Economic Policy Uncertainty and Bank Liquidity Creation

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Abstract

We investigate an important channel through which economic policy uncertainty (EPU) affects the economy – bank liquidity creation. Using over one million U.S. bank-quarter observations from 1985:Q2 to 2016:Q4, we find EPU decreases asset-side and off-balance sheet-side bank liquidity creation, but increases liability-side liquidity creation by a lesser amount, yielding reduced total liquidity creation. Thus, EPU likely harms the economy as it hampers banks' abilities to perform their key function of intermediating liquid funds for productive purposes. Results hold across bank size classes, but are weaker during financial crises, possibly because of favorable government treatment during crises shielding them from uncertainty.

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> "Lending growth has recently been slowing in the US...uncertainty is causing companies and banks to put off big decisions until the outlook for trade and tax policy is clearer."
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> *Bank Lending Signals Caution* by Aaron Back, *WSJ*, Feb. 26, 2017

1. Introduction

As illustrated by the quote above, uncertainty about economic policy can have significant negative consequences for the economy. Such uncertainty is likely to lead firms to invest less and hire fewer employees and cause households to purchase fewer homes and consumer durables. Economic policy uncertainty (EPU) may also result in financial institutions reducing their risks by supplying fewer financial services to both firms and households, exacerbating the first two channels through which the uncertainty may harm the economy.

These channels are illustrated in Figure 1. On the left, EPU (illustrated by the fighting symbols of the U.S. Democratic and Republican Parties) adversely affects firms (illustrated by the factory), households (illustrated by the house), and banks (illustrated by the bank). Arrows show the directions of causation. We acknowledge the importance of other financial institutions and markets, but exclude them for simplicity. The firms cut back investment and hiring and the households make fewer large purchases, harming the economy (illustrated by the soup lines on the right). The banks reduce their supplies of financial services to both firms and households, resulting in these agents reducing their spending more, further damaging the economy. Bank output is also further reduced by EPU indirectly through reduced demands for financial services from the banks by the firms and households.

A growing research literature using new measures of economic policy uncertainty (EPU) by Baker, Bloom, and Davis (BBD, 2016) focuses on the first channel (i.e., through firm behavior) and finds that EPU indeed negatively affects corporate behavior. Gulen and Ion (2016) find that U.S. corporate investment declines for an extended period following an increase in EPU. EPU is also found to reduce venture capital investment (Tian and Ye (2017)), hinder merger and acquisition (M&A) activities (Bonaime, Gulen, and Ion (2017), Nguyen and Phan (2017)), increase risk premiums on stocks (Pastor and Veronesi (2013)), and

raise corporate debt financing costs (Waisman, Ye, and Zhu (2015)).[1] Although it is not always acknowledged, part of the measured effects of the first channel in the literature may also reflect the indirect effects on firm behavior of any reduced supply of banking services. Research using other measures of political and policy uncertainty similarly find negative economic consequences (Barro (1991), Julio and Yook (2012), Bhattacharya, Hsu, Tian, and Xu (2017), Jens (2017)).[2]

This paper examines another potentially important channel through which EPU may affect the economy – altering the amount of liquidity created by banks – using bank liquidity creation measures developed by Berger and Bouwman (2009). These measures are often used in the empirical literature (e.g., DeYoung and Huang (2016), Berger and Bouwman (2017), Berger and Sedunov (2017), Diaz and Huang (2017), Fungáčová, Weill, and Zhou (2017), Jiang, Levine, and Lin (2017)). The theoretical literature also focuses on bank liquidity creation. Liquidity creation is also acknowledged by the theoretical literature as a key function of banks – accomplished by issuing liquid deposits to fund loans, providing loan commitments and other off-balance sheet guarantees and derivatives, and other bank activities that supply the nonbank public with liquidity (Diamond and Dybvig (1983), Holmstrom and Tirole (1998), Kashyap, Rajan, and Stein (2002)).[3] Bank liquidity creation has numerous positive economic effects. These include, but are not limited to: 1) delivering credit to informationally opaque borrowers without capital market opportunities (Levine and Zervos (1998)), 2) providing depositors with liquid funds and payment services that are essential to keep the economy functioning (Kashyap, Rajan, and Stein (2002)), 3) supplying loan commitments that allow customers to plan their investments (Boot, Greenbaum, and Thakor (1993)), and 4) making available derivative contracts like interest rate swaps that allow counterparties to hedge their financial risks (Stulz (2003)). Bank liquidity creation is also shown empirically to have a stronger positive effect on economic growth than other measures of bank output (Berger and Sedunov (2017)).[4] As

[1] Waisman, Ye, and Zhu (2015) focus on election uncertainty, but also use BBD's composite EPU measure in a robustness check and find that it increases debt financing costs.

