find that our results are more pronounced for bank lenders relative to non-bank lenders. We find that banks, on average, charge significantly higher spreads (and grant lower loan amounts, although the difference is not statistically significant) compared to non-banks during the uncertainty period, suggesting that our results are driven by regulatory uncertainty related to CECL implementation.

We then assess the consequences of the non-concurrent regulatory guidance on

[5] At the time of CECL announcement, CECL adoption was going to be effective from the first fiscal year beginning after December 15, 2019, for banking organizations that were public banks, December 15, 2020 for public banks (PBE) but not SEC filers, and December 15, 2021 for non-public banks, providing private banks temporary reprieve from CECL implementation.

[6] In untabulated results, we also conduct a subsample analysis by comparing loan amount in the pre-uncertainty period and uncertainty period (Event 1 sample) and find that the decrease in loan amount for private lenders is also significantly more compared to that of public lenders.

borrowers, in the context of the deteriorating loan terms discussed above. We exploit the variation in uncertainty across firms that rely exclusively on TLAs for their loan capital (effectively, firms that borrow only from banks) and firms that rely on both TLAs and TLBs (i.e., firms borrowing from both banks and other lenders)). We rely on the fact that borrowing choices are typically sticky (Ivashina and Sun 2011, Nini 2008, 2011) and that borrowers that borrow exclusively TLAs are fundamentally different from borrowers who use both TLAs and TLBs.[7] By comparing firm outcomes for bank-dependent firms and other firms, we hope to isolate the effect of supply shocks to firm investments. We find that relative to other firms, bank-dependent firms make fewer investments during the uncertainty period. Specifically, bank-dependent firms exhibit lower capital expenditures (CAPEX), research and development expenditures (R&D) as well as total investments (the sum of CAPEX and R&D or TOTAL) during the uncertainty period. In our tests, we control for several proxies of firm risk, growth opportunities, and other firm characteristics that might influence the firm investment during the uncertainty period.

The average borrower from a bank may be fundamentally different from the average borrower who borrows from both banks and other lenders. To address this issue, we use entropy-balanced matching to match bank-dependent borrowers to other borrowers (e.g., Hainmueller 2012; McMullin and Schonberger 2019; Shroff, Verdi, and Yost, 2017, Bonsall and Miller 2017). This approach ensures that our treatment firms and control firms are similar, allowing us to more convincingly attribute the changes in firm investments to the uncertainty caused by non-concurrent guidance.

While the anecdotal evidence in the media is consistent with significant concerns among market participants about CECL's potentially adverse impact on banks and about increased uncertainty during the period characterized by lack of concurrent guidance, we

[7] We confirmed this conventional wisdom with with Pratik Gupta, Director and Head of RMBS/CLO research at Bank of America Merrill Lynch

provide two simple validation exercises that confirm the presence of uncertainty concerns for banks.[8] First, we examine market reactions to the CECL announcement by FASB on June 16, 2016, and to the subsequent clarification from bank regulators on December 21, 2018. The market reaction surrounding FASB's announcement of the CECL standard is significantly negative whereas that surrounding the joint statement by bank regulators is significantly positive. These results suggest that even market participants were apprehensive about CECL's potential impact on banks before the regulators' clarifying statements.

In our second validation exercise, we investigate banks' disclosures regarding the expected financial statement impact of the new loss standard. The Securities and Exchange Commission (SEC) requires firms to provide information about the expected financial statement impact of recently issued accounting standards that have yet to be adopted. For a reduced sample of public banks, we investigate firm disclosures provided in 10-K filings for the uncertainty period and compare it to the post-resolution period. We find that relative to banks that originate both TLAs and TLBs, banks that historically originate only TLAs use more uncertain language in their discussion of CECL during the uncertainty period when compared to the post-resolution period. This finding affirms that non-concurrent guidance from the accounting regulator and bank regulators created significantly higher uncertainty for bank loans relevant for regulatory capital requirements.

One caveat applies in interpretating our results. An explanation for why prudential regulators initially failed to issue concurrent guidance with accounting regulators is that they did not foresee the strong concerns voiced by the banking industry, nor the adverse effects on bank lending and borrower investment that we document. A second possibility is that prudential regulators did in fact predict banks' concerns regarding the new standards but intentionally issued no substantive concurrent guidance. This could occur because

regulators deemed there were benefits to delaying guidance, for example, if they needed time to fully appreciate the impact of the standard themselves, or they wished to avoid excessive concessions to banks. To the extent that we do not analyze any benefits of the delayed guidance from the prudential regulators' perspective, our findings should be viewed as a partial analysis of the costs of non-concurrent guidance. Nevertheless, our study makes three significant contributions.

The first contribution arises from our primary result that a lack of concurrent guidance from standard setters and bank regulators on bank reporting standards can result in more stringent loan terms and reduced investments by borrowers. In their theoretical paper, Mahieux, Sapra, and Zhang (2020) show how loan-loss provisioning interacts with prudential regulation to affect banks' behavior. To the best of our knowledge, ours is the first empirical study that provides evidence consistent with Mahieux, et al. (2020). Within this context, our paper also relates to Stice-Lawrence (2020), which suggests the need to better understand the informational effects of coordination across multiple branches of the same regulator. Our study is distinct from Stice-Lawrence (2020) in that it focuses on the coordination between two distinct regulators and the spillover effects to borrowers who are not the direct targets of the regulation.

Second, our paper is related to the stream of literature examining the interaction of the disclosure and financial environment with regulation in lending markets. For example, Gallemore (2022) studies the impact of banks' delayed loan loss recognition practices on regulatory forbearance. Granja (2018) concludes that state level mandates to disclose financial reports in local newspapers promote bank stability. Nicoletti and Zhu (2022) document an apparently unintended consequence of increasing mandated disclosures in retail mortgage markets, wherein banks shift their business away from mortgage lending following the mandate. Our paper contributes to this literature by demonstrating that new

financial reporting standards introduced by one regulator have adverse real effects on banks' lending decisions and borrowers' investments because of the regulatory spillovers that banks anticipate.

Finally, by showing that the accounting for loan loss provisions has important firm-level real effects (via changes in banks' credit supply), we contribute to the literature on the effects of the financial system on the real economy (Ivashina and Scharfstein, 2010; Bolton et al., 2016; Di Maggio et al., 2017; Beck et al., 2018; Agarwal et al., 2018; Jiménez et al., 2019), a stream of research which is mainly focused on the real effects of financial crises and monetary policies, and thus rarely touches on the role of accounting rules. Our setting offers new and unique opportunities for the empirical identification of the effect of CECL provisioning on the supply of credit even before the standard has been implemented.

II. Institutional Setting and Hypothesis Development

Overview of Bank Loan Loss Provisions

Traditionally, bank loan loss allowances have been estimated based on the Incurred Credit Loss (ICL) model, according to which a loan loss provision is created if there is objective evidence of impairment. Following the 2007-2009 global financial crisis, numerous regulators, policy-makers, and accounting researchers raised concerns that the ICL model exacerbated the severity and the length of the financial crisis by leading to provisions that were "too little, too late" (Bischof, Laux, and Leuz, 2019).[9] The two foremost concerns regarding the ICL model are: (i) it requires delaying the recognition of impairment losses until there is objective evidence that the impairment of an asset is 'probable' (i.e. the probability of loss is at least 70%) as well as estimable; and (ii) it requires

[9] United States Government Accountability Office – Report to Congressional Committees (January 2013), Financial Institutions – Causes and Consequences of Recent Bank Failures. Available at https://www.gao.gov/assets/660/651154.pdf

that the estimation of loan loss allowance be based only on past loss experiences and current conditions. These two features often result in financial managers building up credit-loss reserves that are too low and loan loss provisions that reinforce a pro-cyclical bias, particularly during the recessionary phase of the economic cycle (O'Hanlon, Hashim, and Li, 2015).

In response to these concerns, the International Accounting Standards Board (IASB) and the Financial Accounting Standards Board (FASB) began working on a joint project for almost four years (2009-2012), with the goal of developing a single flexible and forward-looking model to overcome ICL model's weaknesses. On January 31st, 2011, the FASB and IASB proposed a common solution for impairment accounting, based on a "dual-measurement approach," to better reflect the changes in the credit quality of financial assets. However, after five months of joint meetings, both the IASB and FASB proceeded to develop their new impairment models independently (Gomaa, Kanagaretnam, Mestelman, and Shehata 2021).

CECL Induced Uncertainty

On June 16, 2016, FASB issued the final version of its loan loss estimation and impairment model, which introduced the Current Expected Credit Losses (CECL) standard. The FASB based its new accounting standard on a single credit-loss measurement approach, in which entities measure and recognize lifetime expected credit losses at the initiation of a new loan. At the end of each reporting period, the entity should update the loan loss allowance to reflect changes in the credit quality since the previous reporting period. It will also continue to measure loan loss allowances at the present value of expected credit shortfalls over the loan's remaining lifespan.

Thus, CECL eliminates the minimum 'probable' threshold condition for the recognition of financial assets impairment. It also requires managers to base their periodic

estimates of credit loss provisions not only on past loss experiences and current conditions but also on forward-looking information about expected events and conditions. According to the FASB, these proposed changes enhance the adequacy (sufficiency) of the amount of reserves, and hence increase an entity's loss-absorbing capacity. CECL has been effective beginning March 2020 for most SEC filers excluding private institutions and smaller reporting companies, for which CECL will be effective beginning January 2023.[10]

In general, banks expected CECL adoption to lead to an increase in their loan loss reserves. For example, in its 2017 10-K filing, Citibank estimates that its credit reserves would be higher "*…as of that time*" by 10% to 20% *"…based on a preliminary analysis*".[11] According to a 2016 estimate from the credit rating agency Fitch, the transition to CECL could increase loan loss reserves by between $50 billion and $100 billion across the banking industry (Wolfe, Shepherd, and Chan 2016).[12] An increase in any bank's allowances will reduce its earnings or retained earnings, and therefore its Tier 1 capital.

Despite the potentially significant impact of the CECL standard on bank profitability, regulatory capital and mandated reserves, bank regulators offered little public guidance on their views on CECL implementation at the time of its introduction. They did issue a concurrent statement with the standard suggesting that they did not foresee any serious costs in the standard's implementation, even for smaller banks.[13] The statement issued jointly by the Board of Governors of the Federal Reserve System, Federal Deposit Insurance Corporation, National Credit Union Administration and the Office of the Comptroller of the Currency (hereafter, the agencies) said: "…the agencies expect that

[10] FASB gave community banks with assets of less than $1 billion an additional two years for CECL adoption, pushing the new deadline to January 2023.
[11] Citigroup Inc., Form 10-K, Annual Report as of December 31, 2017, February 23, 2018, p. 124, Available at https://www.citigroup.com/citi/investor/annual-reports.html.
[12] These projections are in aggregate across the banking industry, so some banks might need to significantly increase their credit reserves whereas others might need to adjust less.
[13] Board of Governors of the Federal Reserve System, et al. (2016).

smaller and less complex institutions will be able to adjust their existing allowance methods to meet the requirements of the new accounting standard without the use of costly and complex models." The statement refers to regulatory capital only twice, both times in the context of encouraging banks themselves to consider the standard's implications for their capital. Further, the statement says that "The agencies' goal is to ensure consistent and timely communication, delivery of examiner training, and issuance of supervisory guidance pertaining to the new accounting standard." Thus, the agencies explicitly deferred issuance of any concrete guidance on regulatory monitoring and enforcement, without committing to a definitive timeline.

Given CECL's regulatory capital implications, several banks and banking organizations expressed concerns about the difficulty in capital planning due to the uncertainty about the economic environment at the time of CECL adoption. For example, in a congressional hearing in 2018, banking industry representatives expressed concerns that CECL would lead to a decline in bank lending and even exacerbate the procyclical bias in bank regulatory capital that it was designed to mitigate (Congressional Hearing 2018). This is largely because CECL requires banks to consider current and future expected economic conditions to estimate allowances and these conditions would not have been known until closer to the banks' CECL adoption date.[14] Therefore, it is possible that despite adequate capital planning, uncertainty about the economic environment at the time of CECL adoption could result in higher-than-anticipated increases in credit loss allowances. Such increases can have adverse implications for regulatory capital ratios.[15]

[14] The current pandemic COVID-19 is a case in point. The implementation of CECL in March-2020 coincided with the COVID-19 pandemic. The significant deterioration of credit conditions because of COVID-19 implied a significant increase in provisions, leading to lower earnings, lower capital ratios, and credit contraction for banking organizations.

[15] Regulatory Capital Rule: Implementation and Transition of the Current Expected Credit Losses Methodology for Allowances and Related Adjustments to the Regulatory Capital Rule and Conforming Amendments to Other Regulations, 84 Fed. Reg. 4222 (December 21, 2018)

To address banks' concerns, on December 21, 2018, the Federal Reserve, the FDIC, and the OCC released a joint statement. The statement revised regulatory capital rules to address and incorporate CECL's implementation, provided an optional three-year phase-in period for the day-one adverse regulatory capital effects that banks expected to experience upon adopting CECL. Further the banking regulators clarified that they would continue to maintain status quo for stress tests. The regulatory agencies also noted that they received many requests to neutralize the effects of CECL on regulatory capital on a more permanent basis. Although the agencies declined to do so, they stated that they "recognize commenters' concerns about CECL's effects on regulatory capital" and added that they "are committed to closely monitoring the effects of CECL on regulatory capital and bank lending practices."[16]

The clarification from prudential regulators provided much-needed relief to banking organizations and resolved several uncertainties regarding CECL implementation. In particular, it addressed banking organizations' concerns related to capital inadequacy and stress-testing requirements. In this paper, we examine the direct and indirect (real) effects of CECL related uncertainty during June 2016 and December 2018 (hereafter, uncertainty period), resulting from the lack of concurrent guidance from accounting regulators and prudential regulators, on bank lending and firm investments, respectively.

Hypotheses Development

Prior literature suggests that banks decrease their future capital inadequacy concerns by reducing lending (Beatty and Liao 2011, Fraisse, Le and Thesmar 2020). We argue that uncertainty about the economic environment at the time of CECL adoption results in future capital inadequacy concerns for banks. In other words, the introduction of the CECL

[16] Sullivan and Cromwell LLP (December 27, 2018). Bank Capital Requirements: Federal Banking Agencies Release Final Rule Regarding the Implementation of CECL, and Federal Reserve Provides Guidance on CECL and CCAR. Available at https://www.sullcrom.com/cecl-final-rule-on-phase-in-and-frb-guidance-on-cecl-and-ccar

standard without any capital adequacy reliefs from prudential regulators resulted in a decline in the supply of bank loans. Anecdotal evidence in the press supports this hypothesis. For example, Credit Union National Association's comment letter for a CECL related congressional hearing said the following:

> *"We ask this committee to convey the industry's concerns to FASB in hopes it will review the standard tor opportunities to reduce necessary compliance challenges as well as develop compliance resources in coordination with prudential banking regulators."*[17]

We thus state our first hypothesis in its null form:

> *H1A: The lack of concurrent guidance from accounting regulators and prudential regulators while introducing CECL has no impact on bank lending amount.*

To further disentangle the effects of demand vs. supply, we conduct additional tests related to loan terms. By studying pricing and other loan terms, we can establish whether the reduction in lending is driven by demand or supply-side concerns. If lending drops due to reduced demand and not due to CECL related uncertainty, we expect to observe that loan spreads declined simultaneously. However, if supply-side concerns drive a reduction in lending, we should observe that loan spreads originated by banks became stricter. Our next hypothesis in its null form is as follows:

> *H1B: The failure of accounting regulators and prudential regulators to issue concurrent guidance while introducing CECL has no impact on loan spreads offered by banks.*

In terms of other lending terms, we examine the effect of CECL uncertainty on collateral and maturity. FDIC loan loss guidelines suggest that fully collateralized loans do not require any allowances for loan and lease losses.[18] Therefore, we expect banks to demand more collateral for loans during the uncertainty period. CECL also requires that banks recognize the estimate of lifetime expected credit losses as an allowance. For loans with longer

[17] Assessing the impact of FASB's Current Expected Credit Loss (CECL) accounting standard on financial institutions and the economy: Hearing before the subcommittee on financial institutions and consumer credit of the committee on financial services U.S. House of Representatives, 115th Cong. (2018) (Letter from the Credit Union National Association)

[18] https://www.fdic.gov/regulations/laws/rules/5000-4650.html

maturity, an estimate of lifetime expected credit losses will be significantly higher than those with shorter maturity. If banks are concerned about capital inadequacy at the time of CECL implementation, we expect them to reduce the maturities of loans originated during the uncertainty period. Our next hypothesis in the null form is as follows:

> *H1C: Non-concurrent guidance by accounting regulators and prudential regulators while introducing CECL has no impact on the bank's loan collateral and maturity requirement.*

If a firm can easily access external capital markets or switch from one source of private capital to another, then its performance should be insensitive to the shocks experienced by its capital providers. Adverse selection and moral hazard frictions, however, can limit a firm's ability to raise external capital or to substitute between private sources of capital (Holmstrom and Tirole 1997). With such frictions in the economy, shocks that affect banks' ability to supply capital might result in negative real effects for borrowers that depend primarily on banks. Consistent with this claim, prior literature shows that credit supply shocks adversely affect firm investment (Chava and Purnanandam 2011, Cingano, Manaresi, and Sette 2014, Alfaro, Garcia-Santana, and Moral-Benito 2021), innovation (Amore, Schneider, and Zaldokas 2013), as well as firm value, employment, and output (Cingano, Manaresi, and Sette 2014, Alfaro, Garcia-Santana, and Moral-Benito 2021). Thus, we expect that capital adequacy uncertainty for banks related to CECL implementation would adversely affect firm investments over and above firm-specific demand-side characteristics, leading to our next hypothesis:

> *H2: Accounting and prudential regulators' failure to issue concurrent guidance while introducing CECL has no impact on the investments of bank-dependent firms.*

III. Empirical Methodology

Identification Strategy

To estimate the causal effect of non-concurrent guidance from regulators on banks' lending activity, we ideally require a control group that is unaffected by the introduction of

the CECL standard. Since CECL affects almost all banks, credit unions, and private lenders it is not obvious to think of a perfect control group. Therefore, we rely on a unique feature of the syndicated lending market. The syndicated loan market is a dominant way for corporate borrowers (issuers) to tap banks and other institutional capital providers for loans. Large, syndicated loans are typically structured in several tranches (also known as facilities). Most loans are structured and syndicated to accommodate two primary syndicated lender constituencies: banks (domestic and foreign) and institutional investors (primarily structured finance vehicles, mutual funds, and insurance companies).

There are two types of term loans – Term Loan As (henceforth, TLAs) are amortizing loans, and Term Loan Bs (henceforth, TLBs) are non-amortizing loans with a bullet payment. TLAs and TLBs differ in important ways beyond their amortization schedule. Prior literature has identified that institutional funding tends to concentrate on term loans, with institutional money backing TLBs (Ivashina and Sun 2011, Nini 2008, Fleckenstein et al., 2021). Both TLAs and TLBs are issued by banks – while they hold TLAs in their portfolio, they act exclusively as an arranger for TLBs. In other words, banks do not intend to keep TLBs on their balance sheet as they are riskier loans (TLBs have been concentrated in borrowers rated BB and B).[19] Banks, almost immediately following loan originations, sell TLBs to nonbanks in the secondary market (Ivashina and Sun 2011).

We obtain data on new originations of syndicated loans from Thomson Reuters Dealscan. For most of our analyses, we focus on syndicated term loans originated in the United States to non-financial companies between 2010Q1 to 2020Q1.[20] We collect all term

[19] Another term used for TLBs is Collateralized Loan Obligations (CLOs). CLOs (TLBs) typically have longer maturity and a slower amortization than TLAs (typically TLBs have bullet payment at the end of maturity). Also, TLAs are the main source of income for banks. When they issue TLBs, they only receive some sort of "arranger fees". Unlike TLAs, TLBs do not affect banks' regulatory capital. Therefore, there is no substitution between the two (insights from our discussions with Pratik Gupta, Director and Head of RMBS/CLO research at Bank of America Merrill Lynch).

[20] Since the COVID pandemic has had a substantial adverse impact on lending and overall economy in general, we end our sample period in March 2020.

loan facilities from this dataset and classify them as TLAs or TLBs based on the loan type. For our analysis, we focus on the two and a half years before (i.e., January 2014 to June 2016), two and a half years during (i.e., July 2016 to December 2018), and one year and a quarter after (i.e., January 2019 to March 2020) the uncertainty period.

Table 1 Panel A shows that TLBs are significantly larger than TLA facilities ($787 million vs. $403 million), more expensive (365 bps vs. 292 bps), have longer maturity (72.5 months vs. 62 months) and require more collateral (99% collateralized vs. 37% collateralized). Interestingly, TLAs and TLBs tend to fund projects with similar purposes. As shown in Table 2, about half of the TLAs and TLBs credit is supplied for corporate purposes, while only 3.6% of TLAs and 5.29% of TLBs fund engineering activities such as LBOs. Thus, TLAs and TLBs are both important for real economic activities. We also examine the growth in the supply of loans measured as the log difference for a given period as compared to the previous 6-month period. We plot the loan growth during the pre-uncertainty, the uncertainty, and the post uncertainty periods respectively. As shown in Figure 1, there is a remarkable drop for loans issued during the uncertainty period as compared to the pre-uncertainty (post-uncertainty) period for TLA loans compared to TLB loans.

For borrower-level (or firm-level) analysis, we classify firms as bank-dependent or not based on their historical loan originations (2010Q1 to 2013Q4). If historical loan originations for a firm were only TLAs then we classify it as “bank-dependent borrower”. On the other hand, if historical loan originations for a firm were both TLAs and TLBs then we classify it as “other borrower”. Table 1 Panel B shows that bank-dependent borrowers are not fundamentally different from other borrowers.