[2] See Bloom (2014) for a general review of the economic effects of uncertainty.

[3] Financial intermediation theory suggests that in addition to the liquidity creation function, banks provide a risk transformation function by transforming risky loans into riskless deposits. However, as discussed in Berger and Bouwman (2009) and Berger and Sedunov (2017), the two functions often coincide. Since there is no comprehensive measure of risk transformation and the two concepts are closely related, liquidity creation may be the best available measure of overall bank output.

[4] However, when bank liquidity creation becomes excessive, it is also found to have a dark side for the economy,

illustrated in Figure 1, reduced supply of banking services measured by bank liquidity creation may adversely affect the economy through reducing the spending of both firms and households.

To our knowledge, there is no extant research on the effects of EPU on bank liquidity creation.[5] One paper finds a negative effect of EPU on bank lending, part of the asset-side component of liquidity creation (Bordo, Duca, and Koch (2016)). In contrast, we examine the effects of EPU on total bank liquidity creation, which is much more comprehensive, as well as on its asset-side, liability-side, and off-balance sheet-side components. Each of these components affects the economy, and each may be differently affected by EPU. The asset-side component of liquidity creation accounts not just for loans, but also differentiates among the types of loans by their liquidity, and takes into account cash and securities holdings, which decrease liquidity for the public. The asset side is also the smallest of the three components of bank liquidity creation. As discussed below, the asset-side, liability-side, and off-balance sheet-side components are hypothesized to have different potential responses to EPU, and the data are consistent with these expected distinctive effects. We also consider several EPU measures, including a BBD's composite measure, as well as its news, government, consumer price, and tax elements.

Examination of the U.S. banking industry has advantages of accessing very detailed regulatory data on a large number of commercial banks over a long period of time. Our analysis includes virtually all U.S. commercial banks quarterly for over 30 years from 1985:Q2 to 2016:Q4, for a total of over 17,000 different banks and over 1 million bank-quarter observations in the regressions. Focusing on one industry also avoids difficulties of confounding differences across industries that plague interindustry studies.

By way of preview, we find that EPU results in statistically and economically significantly decreased total bank liquidity creation. EPU also reduces asset-side and off-balance sheet-side liquidity creation, while it increases liability-side liquidity creation, as depositors seek the safe haven of bank deposits when times are uncertain. These findings hold across bank size classes and are robust to the use of an instrumental variable estimation to address endogeneity. They also hold for banks with both high and

because it is associated with an elevated probability of an impending financial crisis (Acharya and Naqvi (2012), Berger and Bouwman (2017)).

[5] There is a substantial literature on other determinants of bank liquidity creation; see Berger and Bouwman (2016) for a review.

low equity capital ratios, pre- and post-Basel III liquidity requirements, and for banks in markets with both favorable and unfavorable economic conditions, although the effects are stronger when economic conditions are unfavorable. In addition, our findings suggest that the EPU effects on liquidity creation are weaker during financial crises relative to normal times, possibly reflecting that banks may receive favorable government treatment during these crises that shields them from uncertainty. Our evidence of weaker effects of EPU for banks that received Troubled Asset Relief Program (TARP) bailouts supports this conjecture. As discussed in the conclusions below, these findings have important policy implications and raise additional research questions for future research.

The remainder of the paper is organized as follows. Section 2 briefly discusses the key EPU and bank liquidity creation measures, and Section 3 develops our hypotheses about the relations between these two sets of measures. Section 4 describes the dataset and gives summary statistics on the variables employed. Section 5 reports our regression methodology and results, and Section 6 presents conclusions, policy implications, and topics for future research.

2. Economic policy uncertainty and bank liquidity creation measures

Table 1 Panel A briefly describes all of variables used in the analysis, but we focus in this section only on our main variables of interest. Our key explanatory variables are measures of EPU, which are obtained from BBD's website (http://www.policyuncertainty.com/). The measures are based on textual analysis of newspaper articles and compilation of policy uncertainty related to government spending, inflation risk, and tax code expiration.[6] The newspaper element (*EPU(News)*) is based on textual analysis of ten large newspapers.[7] BBD count the number of news articles containing a combination of terms related to EPU. These terms are "economic" or "economy"; "uncertain" or "uncertainty"; and one or more of "congress," "deficit," "Federal Reserve," "legislation," "regulation," or "White House." For example, an article mentioning "economy," "uncertain," and "Federal Reserve" would be included in the count. This is

[6] Although this approach to measuring policy uncertainty is intuitively appealing and captures policy-related economic uncertainty, we acknowledge the potential drawback that these widely used measures are two-sided, treating uncertainty to the upside the same as to the downside.