IV. Real Effects: Loan Terms

Facility-level Analysis

To analyze the effect of the uncertainty period on bank lending activity and firm investments, we use two empirical specifications. Our first difference-in-differences empirical specification is as follows:

$$Outcome_{it} = \beta_0 + \beta_1 TLA_{it} + \beta_2 UNCERTAIN_t + \beta_3 TLA_{it} \times UNCERTAIN_t + Controls_{it} + \varepsilon_{it} \quad (1)$$

Where the dependent variable $Outcome_{it}$ is either (a) lending terms – loan amount, spread, collateral, and maturity for a facility-level analysis, or (b) investment outcomes – capital expenditures, R&D expenses, and total investments for borrower-level analysis. TLA_{it} is an indicator variable that separates TLAs and TLBs. $Uncertain_t$ is an indicator variable that takes a value of one for the uncertainty period (July 2016 to December 2018), and zero for the pre-uncertainty and post-resolution period (January 2014 to June 2016 and January 2019 to March 2020). Figure 2 Panel A helps describe this empirical specification. In all our analyses, we also include various fixed effects (FEs) to control for lender, firm, deal-purpose, and time-specific factors.[21]

We examine the effect of CECL implementation uncertainty on the facility-level lending amount (Hypothesis 1A) using our sample, and results are reported in Table 4. The coefficient on interaction term *UNCERTAIN* × *TLA* in Column (1), -0.148, is negative and significant at the 1% level. The result shows that the uncertainty period leads to a 14.8 percentage points difference in loan amount between TLAs and TLBs when comparing lending amount to the same borrower (Borrower FE) by the same lender (Lender FE) at the same time (Year-Month FE) within the same deal (Deal-Purpose FE).

Table 4 Column (2) presents similar results for loan spreads (Hypothesis H1B).

[21] In a syndicated loan, there are several lenders for any facility. In order to include lender FE, we only consider lead-arranger as the lender for a specific facility. Specifically, we use the variable *LeadArrangerCredit* to identify if a lender is also a lead arranger. Following Gopalan, Nanda, and Yerramilli (2011), for loans with multiple lead arrangers, we have one observation corresponding to each lead arranger.

Specifically, it shows that the spreads for TLAs increase by an additional 43 basis points (bps) during the uncertainty period relative to spreads for TLBs. This result suggests that supply-side concerns due to CECL implementation uncertainty are driving our results.

Finally, we test Hypothesis H1C by estimating equation (1) for two facility-level variables – collateral and maturity. The results are reported in Table 4 in Columns (3) – (4). We fail to observe any significant changes in the role of collateral and maturity during the uncertainty period.

Overall, our results suggest that CECL-induced uncertainty results in adverse loan amount and spread for TLA facilities compared to TLB facilities.

Robustness – US Lenders

CECL applies to both domestic and international lenders as long as the deal is booked in the USA.[22] For supervisory purposes, US branches and agencies of Foreign Bank Organizations (FBOs) are treated as distinct standalone entities, even though they are not legally distinct entities from their parent bank perspective. As such, the FBOs are required to prepare quarterly balance sheet and supplemental schedules in the form of a Call Report (FFIEC 002) for each of their US branches or agencies (there is limited consolidation for branches and agencies located in the same state). Since US GAAP is the required accounting framework, US branches and agencies need to consider assessing and implementing a CECL based approach for its US reporting independent of the IFRS 9 methodology used for head office reporting.[23] However, since IFRS 9 shares a few similarities with CECL, it is possible that foreign lenders do not experience as much uncertainty as their domestic counterparts. Therefore, we restrict our sample to US lenders to check the robustness of our results.[24]

[22] In terms of the Dealscan variable, the country of syndication needs to be USA.

[23] https://www.risk.net/risk-management/5766536/foreign-banks-may-move-us-loans-overseas-to-skirt-cecl

[24] US lenders are identified using variable *Lcountry* in Dealscan. If the facility has multiple lead arrangers, we define a facility as US lender financed if more than 50% of the lead arrangers are from the US. Our results are robust if we consider only those facilities where there is just one lead arranger and *Lcountry* is USA.

Table 4 shows the results for this robustness test. We find that during the uncertainty period TLAs issued by US lenders increase (decrease) their spread (loan amount) by 57 bps (17.2 bps) compared to TLBs issued by the same US lender. These results provide support to our hypothesis that CECL based uncertainty is driving our main results.

Subsample analysis

Similar to Sethuraman (2019), we use an alternate difference-in-difference specification by dividing our sample period into two parts. Our first sample (henceforth, Event 1 sample) includes the facility and firm-level observations between January 2014 and December 2018. We classify the period between January 2014 and June 2016 (i.e., the period before FASB's ASU 2016-13 announcement) as the pre-uncertainty period (i.e. *POST* = 0). The period between July 2016 and December 2018 (i.e., the period after FASB's ASU 2016-13 announcement) is classified as post-uncertainty period that corresponds to CECL implementation uncertainty for banks. Our second sample (henceforth, Event 2 sample) captures the period surrounding CECL implementation-related clarification by prudential regulators and comprises facility and firm-level observations between January 2018 and December 2019 (to ensure we have length-matched sample in both the uncertainty period and post-resolution period). For the Event 2 sample, we create a temporally balanced sample in which the *POST* = 0 period includes observations between January 2018 to December 2018 (uncertainty period). The *POST* = 1 period includes observations between January 2019 and December 2019 (post-resolution period). To provide evidence on the effect of CECL implementation uncertainty, we estimate the following difference-in-differences empirical specification for each event:

$$Outcome_{it} = \beta_0 + \beta_1 TLA + \beta_2 POST_t + \beta_3 TLA_{it} \times POST_t + Controls_{it} + \varepsilon_{it} \quad (2)$$

Figure 2 Panel B depicts this empirical specification graphically. The results from

estimation of equation (2) for the *Event 1 sample* (uncertainty vs. pre-uncertainty period) are reported in Column (1) of Table 5. The coefficient on the interaction term *BANK* × *POST*, -0.192, is negative and significant at the 1% level. This suggests that the loan amount issued between *PRE* (low uncertainty) and *POST* (high uncertainty) periods for bank-originated facilities is 19.2 percentage points lower compared to that issued by nonbank-originated facilities. We also estimate equation (2) for the *Event 2 sample* (uncertainty vs. post-resolution period) and the results in Column (1) in Table 5 Panel A shows that the coefficient on *BANK* × *POST*, 0.197, is positive and significant at the 1% level. This suggests that the clarification by Fed/OCC helped resolve uncertainty for banks, leading to an increase in loan amount issued by bank-originated facilities compared to that issued by nonbank-originated facilities. Collectively, these results provide evidence that non-concurrent guidance related to CECL implementation between regulators adversely affected bank lending activity during the uncertainty period.

We repeat this analysis using separate samples. Results for the *Event 1 sample* are reported in Column (2) in Panel B, whereas results for the *Event 2 sample* are reported in Panel C. For both samples, the coefficient on the interaction term, *BANK* × *POST*, is significant. It is positive (26.67 bps) for the *Event 1 sample* and negative (-92 bps) for the *Event 2 sample,* suggesting that the CECL related uncertainty resulted in an increase in spreads during the uncertainty period and subsequent clarification by Fed/OCC resulted in a decrease in spreads for bank-originated facilities compared to nonbank-originated facilities.

Overall, our lender-level analysis further confirms our hypotheses that lack of concurrent guidance across prudential regulators and accounting regulators results in increased conservatism in bank lending activity.

Public vs. Private Lenders

To provide more evidence on the effect of CECL uncertainty on banks, we classify facility-level data as public or private on the basis of lead arranger. If the lead arranger's gvkey is available, it is defined as public else it is defined as private.

On one hand, private lenders had more time to adopt CECL. The original adoption date for CECL was 2020 for public lenders and 2021 for private lenders. After covid, the Fed changed adoption for private lenders from 2021 to 2023. Also, public banks follow more regulatory scrutiny compared to private banks. Therefore, we expect the effects of CECL uncertainty to be stronger for public banks. On the other hand, banks rely on qualitative and quantitative factors to determine credit losses. Under CECL, banks might need to capture additional data and retain that data longer than they might have in the past to determine loss reserves. To facilitate the additional data requirements, some banks might need to migrate to a newer system. The additional data retention requirements may increase ongoing operating expenses for banks. Public (large) banks typically have their in-house technical teams, and the transition can be less costly compared to private or smaller banks. Therefore, we expect our results to be stronger for private lenders.

We estimate equation (1) in two sub-samples – Public and Private.[25] The results of this estimation is provided in Table 6. Private lenders increase the spread by 67 bps during the uncertainty period (compared to 29 bps increase by public lenders). Consistent with our hypothesis that CECL implementation is costlier and creates higher uncertainty for private lenders, we find that the results are more pronounced for private lenders compared to public lenders.

Bank vs. Non-bank Lenders

Next, we segregate our lenders into bank and non-bank lenders to examine the differential effect of CECL uncertainty. We argue that banks face CECL uncertainty

[25] Similar to previous analysis, in case of multiple lead arrangers, we define a facility as originated by public lender if more than 50% lead arrangers are public, private otherwise.

primarily due to uncertainty related to the levels of regulatory capital at the time of CECL adoption. If this is true then we expect our results to be stronger for banks compared to non-banks as non-banks are not subject to as much regulatory scrutiny as banks do.

We re-estimate equation (1) for the two subsamples – Bank and Non-bank.[26] Table 7 shows these results. Column (1) and (3) show results the effect of uncertainty on loan amount for banks and non-banks, respectively. While the difference is not statistically significant, we find that the decrease in loan amount during the uncertainty period is more pronounced for banks compared to non-banks. However, we find that the increase in spread is statistically significantly higher for banks compared to non-banks, suggesting that CECL induced regulatory uncertainty is potentially driving our main results.

V. Real Effects: Borrower Investments

Main Results

To quantify the real effects of the uncertainty that banks face on their borrowers' investments, we perform borrower-level analyses. As mentioned earlier, we follow a difference-in-difference research design and compare investment activity for exclusively bank-dependent borrowers (treatment group) to other borrowers (control group).

Following prior literature, we define investment in three ways (Almeida et al. 2017, Shroff 2017). Firstly, firm-level capital expenditures *(CAPEX)* are defined as the change in firms' property, plant, and equipment plus depreciation and scaled by average total assets. Secondly, research and development expenses *(R&D)* are defined as the firm's R&D expenses scaled by average total assets. Finally, we use the sum of *CAPEX* and *R&D* as our aggregate measure of investment (*TOTAL*). We control various factors identified in prior research as determinants of firm investment. The specific control variables we use are *MTB*

[26] Consistent with our prior analysis, in case of multiple lead arrangers, we define a facility as originated by a bank if more than 50% lead arrangers are bank, non-bank otherwise.

(the ratio of the market value of equity divided by book value of equity), *SIZE* (log of total assets), *LEVERAGE* (long-term debt plus debt in current liabilities divided by total assets), *ROA* (net income over total assets), and *ROAVOL* (standard deviation of ROA). We control for time-varying firm health through firm-quarter fixed effects. We also include year-month fixed effects to capture the influence of aggregate time-series trends. We double cluster all standard errors by firm-fiscal quarter and year-month.