[7] These are USA Today, Miami Herald, Chicago Tribune, Washington Post, Los Angeles Times, Boston Globe, San Francisco Chronicle, Dallas Morning News, Houston Chronicle, and Wall Street Journal.

scaled by the total number of articles published by each newspaper. The fraction of EPU-related articles for each newspaper is further scaled to have a unit variance. The normalized fractions are summed across the ten newspapers. The final index is then adjusted to have a mean of 100 from 1985 to 2009.[8]

Other EPU elements are related to specific policy categories. The measure related to federal and state/local government spending (*EPU(Govt.)*) is the scaled interquartile range of four-quarter-ahead purchases by federal and state/local government. Inflation-related policy uncertainty (*EPU(CPI)*) is based on the interquartile range of four-quarter-ahead inflation risk compiled by the Federal Reserve Bank of Philadelphia. The tax measure draws on temporary federal tax code provisions (*EPU(Tax)*). It is a weighted sum of the total dollar amount of future federal tax code provisions with higher weights assigned to expiring tax codes in the near future. The composite measure (*EPU(Composite)*) is the weighted sum of the other measures with a weight of 1/2 for *EPU(News)*, and weights of 1/6 for each of the other measures, *EPU(Govt.)*, *EPU(CPI)*, and *EPU(Tax)*. We examine the composite measure as well as each of the four individual elements, which sometimes yield different results.[9] The EPU measures constructed by BBD have a monthly frequency. We follow Gulen and Ion (2016) and take the natural log of the arithmetic average of the BBD indices over the three months of the quarter.

Our bank liquidity creation measures are created by Berger and Bouwman (2009), and are taken from Christa Bouwman's website (https://sites.google.com/a/tamu.edu/bouwman/data).[10] These authors classify all on- and off-balance sheet activities into liquid, semiliquid, and illiquid items. Illiquid assets (e.g., commercial loans) and liquid liabilities (e.g., transactions deposits) are assigned a weight of 1/2. Thus, transforming $1 of commercial loans into $1 of transactions deposits creates $1 of liquidity for the public. Liquid assets (e.g., cash and due from other institutions, securities) and illiquid liabilities (e.g., subordinated

[8] To validate their computer-generated index, BBD provide several types of checks, including an extensive human audit of newspaper articles.

[9] BBD show that their news-based index exhibits considerable time-series variation, spikes during events that increase policy-related uncertainty (e.g., Gulf wars, the Lehman Brothers bankruptcy and TARP legislation in late 2008, the 2011 debt-ceiling dispute, tight presidential elections), and correlate with other measures of economic uncertainty such as the Chicago Board Options Exchange Volatility Index. The BBD indexes are carried by commercial data providers, such as Bloomberg and Reuters, and are often quoted in the Wall Street Journal, Financial Times, and Forbes.

[10] The dataset provides detailed liquidity creation information for banks, but does not cover other financial institutions or markets.

debt) and equity are assigned a weight of -1/2, so that taking $1 of liquid securities from the public and giving the public $1 of subordinated debt that cannot be easily liquidated is counted as destroying $1 of liquidity. All semi-liquid assets and liabilities (e.g., residential real estate loans, time deposits) are assigned a weight of zero. Off-balance sheet guarantees and derivatives are weighted consistently with the treatments of functionally similar on-balance sheet items. For example, loan commitments are assigned a weight of 1/2 because they provide access to liquid funds almost as easily as transactions deposits. We employ weighted sums of the individual items into asset-side, liability-side, and off-balance sheet-side liquidity creation, *LC(asset), LC(liab), and LC(off),* respectively, as well as the overall sum, *LC(total),* all taken from the website.[11]

The availability of the different bank liquidity creation components allows us to create and test different hypotheses. As is standard procedure in the bank liquidity creation literature, these measures are all normalized by gross total assets (*GTA*) to obtain measures that are comparable across banks, rather than being dominated by the largest institutions.[12] The dollar values are also adjusted to real 2016 values using the implicit GDP price deflator to allow for comparability over time.