The coefficient of interest in equation (1) is the coefficient on the interaction term *UNCERTAIN X BANK* and in equation (2) is *POST X BANK.* This coefficient captures the difference in the change in investment behavior between the treatment firms (i.e., bank-dependent borrowers) and the control firms (i.e., other borrowers). To the extent that bank-dependent borrowers are more likely to decrease investment or capital expenditure as a result of unfavorable lending outcomes, we expect the coefficient on *UNCERTAIN X BANK* to be negative. [27]

The results are presented in Table 8. The coefficient on *UNCERTAIN X BANK* is statistically significant and negative for *CAPEX* and *TOTAL*. In Column (1), the coefficient indicates that there was a statistically significant decrease in *CAPEX* (-0.001) by 0.1% for bank-dependent borrowers relative to other borrowers during the uncertainty period. In Column (2) we find that there is a negative but insignificant effect on *R&D*. Finally, we document the effect on total investment *(TOTAL)* and find a negative and significant effect on *UNCERTAIN X BANK* in Column (3). Notably, Figure 4 confirms that that bank-dependent firms' investments were quite similar to investments by other borrowers before

[27] One may argue that the decrease in the availability of TLAs may make borrowers switch from TLAs to TLBs. But the characteristics of TLBs (such as high spread and high collateral requirements) make them more attractive for private firms or below investment grade firms. Since our sample consists of public borrowers (with gvkeys), it is highly unlikely for such borrowers to switch from TLAs to TLBs. We further verify this with fixed income industry experts that public borrowers, in absence of TLAs, prefer to borrow from public debt market instead of switching to TLBs as public debt markets are cheaper.

the CECL announcement.[28]

Next, we perform cross-sectional analyses that yield additional insights relative to our main results. First, we classify borrowers based on their access to alternative lending channels. We identify access to lending in two ways. First, we identify borrowers who have accessed the syndicated term loan market more frequently than others. These borrowers are more likely to be affected by the decline in bank lending than those borrowing less frequently. We define *FREQ* as an indicator that takes the value one for borrowers who have accessed the term loan market more than two times in the past (between 2010Q1 to 2013Q4), zero otherwise.

Results are documented in Table 9. The coefficient of *UNCERTAIN X BANK* is not significant for less-frequent borrowers (FREQ = 0) in column (1) but negative and significant for subsample of frequent borrowers (FREQ = 1) in Column (2). These results suggest that bank-dependent borrowers who have frequently accessed the lending market in prior years are significantly more likely to reduce their total investments during the uncertainty period.

Our second measure of access to lending is based on financial constraints. We hypothesize that financially constrained borrowers are more likely to be affected by the (un)availability of bank lending. Prior literature shows that firm size is a particularly useful predictor of a firm's financial constraints (Hadlock and Pierce 2010). Hence, we separate borrowers based on the average size in the prior five years into below (*SMALL*=1) and above-median category (*SMALL*=0). The results documented in Table 9 Column (3) and (4)

[28] In untabulated results, similar to facility-level analysis, we perform subsample analysis for borrower investments. Results based on the Event 1 sample suggest that the decrease in CAPEX, R&D, and INVEST is concentrated in the uncertainty period (relative to pre-uncertainty period). We do not find any subsequent increase/changes in CAPEX, R&D, and INVEST for Event 2 (i.e., going from the uncertainty period vs. post-resolution period). The results suggest that firm investments require a longer time to recover than the one year in our post-Event 2 period. Thus, bank-related uncertainty can have a longer-term adverse impact on the real economy that borrowers find it difficult to recover from.

provide evidence that investment by smaller borrowers is more adversely affected due to CECL-related uncertainty. In particular, we find that the coefficient on *UNCERTAIN X BANK* is negative and significant for *TOTAL (*β_1=-0.002) for small bank-dependent borrowers (SMALL = 1). The difference in coefficient is statistically significant across the two subsamples as evidenced by the p-value.

Overall, the cross-sectional analyses based on the frequency of borrowing and financial constraints further provides evidence that uncertainty related to CECL implementation had negative real effects for the borrowers.

Matched Sample Analysis

Systematic differences can exist between bank borrowers and other borrowers (see e.g., Carey, Post, and Sharpe, 1998; Denis and Mihov, 2003; Chernenko, Erel, and Prilmeier, 2018). To address this issue, we use the entropy balanced matching technique to match bank-dependent borrowers with other borrowers (Hainmueller 2012; McMullin and Schonberger 2020; Shroff, Verdi, and Yost, 2017; Bonsall and Miller 2017). The entropy balancing technique preserves the full sample. Additionally, it ensures covariate balance between treatment and control observations by re-weighting observations such that the post-weighting mean and variance for treatment and control observations are virtually identical with respect to key fundamental characteristics. This approach allows us to attribute changes in investment to the uncertainty surrounding CECL as opposed to inherent and unobservable differences in fundamentals between the treatment and control firms.

Entropy matching variables are a group of variables that prior research has found to be associated with the investment. The specific entropy matching variables we use are *ROA* (EBITDA divided by sales), *ROAVOL* (EBITDA divided by sales) *SIZE* (log of total assets), *LEVERAGE* (long-term debt plus debt in current liabilities divided by total assets), *MTB* (Market to Book Value of Assets), and *FREQ* (frequency of borrowing in prior years).

Table 10 Panel A provides the mean and variance of each variable across our treated and control subsamples both before and after the entropy matching technique is employed. Pre-matching, there are modest differences across the two groups of observations. For example, treated firms appear to be smaller (mean *SIZE* of 8.23 for the treated group compared with 8.27 for the control group) and have lower leverage (mean *LEVERAGE* of 0.35 for the treated group compared with 0.48 for the control group). However, post-matching there are no differences in either the mean or variance of any of the 6 variables across the two groups of observations.

The results based on the entropy balanced sample are documented in Table 10 Panel B. In column (1), the coefficient indicates that there was a statistically significant decrease in *CAPEX (*β_1=-0.001) by 0.1% for bank-dependent firms relative to other firms during the uncertainty period. There are no observable differences in R&D across the two groups. Finally, we document the effect on total investment and find a negative and significant effect on *UNCERTAIN X BANK* in Column (3).

Overall, we find that our post-matching results remain very similar in terms of economic magnitudes and statistical significance.

VI. Validation of CECL Introduction and Subsequent Clarification

Market Reaction

To validate whether the introduction of ASU 2016-13 on June 16, 2016 (hereafter, *Event 1*) and the subsequent clarification by prudential regulation on December 21, 2018 (hereafter, *Event 2*) were respectively perceived as a negative and a positive shock to banks, we analyze stock market reaction for banks around each event. We obtain stock returns from CRSP. To study the overall market reaction, we examine three-day windows around the events – Event 1 and Event 2. These windows cover the period from one day before to one day after the news reaches the market. Moreover, to disentangle market reaction to news

about the CECL implementation from confounding news and other macro effects, we augment our sample with nonbanks. Since we expect the effect of CECL to be more prominent for banks that originate only TLAs, we expect market reactions for bank that originate TLAs to be higher (in magnitude) in the predicted directions compared to that for banks that originate both TLAs and TLBs. Specifically, we expect significant negative returns for Event 1 and significantly positive returns for Event 2. We estimate size-adjusted abnormal return for a bank with TLA loans (bank with both TLAs and TLBs) *i* and event date *t* as:

$$AR_{it} = RET_{it} - DECRET$$

where AR_{it}, RET_{it}, and $DECRET_{it}$) are the abnormal returns, actual returns, and decile returns respectively. Size-adjusted abnormal returns are calculated with cut-off points for the size portfolios based on the market capitalization of NYSE/AMEX/NASDAQ-listed firms. (Source: CRSP ERDPORT1). We cumulate abnormal returns over three-day windows [-1,+1] for both events.

Table 3 indicates a significantly negative coefficient (at 5% level) for banks with TLAs (coefficient -0.851), but not for banks with both TLAs and TLBs. Importantly, the coefficient for bank with TLAs is significantly different from that of banks that originate both TLAs and TLBs at the 5% level (difference: 0.752), validating our assumption that FASB's announcement of the CECL standard was perceived as a negative event primarily for banks. For Event 2, we find a significantly positive coefficient for banks as well as for nonbanks. Although the magnitude of the coefficient is higher for banks originating only TLAs compared to that for banks originating both TLAs and TLBs, the difference is not statistically significant. One possibility is that Event 2 was perceived as motivating banks to ease credit supply and credit terms, which in turn was also positive news for banks seeking to be active in the corporate lending markets using TLBs. Overall, the results in Table 3

provide support for the validity of CECL related uncertainty shocks examined in the paper.

Textual Analysis

To further validate our setting, we apply textual analysis on lenders' 10-Ks comparing the uncertainty in their discussions of CECL during the uncertainty period (July 2016 to December 2018) to the post-resolution period (January 2019 to March 2020). To measure these differences, we obtain 10-Ks for all public banks and nonbanks in our sample. Since a large part of our sample consists of private banks and nonbanks, this analysis relies on a subset of our sample with publicly filed financial statements. We then extract all paragraphs mentioning either "CECL" or "ASU 2016-13" in the 10-Ks (hereafter, extracted text). Rather than examining the overall content of the 10-K, our analysis focuses on the textual discussion around the standard to ensure that boiler-plate content and irrelevant content are not driving our results.

We measure uncertainty by analyzing the extracted text of public banks that issue exclusively TLAs (Exclusive TLAs) and banks that issue both TLAs and TLBs (other banks). We search the text for "uncertain" words from the sentiment dictionaries by Loughran and McDonald (2011). Banks with exclusive TLAs (and other lenders) that did not provide disclosures are given uncertainty equal to zero. We estimate the following lender-level model:

$$UNC_{it} = \beta_0 + \beta_1 BANK_{it} + \beta_2 UNCERTAIN_t + \beta_3 BANK_{it} \times UNCERTAIN_t + \gamma_{it}\, x_{it} + \varepsilon_{it} \quad (4)$$

Where UNC_{it} is either the natural logarithm of the number of uncertainty words in the extracted paragraph (*UNC 1*) or the share of uncertainty words over the total number of words in bank (nonbank) i's extracted text at time t (*UNC 2*). Importantly, there can be temporal trends in banks' discussion of uncertainty, driven by factors such as declining uncertainty over time, or even an increase in banks' discussion of uncertainty as the CECL

implementation date becomes proximate. Given these various possibilities, we analyze whether CECL created differential uncertainty for banks relative to nonbanks and additionally, as part of x_{it} include lender-specific and time-specific fixed effects.

Table 4 shows that banks with exclusive TLAs faced more uncertainty as evidenced by the significant and positive coefficient on *UNCERTAIN X BANK* compared to other lenders. This result further validates our choice of using TLAs as a valid treatment sample for our analysis. Nevertheless, since the 10-Ks (and therefore the extracted text) is only available for public and large entities, we would like to caution readers about the generalizability of the specific coefficient estimates in these regressions.

VII. Conclusion

Regulatory agencies with the responsibility to ensure the financial stability and solvency of banks routinely rely on continuously monitoring banks' capital adequacies, which themselves are products of the financial reporting system. Financial reporting standards in turn are determined by accounting regulators, in particular the FASB. When the FASB issues a new accounting standard that can influence banks' profitability and regulatory capital, bank managers anticipate regulatory spillover effects to the monitoring efforts by prudential regulators. In particular, adverse effects on profitability and capital can lead to regulatory intervention and/or to constraints on bank lending that further limit bank profitability (see, for example, Ng and Roychowdhury, 2014).

Consequently, when the FASB issues new accounting standards, it is natural for banks to seek concurrent guidance from prudential regulators on how the latter plan to incorporate the effects of the new standard into their monitoring and enforcement endeavors. Failure to do so creates an uncertain operating environment for banks and can affect their willingness to lend, which in turn can have a detrimental influence on their borrowers'

planned investments. We study this phenomenon in the context of a specific standard, the Current Expected Credit Losses (CECL) standard announced by the FASB in June 2016. Prudential regulators issued no concurrent guidance on how they would incorporate the impact of CECL in computing regulatory capital and in conducting stress tests. This immediately heightened the uncertainty in banks' information environments. Even though CECL was not effective before March 2020, banks were concerned about the economic uncertainties and adversities potentially prevailing at the time of CECL adoption, which would lead to losses and deteriorations in regulatory capital. Indeed, banks were vindicated ex post in their concerns, given the covid pandemic's proliferation just when CECL was meant to become effective for a large cross-section of banks. Compelled to respond to banks' concerns, prudential regulators such as the Federal Reserve and the OCC eventually provided clarifications related to CECL's implementation in December 2018 as it pertained to regulatory assessments of capital adequacy and stress tests.

The period between July 2016 and December 2018 thus provides us a window in which to examine how the uncertainty created by non-concurrent guidance impacts banks' lending decisions and the carry-over effects on borrowers' ability to invest. The primary results in our paper are that relative to non-banking institutions active in the lending markets (ultimate holders of TLBs), banks (holders of TLAs) significantly reduced loan amounts and increased loan spreads following the FASB's announcement of CECL in 2016. Importantly, bank-dependent borrowers exhibited a significant decline in their investments following CECL's announcement. These results point to the real effects in the economy because of the perceived uncertainty arising from the lack of concurrent guidance when announcements from one regulator have spillover implications for monitoring by another. There is a recovery in loan terms, with loan amounts rising and loan spreads declining after the clarifications issued by the prudential regulators in 2018. There is evidence of only a

partial recovery in borrowers' investments following the 2018 clarifications, indicating that some of the losses in investment opportunities for bank-dependent borrowers during the uncertainty period were permanent in nature.

The statements issued by prudential regulatory agencies at the time of CECL pronouncement (June 2016) suggests that the agencies expected low costs to banks and their borrowers from CECL's introduction. Further, while they did raise the possibility of forthcoming guidance, they did not meaningfully commit to it, nor did they mention a specific timeline. Banks and banking organizations were immediately vocal about their concerns and their resistance, not to CECL per se, but to prudential regulators' silence on how prudential norms would accommodate the effects of CECL. Our results are important because they demonstrate that banks were not merely posturing with cheap talk in possible attempts to influence prudential regulators. They reduced loan availability and increased loan prices, which in turn constrained their borrowers' investments. The stated expectations by prudential regulatory agencies at the time of CECL announcement implied that they had not foreseen these effects. Thus, our results can be viewed as the real effects of regulators' failure to appreciate that new standards for banks from the FASB should be accompanied by concurrent guidance from prudential agencies, since financial statements are important determinants of regulatory outcomes.

An alternative possibility is that prudential regulators did indeed expect some of the adverse real effects on loan availability and loan terms and the contractions in borrower investments at the time of CECL announcement but chose to remain silent. This could occur if they expected banks to resist despite issuing concurrent guidance or expected banks to seek more regulatory concessions than prudential regulators were unwilling to grant. Under this interpretation, the stricter loan terms and investment reductions would have been considered "acceptable loss" by prudential regulators during the period of uncertainty. This

interpretation is admittedly speculative. But even in this scenario, understanding the magnitude of the real effects of non-concurrent guidance from the FASB and prudential agencies can help inform and better coordinate future strategies across multiple regulators.

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APPENDIX A: Variable Description and Data Sources

Variable	Description	Data Source
UNCERTAIN	Indicator variable that takes the value of one if the period is between Jul 2016 and Dec 2018, zero otherwise	Constructed
POST (EVENT 1 SAMPLE)	Indicator variable that takes the value of one if the period is between Jul 2016 and Dec 2018, zero if the period is between Jan 2014 and Jun 2016	Constructed
POST (EVENT 2 SAMPLE)	Indicator variable that takes the value of one if the period is between Jan 2019 and Dec 2019, zero if the period is between Jan 2018 and Dec2018	Constructed
Facility Level Variables		
BANK	Indicator variable that takes the value of one if the facility is a Term A loan, zero if the facility is a Term B loan	Deal Scan
SPREAD	All in drawn loan spread in basis points	Deal Scan
COLLATERAL	Indicator variable that takes the value of one if the loan is secured by collateral, zero otherwise	Deal Scan
COLLATERAL (RE)	Indicator variable that takes the value of one if the loan is secured by real estate collateral, zero otherwise	Deal Scan
AMOUNT	Log(Loan amount in million USD)	Deal Scan
MATURITY	Log(Number of months to loan maturity)	Deal Scan
Lender Level Variables		
BANK	Indicator variable that takes the value of one if lender's historical originations (Jan 2010 to Dec 2013) are exclusively Term A loans, zero if otherwise	Deal Scan
SPREAD	A weighted average of all in-drawn loan spread in basis points for a loan originated by lender *i* in month *t*	Deal Scan
COLLATERAL	Indicator variable that takes the value of one if a loan is secured by collateral, zero otherwise	Deal Scan
COLLATERAL (RE)	Indicator variable that takes the value of one if a loan is secured by real estate collateral, zero otherwise	Deal Scan
AMOUNT	Log of the average loan amount in million USD originated by lender *i* in month *t*	Deal Scan
MATURITY	Log of average loan maturity for a loan originated by lender *i* in month *t*	Deal Scan
Borrower Level Variables		
CAPEX	Capital expenditures in quarter t minus Capital expenditures in quarter t-1 scaled by Capital expenditures in quarter t-1	Constructed
R&D	R&D expense for quarter t	Constructed
INVEST	Sum of capital expenditures and R&D in quarter t minus sum of capital expenditures and R&D in quarter t-1 scaled by total assets	Constructed
SIZE	Log of total assets	Compustat
MTB	Market to book value ratio	Compustat/CRSP
LEVERAGE	Sum of long-term debt and debt in current liabilities) scaled by total assets	Compustat
ROA	Net income scaled by total assets	Compustat
ROAVOL	Standard deviation of ROA	Compustat

Variable	Description	Data Source
FREQ	Frequency of borrowing in the past (2010Q1 to 2013Q4)	Deal Scan
FREQ_BORROWER	Indicator that takes the value one for borrowers who have accessed the term loan market more than two times in the past (2010Q1 to 2013Q4), zero otherwise.	Deal Scan
NOT_RATED	Indicator that takes the value one for borrowers not rated by S&P in the last 5 years, zero otherwise	Capital IQ
SMALL	Indicator that takes the value one for borrowers if their average size in the last 5 years was below the median, zero otherwise	Compustat
Textual Variables		
I(DISC)	Indicator that takes the value one for lenders if lender *i* at time *t* included discussion on CECL or ASU 2016-13 in their 10-K	SEC EDGAR
LENGTH	Number of words in the extracted text around CECL or ASU 2016-13 from 10-K	SEC EDGAR
I(CECL)	Indicator that takes the value one for lenders if the extracted text contained "CECL"	SEC EDGAR
TONE	(Number of positive words – number of negative words) / total number of words in the extracted text	SEC EDGAR
I(DOLLAR)	Indicator that takes the value one for lenders if the extracted text contained dollar amounts	SEC EDGAR
UNC1	Log(1+Number of uncertain words in the extracted text based on Loughran-McDonald dictionary)	SEC EDGAR
UNC2	Number of uncertain words in the extracted text based on Loughran-McDonald dictionary scaled by total words in the extracted text	SEC EDGAR

Appendix B: Example of CECL Implementation[29]

Consider a hypothetical banking organization that has a CECL effective date of January 1, 2020, and a 20 percent tax rate. On the closing balance sheet date immediately prior to adopting CECL (i.e., December 31, 2019), the banking organization has $10 million in retained earnings and $1 million of ALLL (Allowances for Loan and Lease Losses).

On the opening balance sheet date immediately after adopting CECL (i.e., January 1, 2020), the electing banking organization has $1.2 million of AACL (Adjusted Allowances for Credit Losses). The banking organization would recognize the adoption of CECL by recording an increase to AACL (credit) of $200,000, with an offsetting increase in temporary difference DTAs of $42,000 (debit), and a reduction in beginning retained earnings of $158,000 (debit). For each of the quarterly reporting periods in year 1 of the transition period (i.e., 2020), the electing banking organization would increase both retained earnings and average total consolidated assets by $118,500 ($158,000 × 75 percent), decrease temporary difference DTAs by $31,500 ($42,000 × 75 percent), and decrease AACL by $150,000 ($200,000 × 75 percent) for purposes of calculating its regulatory capital ratios. The remainder of the transitional amounts will be transitioned into regulatory capital according to the schedule provided below.

Impact on Financial Statements	Transitional Amount	Transitional amounts applicable during each year of the transition period		
	Column A	Column B Year 1 at 75%	Column C Year 2 at 50%	Column D Year 3 at 25%
Increase retained earnings and average total consolidated assets by the CECL transitional amount	$158,000	$118,500	$79,000	$39,500
Decrease temporary difference DTAs by the DTA transitional amount	$42,000	$31,500	$21,000	$10,500
Decrease AACL by the ACL transitional amount	$200,000	$150,000	$100,000	$50,000

[29] Regulatory Capital Rule: Implementation and Transition of the Current Expected Credit Losses Methodology for Allowances and Related Adjustments to the Regulatory Capital Rule and Conforming Amendments to Other Regulations, Federal Register Vol. 84, No. 31 (February 14, 2019)

Appendix C: Differences in Textual Characteristics (Example)

This Appendix shows our textual analyses approach. We extract paragraphs containing CECL or ASU 2016-13 from 10-Ks for all public banks and nonbanks in our sample. The following example shows the sample text from Wells Fargo's 10-K extracted in 2017 and 2018. It also highlights the textual differences in Wells Fargo's 10-K before the uncertainty period (2017 10-K) and after the uncertainty period (2018 10-K). For example, the length of the text in 2017 10-K discussing CECL is smaller and uses uncertain language. Whereas, the 2018 10-K is longer and provides more clarity on CECL implementation.

2017 10-K CECL excerpt

ASU 2016-13 – Financial Instruments – Credit Losses (Topic 326): *Measurement of Credit Losses on Financial Instruments*	The Update changes the accounting for credit losses on loans and debt securities. For loans and held-to-maturity debt securities, the Update requires a current expected credit loss (CECL) approach to determine the allowance for credit losses. CECL requires loss estimates for the remaining estimated life of the financial asset using historical experience, current conditions, and reasonable and supportable forecasts. Also, the Update eliminates the existing guidance for PCI loans, but requires an allowance for purchased financial assets with more than insignificant deterioration since origination. In addition, the Update modifies the other-than-temporary impairment model for available-for-sale debt securities to require an allowance for credit impairment instead of a direct write-down, which allows for reversal of credit impairments in future periods based on improvements in credit.	The guidance is effective in first quarter 2020 with a cumulative-effect adjustment to retained earnings as of the beginning of the year of adoption. While early adoption is permitted beginning in first quarter 2019, we do not expect to elect that option. We are evaluating the impact of the Update on our consolidated financial statements. We expect the Update will result in an increase in the allowance for credit losses given the change to estimated losses over the contractual life adjusted for expected prepayments with an anticipated material impact from longer duration portfolios, as well as the addition of an allowance for debt securities. The amount of the increase will be impacted by the portfolio composition and credit quality at the adoption date as well as economic conditions and forecasts at that time.

2018 10-K CECL Excerpt

Standard	Description	Effective date and financial statement impact
ASU 2016-13 – Financial Instruments – Credit Losses (Topic 326): *Measurement of Credit Losses on Financial Instruments*	The Update changes the accounting for credit losses measurement on loans and debt securities. For loans and held-to-maturity debt securities, the Update requires a current expected credit loss (CECL) measurement to estimate the allowance for credit losses (ACL) for the remaining estimated life of the financial asset (including off-balance sheet credit exposures) using historical experience, current conditions, and reasonable and supportable forecasts. The Update eliminates the existing guidance for PCI loans, but requires an allowance for purchased financial assets with more than insignificant deterioration since origination. In addition, the Update modifies the other-than-temporary impairment model for available-for-sale debt securities to require an allowance for credit impairment instead of a direct write-down, which allows for reversal of credit impairments in future periods based on improvements in credit.	We expect to adopt the guidance in first quarter 2020. Our implementation process includes loss forecasting model development, evaluation of technical accounting topics, updates to our allowance documentation, reporting processes and related internal controls, and overall operational readiness for our adoption of the Update, which will continue throughout 2019, including parallel runs for CECL alongside our current allowance process. We are in the process of developing, validating, and implementing models used to estimate credit losses under CECL. We have substantially completed a significant majority of our loss forecasting models, and we expect to complete the validation process for our loan models during 2019. Our current planned approach for estimating expected life-time credit losses for loans and debt securities includes the following key components: • An initial forecast period of one year for all portfolio segments and classes of financing receivables and off-balance-sheet credit exposures. This period reflects management's expectation of losses based on forward-looking economic scenarios over that time. • A historical loss forecast period covering the remaining contractual life, adjusted for prepayments, by portfolio segment and class of financing receivables based on the change in key historic economic variables during representative historical expansionary and recessionary periods. • A reversion period of up to 2 years connecting the initial loss forecast to the historical loss forecast based on economic conditions at the measurement date. • We will utilize discounted cash flow (DCF) methods to measure credit impairment for loans modified in a TDR, unless they are collateral dependent and measured at the fair value of collateral. The DCF methods would obtain estimated life-time credit losses using the conceptual components described above. • For available-for-sale debt securities and certain beneficial interests classified as held-to-maturity, we plan to utilize the DCF methods to measure the ACL, which will incorporate expected credit losses using the conceptual components described above. We expect an overall increase in the ACL for loans, with an expected increase for longer duration consumer portfolios and an expected decrease for commercial loans given short contractual maturities with conditional renewal options. The expected impact on our ACL does not include the impact of the FASB's recently proposed change to consider recoveries of previously charged off loans or subsequent increases in fair value of collateral for collateral dependent loans in the ACL measurement. If finalized, the proposed changes would reduce the expected change in our ACL. We continue to evaluate the results of our modeled loss estimates and will continue to make refinements to our approach, including evaluating an amount for imprecision or uncertainty, based on management's judgment of the risk inherent in the processes and assumptions used in estimating the ACL. We will recognize an ACL for held-to-maturity and available-for-sale debt securities. The ACL on available-for-sale debt securities will be subject to a limitation based on the fair value of the security. Based on the credit quality of our existing debt securities portfolio, we do not expect the ACL for held-to-maturity and available-for-sale debt securities to be significant. The amount of the change in our ACL will be impacted by our portfolio composition and credit quality at the adoption date as well as economic conditions and forecasts at that time. At adoption, we expect to have a cumulative-effect adjustment to retained earnings for our change in the ACL, which will impact our capital. Federal banking regulatory agencies have agreed to limit the initial capital impact of the Update by allowing a phased adoption over three years, on a straight-line basis. An increase in our ACL will result in a reduction to our regulatory capital amounts and ratios; however, at this point in implementation, we are not able to provide a more precise estimate of the impact.

Figure 1: Loan Growth

The figure below shows loan growth based on loan originations by banks and nonbanks before, during, and after the uncertainty period.

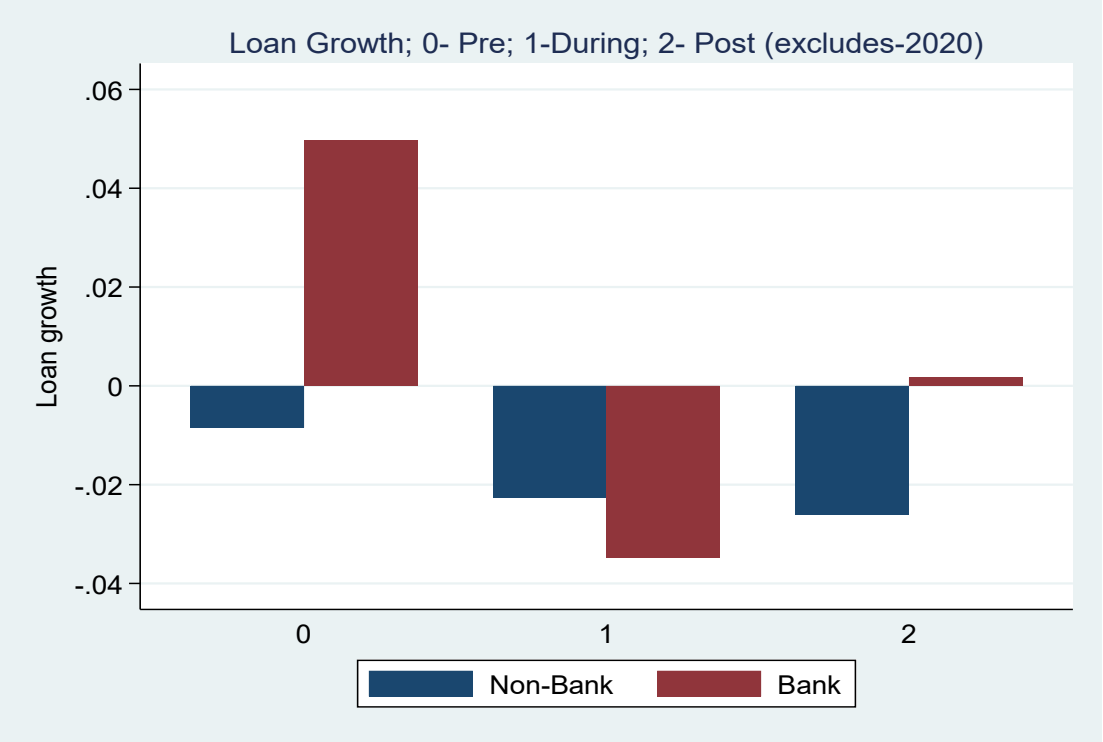
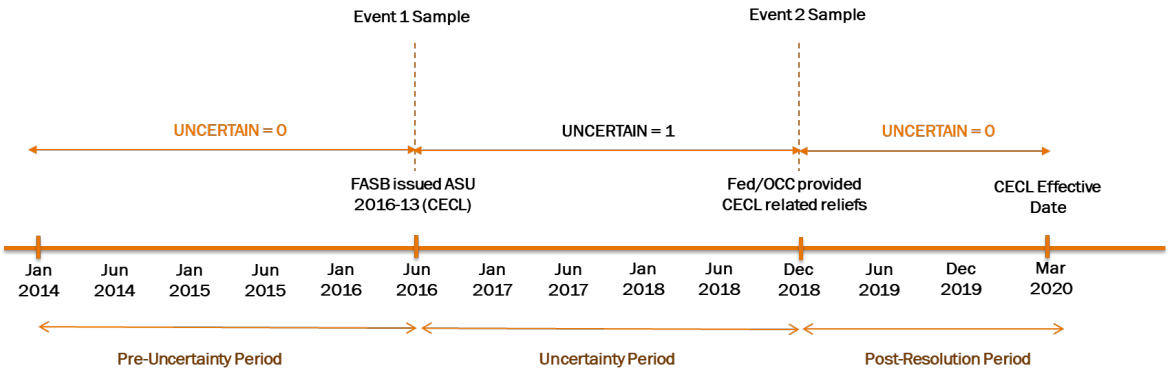


Figure 2: Research Design

Panel A shows a research design based on the entire sample. ASU 2016-13 Period denotes the time when FASB announced ASU 2016-13 (CECL) standard. Fed/OCC Period denotes the time when Fed/OCC provided clarifications and reliefs related to CECL implementation. Panel B shows a research design based on separate samples. *Event 1 sample* denotes the sample period between January 2014 and December 2018 (before and after FASB's announcement). *Event 2 sample* denotes the sample period between January 2018 and December 2019 (before and after Fed/OCC announcement).

Panel A: Research Design 1 – Combined Sample



Panel B: Research Design 2 – Separate Samples

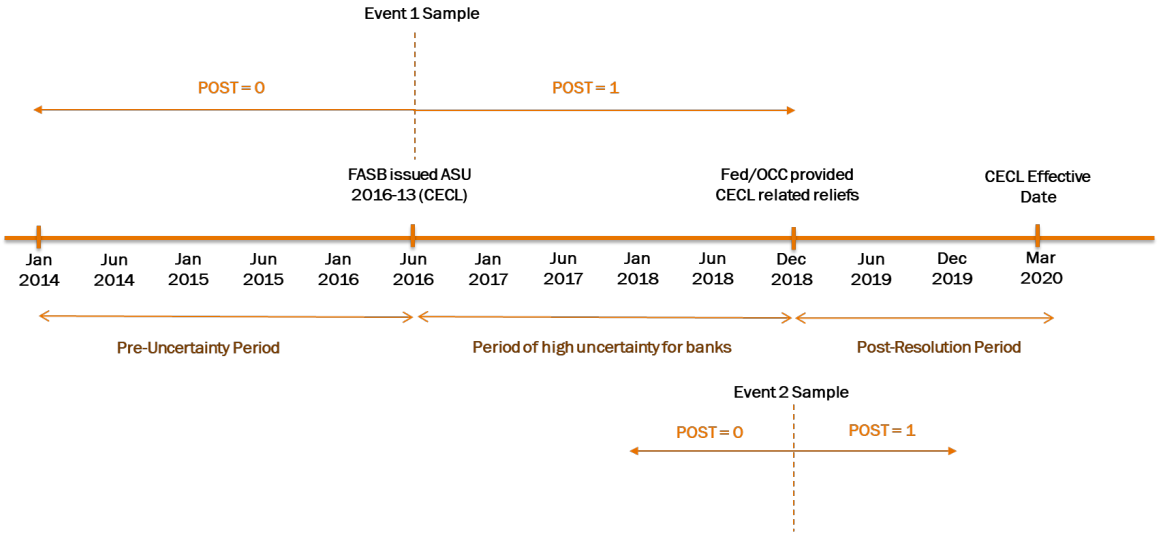


Figure 3: Real Effects of Uncertainty on Borrower-level Outcomes

This figure shows the regression coefficients for bank-dependent and other borrowers interacted with year dummies from a robust regression estimation of equation (1) for *CAPEX*. Each line bar represents 2 standard errors on each side of the coefficient.

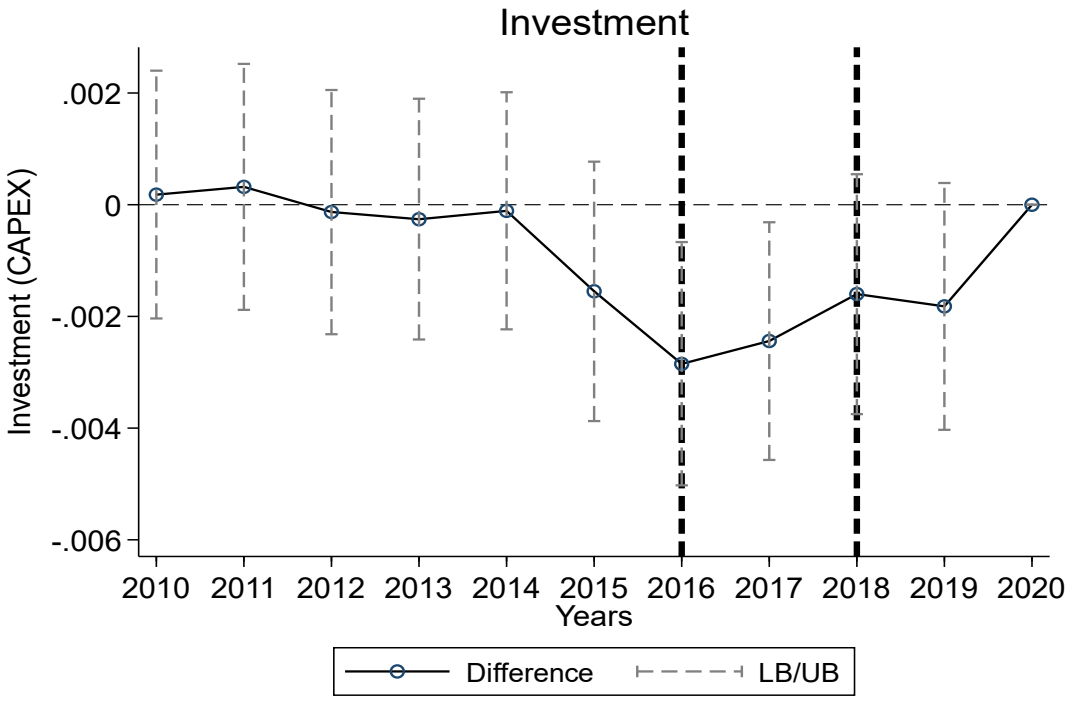


Table 1: Descriptive Statistics

This table provides descriptive statistics for TLAs (treatment) and TLBs (control) observations separately at the facility level in Panel A and borrower-level in Panel B. The sample period goes from 2014Q1 to 2020Q1. All continuous variables are winsorized at 1% and 99%. All variables are described in Appendix A.

Panel A: Facility-level Analysis

	TLA (Treatment Sample)			TLB (Control Sample)		
	N	**Mean**	**SD**	**N**	**Mean**	**SD**
AMOUNT ($MN)	19536	403.00	678.00	19856	787.00	833.00
SPREAD	19536	292.213	241.309	19856	364.930	131.488
COLLATERAL	19536	0.376	0.484	19856	0.991	0.095
MATURITY (MONTHS)	19536	62.027	24.469	19856	72.487	14.640

Panel B: Borrower-level Analysis

	TLA (Treatment Sample)			TLB (Control Sample)		
	N	**Mean**	**SD**	**N**	**Mean**	**SD**
CAPEX	8927	0.013	0.013	6341	0.010	0.010
RD	8927	0.002	0.009	6341	0.002	0.007
TOTAL_INVEST	8927	0.015	0.015	6341	0.012	0.012
LOG(ASSETS)	8927	8.178	1.526	6341	8.200	1.452
MTB	8927	2.857	5.098	6341	2.912	7.336
LEVERAGE	8927	0.348	0.196	6341	0.484	0.232
ROA	8927	0.006	0.029	6341	0.003	0.028
ROAVOL	8,927	0.02	0.02	6,341	0.02	0.03

Table 2: Loan Characteristics

This table reports loan purposes for both TLAs and TLBs at the facility level. It shows the classification of loan types for our sample period from 2014Q1 to 2020Q1. All variables are described in Appendix A.

Loan Purpose	Total	TLA (Treatment Sample)	TLB (Control Sample)
Acquis. line	9.32%	5.20%	4.12%
Aircraft finance	0.01%	0.01%	0.01%
Capital expenditure	0.08%	0.05%	0.03%
Corp. purposes	50.26%	25.31%	24.95%
CP backup	0.01%	0.01%	0.00%
Debt Repay.	3.13%	0.84%	2.30%
Debtor-in-poss.	0.33%	0.15%	0.18%
Dividend or distribution	0.40%	0.17%	0.23%
Dividend recap	4.25%	1.60%	2.65%
ESOP	0.02%	0.00%	0.01%
Exit financing	0.23%	0.07%	0.16%
IPO related financing	0.15%	0.06%	0.10%
LBO	8.89%	3.60%	5.29%
MBO	0.03%	0.01%	0.01%
Merger	1.41%	0.55%	0.86%
Other	0.03%	0.03%	0.00%
Pre-Export	0.02%	0.02%	0.00%
Proj. finance	4.12%	3.89%	0.22%
Real estate	0.60%	0.57%	0.03%
Recap.	0.38%	0.21%	0.18%
Restructuring	0.01%	0.01%	0.00%
SBO	5.13%	1.90%	3.23%
Securities purchase	0.17%	0.10%	0.06%
Ship finance	0.13%	0.13%	0.00%
Spinoff	0.83%	0.33%	0.50%
Stock buyback	0.10%	0.07%	0.03%
Takeover	9.12%	3.90%	5.22%
Working capital	0.85%	0.81%	0.04%

Table 3: Facility-level Analysis

This table reports the results of our regression estimation using equation (1) at the loan (facility) level for our main sample. The dependent variable is loan terms borrower *i* received of type Term Loan A or Term Loan B at time *t*. We include borrower, deal purpose, lender, and year-month fixed effects in all specifications. Standard errors are double clustered at the borrower and year-month level. All variables are described in Appendix A. Significance levels: *(p<0.10), **(p<0.05), ***(p<0.01)

	(1) *AMOUNT*	*(2)* *SPREAD*	*(3)* *COLLATERAL*	*(4)* *COLLATERAL (RE)*	*(5)* *MATURITY*
UNCERTAIN X TLA	***-0.148******	***43.426******	***0.022***	***-0.002***	***0.002***
	(-3.35)	***(2.81)***	***(1.21)***	***(-0.10)***	***(1.53)***
TLA	-0.568***	149.188***	-0.085***	-0.216***	-0.000
	(-13.79)	(11.33)	(-4.77)	(-13.74)	(-0.37)
CONSTANT	19.059***	245.213***	0.736***	0.001	4.127***
	(1,229.58)	(44.56)	(107.82)	(1.11)	(684.65)
Observations	39,392	39,392	39,392	39,392	39,392
R-squared	0.8410	0.8993	0.7506	0.8797	0.8068
Borrower FE	YES	YES	YES	YES	YES
Lender FE	YES	YES	YES	YES	YES
Deal Purpose FE	YES	YES	YES	YES	YES
Year-Month FE	YES	YES	YES	YES	YES

Table 4: Robustness Test (US Lenders Only)

This table reports the results of main regression estimation using equation (1) at the facility level for the sample when more than 50% lead arrangers (if multiple) are US lenders. The dependent variable is loan terms borrower *i* received of type Term Loan A or Term Loan B at time *t*. We include borrower, deal purpose, lender, and year-month fixed effects in all specifications. Standard errors are double clustered at the borrower and year-month level. All variables are described in Appendix A. Significance levels: *(p<0.10), **(p<0.05), ***(p<0.01)

	(1) *AMOUNT*	*(2)* *SPREAD*	*(3)* *COLLATERAL*	*(4)* *COLLATERAL (RE)*	*(5)* *MATURITY*
UNCERTAIN X TLA	***-0.147******	***49.381******	***0.022***	***0.002***	***0.002***
	(-3.19)	***(3.04)***	***(1.21)***	***(0.10)***	***(1.53)***
TLA	-0.562***	139.732***	-0.091***	-0.218***	-0.001
	(-12.88)	(10.07)	(-5.00)	(-13.25)	(-0.42)
CONSTANT	19.732***	247.862***	4.207***	0.797***	0.002***
	(968.03)	(43.47)	(574.30)	(100.57)	(3.58)
Observations	37,491	37,491	37,491	37,491	37,491
R-squared	0.8420	0.8981	0.7478	0.8794	0.8076
Borrower FE	YES	YES	YES	YES	YES
Lender FE	YES	YES	YES	YES	YES
Deal Purpose FE	YES	YES	YES	YES	YES
Year-Month FE	YES	YES	YES	YES	YES

Table 5: Subsample Analysis

This table reports the results of main regression estimation using equation (1) at the facility level for the two subsamples based on Event 1 (2014Q1 to 2018Q4) and Event 2 (2018Q1 to 2019Q4). Panel A shows summary statistics for both events, Panel B shows observations for Event 1 sample and Event 2 sample. The dependent variable is loan terms borrower *i* received of type Term Loan A or Term Loan B at time *t*. We include borrower, deal purpose, lender, and year-month fixed effects in all specifications. Standard errors are double clustered at the borrower and year-month level. All variables are described in Appendix A. Significance levels: *(p<0.10), **(p<0.05), ***(p<0.01)

Panel A: Summary Statistics for Event 1 and Event 2

Event 1 Sample	**TLA (Treatment Sample)**			**TLB (Control Sample)**		
	N	**Mean**	**SD**	**N**	**Mean**	**SD**
AMOUNT ($MN)	16090	422.00	1070.00	16086	792.00	901.00
SPREAD	16090	306.203	245.662	16086	363.830	128.167
COLLATERAL	16090	0.388	0.487	16086	0.990	0.097
MATURITY (MONTHS)	16090	63.009	24.719	16086	72.522	14.678
Event 2 Sample	**TLA (Treatment Sample)**			**TLB (Control Sample)**		
	N	**Mean**	**SD**	**N**	**Mean**	**SD**
AMOUNT ($MN)	6495	229.00	447.00	6896	505.00	625.00
SPREAD	6495	269.676	244.885	6896	385.373	147.823
COLLATERAL	6495	0.337	0.473	6896	0.984	0.127
MATURITY (MONTHS)	6495	59.858	22.198	6896	73.019	13.964

Panel B: Event 1 and Event 2 Samples

	Event 1 Sample		**Event 2 Sample**	
	(1)	*(2)*	*(3)*	*(4)*
VARIABLES	*AMOUNT*	*SPREAD*	*AMOUNT*	*SPREAD*
POST X TLA	***-0.167******	***32.633*****	***0.260****	***-99.746*****
	(-3.28)	***(3.41)***	***(2.53)***	***(-5.87)***
TLA	-0.541***	100.044***	-0.839***	163.366***
	(-12.92)	(9.14)	(-9.77)	(9.56)
CONSTANT	19.689***	276.092***	19.777***	253.256***
	(999.43)	(56.25)	(517.13)	(31.97)
Observations	32,176	32,176	13,391	13,391
R-squared	0.8407	0.8088	0.9012	0.8896
Borrower FE	YES	YES	YES	YES
Lender FE	YES	YES	YES	YES
Deal Purpose FE	YES	YES	YES	YES
Year-Month FE	YES	YES	YES	YES

Table 6: Cross-sectional Analysis – Public vs. Private Lenders

This table reports the results of main regression estimation using equation (1) at the facility level for the public and private lenders, separately. The dependent variable is loan terms borrower *i* received of type Term Loan A or Term Loan B at time *t*. We include borrower, deal purpose, lender, and year-month fixed effects in all specifications. Standard errors are double clustered at the borrower and year-month level. All variables are described in Appendix A. Significance levels: *(p<0.10), **(p<0.05), ***(p<0.01)

	PUBLIC		**PRIVATE**	
	(1)	*(2)*	*(3)*	*(4)*
	AMOUNT	*SPREAD*	*AMOUNT*	*SPREAD*
UNCERTAIN X TLA	***-0.159******	***29.377*****	***-0.153****	***67.473*****
	(-3.28)	***(3.47)***	***(-1.69)***	***(3.35)***
TLA	-0.563***	83.500***	-0.604***	134.646***
	(-11.83)	(7.51)	(-7.19)	(6.87)
CONSTANT	19.911***	268.046***	18.849***	308.801***
	(896.47)	(53.20)	(573.91)	(31.57)
Observations	32,222	32,222	7,170	7,170
R-squared	0.8399	0.8013	0.8544	0.8516
Borrower FE	YES	YES	YES	YES
Lender FE	YES	YES	YES	YES
Deal Purpose FE	YES	YES	YES	YES
Year-Month FE	YES	YES	YES	YES
p-value			*0.420*	*0.000*

Table 7: Cross-sectional Analysis – Bank vs. Nonbank Lenders

This table reports the results of main regression estimation using equation (1) at the facility level for bank and nonbank lenders, separately. The dependent variable is loan terms borrower *i* received of type Term Loan A or Term Loan B at time *t*. We include borrower, deal purpose, lender, and year-month fixed effects in all specifications. Standard errors are double clustered at the borrower and year-month level. All variables are described in Appendix A. Significance levels: *(p<0.10), **(p<0.05), ***(p<0.01)

	BANK		**NON-BANK**	
	(1)	*(2)*	*(3)*	*(4)*
	AMOUNT	*SPREAD*	*AMOUNT*	*SPREAD*
UNCERTAIN X TLA	***-0.140******	***46.558******	***-0.110***	***35.229****
	(-2.59)	***(5.42)***	***(-1.22)***	***(1.77)***
TLA	-0.549***	41.837***	-0.689***	215.098***
	(-10.11)	(3.74)	(-9.83)	(13.47)
CONSTANT	19.833***	269.337***	19.322***	345.556***
	(738.02)	(49.52)	(965.94)	(62.61)
Observations	30,204	30,204	7,287	7,287
R-squared	0.8467	0.8142	0.8792	0.8512
Borrower FE	YES	YES	YES	YES
Lender FE	YES	YES	YES	YES
Deal Purpose FE	YES	YES	YES	YES
Year-Month FE	YES	YES	YES	YES
p-value			*0.330*	*0.090*

Table 8: Borrower-level Analysis

This table reports the results of an analysis of firm outcomes around the uncertainty period. The analysis is conducted at the firm-quarter level. We include borrower and year-fiscal quarter fixed effects in all specifications. Standard errors are clustered at the borrower level. All variable definitions are available in Appendix A. Significance levels: *(p<0.10), **(p<0.05), ***(p<0.01).

	Uncertain Sample		
	(1)	*(2)*	*(3)*
VARIABLES	*CAPEX*	*RD*	*TOTAL*
UNCERTAIN X TLA	***-0.001****	***0.000***	***-0.001****
	(-2.36)	***(0.84)***	***(-1.99)***
UNCERTAIN	*0.001**	*-0.000*	*0.001*
	(2.25)	*(-1.20)*	*(1.14)*
LOG(ASSETS)	-0.002***	-0.001***	-0.003***
	(-3.90)	(-2.84)	(-4.67)
MTB	0.000	0.000	0.000
	(0.30)	(1.44)	(0.83)
LEVERAGE	-0.004**	-0.000	-0.004**
	(-2.57)	(-0.19)	(-2.55)
ROA	0.013***	0.002	0.015***
	(2.72)	(0.74)	(2.76)
ROAVOL	-0.026***	-0.002	-0.028***
	(-3.36)	(-0.69)	(-3.35)
CONSTANT	0.029***	0.007***	0.036***
	(7.31)	(4.50)	(8.45)
Observations	15,268	15,268	15,268
R-squared	0.7054	0.7138	0.6850
Firm FE	YES	YES	YES
Year-Fiscal Qtr. FE	YES	YES	YES

Table 9: Borrower-level Analysis – Cross-Sectional Tests

This table reports the results of an analysis of real firm outcomes around the uncertainty period based on the borrower's frequency of borrowing and size. The analysis is conducted at the firm-quarter level. We include borrower and year-fiscal quarter fixed effects in all specifications. Standard errors are clustered at the borrower level. All variable definitions are available in Appendix A. Significance levels: *(p<0.10), **(p<0.05), ***(p<0.01).

	FREQ = 0	***FREQ = 1***	***SMALL = 0***	***SMALL = 1***
	(1)	*(2)*	*(3)*	*(4)*
VARIABLES	*TOTAL*	*TOTAL*	*TOTAL*	*TOTAL*
UNCERTAIN X BANK	***0.001***	***-0.001******	***-0.001***	***-0.002****
	(0.92)	***(-2.75)***	***(-1.36)***	***(-1.75)***
UNCERTAIN	*0.000*	*0.001*	*-0.000*	*0.004****
	(0.14)	*(0.96)*	*(-0.08)*	*(2.61)*
LOG(ASSETS)	*-0.004****	*-0.002****	*-0.003****	*-0.002*
	(-3.37)	*(-3.71)*	*(-3.82)*	*(-1.35)*
MTB	*0.000****	*-0.000*	*0.000*	*0.000*
	(2.82)	*(-0.81)*	*(0.46)*	*(1.08)*
LEVERAGE	*-0.001*	*-0.006****	*-0.003*	*-0.011***
	(-0.35)	*(-2.95)*	*(-1.35)*	*(-2.49)*
ROA	*0.016**	*0.013***	*0.021****	*-0.004*
	(1.94)	*(1.99)*	*(3.16)*	*(-0.48)*
ROAVOL	*-0.037***	*-0.023***	*-0.026***	*-0.031***
	(-2.48)	(-2.39)	(-2.52)	(-2.25)
CONSTANT	*0.043****	*0.034****	*0.037****	*0.028****
	(5.34)	*(7.32)*	*(6.46)*	*(4.25)*
Observations	4,972	10,296	11,341	3,927
R-squared	0.6794	0.6930	0.6938	0.6710
Firm FE	YES	YES	YES	YES
Year-Fiscal Qtr FE	YES	YES	YES	YES
p-value		*0.000*		*0.000*

Table 10: Borrower-level Analysis – Robustness Test

This table reports the comparisons of mean and variance for various firm characteristics (i.e., firm-level determinants of being a bank-dependent borrower or other borrowers) between the TLA and TLB samples, pre- and post- entropy balanced matching in Panel A. Panel B shows results for borrower-level analysis using the entropy balanced sample. The analysis is conducted at the borrower-quarter level including observations from 2014Q1 to 2020Q2 in Column (1)-(3), 2014Q1 to 2018Q4 in Column (4)-(6), and 2018Q1 to 2019Q4 in Column (7)-(8). We include borrower and year-fiscal qtr. fixed effects in all specifications. Standard errors are clustered at the borrower level. All variable definitions are available in Appendix A. Significance levels: *(p<0.10), **(p<0.05), ***(p<0.01).

Panel A: Covariate Balance

Before Weighting	**Treat**		**Control**	
	Mean	**Variance**	**Mean**	**Variance**
SIZE	8.181	2.390	8.227	2.229
MTB	2.847	25.930	2.896	53.320
LEVERAGE	0.348	0.039	0.482	0.054
ROA	0.006	0.001	0.003	0.001
ROAVOL	0.015	0.001	0.018	0.001
FREQ	2.942	0.781	3.178	0.890
After Weighting	**Treat**		**Control**	
	Mean	**Variance**	**Mean**	**Variance**
SIZE	8.181	2.390	8.181	2.390
MTB	2.847	25.930	2.846	25.970
LEVERAGE	0.348	0.039	0.348	0.039
ROA	0.006	0.001	0.006	0.001
ROAVOL	0.015	0.001	0.015	0.001
FREQ	2.942	0.781	2.943	0.781

Panel B: Borrower-level results

VARIABLES	(1) *CAPEX*	(2) *RD*	(3) *TOTAL*
UNCERTAIN X TLA	***-0.001*****	***0.000***	***-0.001*****
	(-2.23)	***(0.73)***	***(-2.06)***
UNCERTAIN	0.001**	-0.000	0.001
	(2.39)	(-1.26)	(0.96)
SIZE	-0.002***	-0.000**	-0.002***
	(-3.56)	(-1.98)	(-4.03)
MTB	0.000	0.000	0.000**
	(1.42)	(1.56)	(2.00)
LEVERAGE	-0.005***	0.000	-0.005**
	(-2.87)	(0.23)	(-2.58)
ROA	0.011***	0.001	0.013**
	(2.71)	(0.32)	(2.27)
ROAVOL	-0.034***	0.002	-0.033***
	(-3.43)	(0.45)	(-3.04)
CONSTANT	0.028***	0.006***	0.035***
	(6.67)	(3.38)	(7.37)
Observations	15,268	15,268	15,268
R-squared	0.7134	0.7167	0.6901
Firm FE	YES	YES	YES
Year-Fiscal Qtr. FE	YES	YES	YES

Table 11: Validation

Panel A provides the results for two event studies – FASB's announcement regarding CECL standard in June 2016 and Fed/OCC clarification in December 2018. The results show cumulative abnormal returns (CAR) for two events for both exclusive TLA lenders and other lenders and their difference. Panel B shows the differences-in-differences between textual measures of uncertainty for lenders with exclusive TLAs and other lenders in the uncertainty period (July 2016 to December 2018) relative to the post-resolution period (January 2019 to December 2019). The regression specification includes lender fixed effects, as well as year-month fixed effects. All variable definitions are available in Appendix A. Significance levels: *(p<0.10), **(p<0.05), ***(p<0.01).

Panel A: Market Reaction

Event Study-3 day Cumulative abnormal return [0,2]							
Event Date	**Description**	**Predicted Sign**	**Exclusive TLAs**		**Other Lenders**		
			N	**CAR**	**N**	**CAR**	**Difference**
June 16, 2016	FASB issued standard ASU 2016-13 and introduced the current expected credit losses (CECL) methodology	-	40	-0.851**	18	-0.058	(0.792)**
December 21, 2018	Office of the Comptroller of the Currency (OCC), the Board of Governors of the Federal Reserve System (Board), and the Federal Deposit Insurance Corporation (FDIC) issued final rules to help banks implement CECL	+	38	2.483***	17	2.013**	-0.470

Panel B: Textual Analysis

VARIABLES	*(1)* *UNC1*	*(2)* *UNC2*
UNCERTAIN X TLA	***0.484****	***0.006****
	(1.89)	***(1.88)***
Observations	113	136
R-squared	0.833	0.678
Lender FE	YES	YES
Year-Month FE	YES	YES