3. Hypothesis development

We propose several hypotheses regarding the effects of EPU on bank liquidity creation. As discussed above, our empirical analysis examines the effects of EPU on the three main components of bank liquidity creation – asset-side, liability-side, and off-balance sheet-side – as well as total bank liquidity creation, and we have hypotheses for each.

As discussed in the introduction, banks likely to try to reduce their risk exposure in reaction to EPU by cutting back their supplies of commercial and consumer credit, both of which carry substantial credit risk. Banks may also shift into safer investments like government securities. All of these actions reduce the

[11] Liability-side liquidity creation includes equity as well as liabilities.

[12] Gross total assets (GTA) equals total assets (TA) plus the allocation for loan and lease losses (ALLL) and an accounting item for expected losses, and the allocated transfer risk reserve (ATRR), a reserve for certain troubled foreign loans for which there has been a protracted inability by the borrowers to make payments. GTA is a superior measure of bank size to TA because it includes all the assets that must be financed, and is also more appropriate here because it incorporates all the assets that are included in the bank liquidity creation measures.

supply of asset-side liquidity creation. There may also be reductions in the demand for bank liquidity creation on the asset side in reaction to EPU because firms and households wish to spend less, lessening their demands for bank loans. Thus, EPU is likely to reduce both demand for and supply of asset-side bank liquidity creation, yielding the following hypothesis:

Hypothesis 1: *EPU decreases asset-side bank liquidity creation, ceteris paribus.*

Turning to the liability side, the supply of deposits by the public into banks generally increases at times of high uncertainty because deposits serve as safe havens (Beber, Brandt, Kavajecz (2006), Gatev and Strahan (2006)). Explicit deposit insurance and implicit government guarantees make bank deposits especially attractive in times of high uncertainty (Pennacchi (2006)). Any deposit supply reactions by the banks are likely small relative to changes in demand, as bank deposit interest rates are generally sticky (Hannan and Berger (1991)). Given that deposits constitute the lion's share of liability-side bank liquidity creation, these observations yield the following hypothesis:

Hypothesis 2*: EPU increases liability-side bank liquidity creation, ceteris paribus.*

Off-balance sheet-side liquidity creation accounts for about half of all U.S. bank liquidity creation (Berger and Bouwman (2016)). Most of this is in the form of loan commitments, so we focus our discussion on this off-balance sheet activity. All of the arguments above about decreased supply and demand for bank credit in the face of higher EPU apply to loan commitments as well as loans. Additional arguments imply reduced loan commitments during uncertain times as well. Banks may more strictly enforce material adverse change clauses that revoke the commitments under more uncertain conditions, reducing the supply of off-balance sheet liquidity creation (Thakor (2005)). Borrowers may also draw down their commitments more frequently if they are uncertain about whether their banks will honor these commitments either because they fear such revocations or because they worry that banks may be financially unable to honor their commitments during these times (Ivanshina and Scharfstein (2010)). These arguments yield the following hypothesis:

Hypothesis 3: *EPU decreases off-balance sheet-side bank liquidity creation, ceteris paribus.*

The net effect of EPU on total bank liquidity creation is the sum of the asset-, liability-, and off-balance sheet-side bank liquidity creation effects. The prediction is ambiguous and depends on the whether the negative effects on asset- and off-balance sheet-side liquidity creation are more than or less than offset by the positive effects on liability-side liquidity creation, yielding the following opposing hypotheses:

Hypothesis 4a: *EPU decreases total bank liquidity creation, ceteris paribus.*

Hypothesis 4b: *EPU increases total bank liquidity creation, ceteris paribus.*

4. Data on other variables and descriptive statistics on all variables

Our key explanatory EPU variables and our dependent bank liquidity creation variables are discussed in Section 2. Here, we briefly discuss the control variables, an instrumental variable for EPU, and some additional variables used in robustness checks. We also present descriptive statistics on all our variables.

We include controls for bank characteristics to account for other bank supply effects and controls for local market economic circumstances to account for demand effects. We obtain bank-specific variables such as asset size and equity ratio from Bank Call Reports. Data for bank deposit amount per branch is from the Summary of Deposits by FDIC (from 1994 to 2016) and Christa Bouwman's website (from 1985 until 1993). Population is taken from the Federal Reserve Bank of St. Louis. Economic conditions of potential customers, *Tobin's Q and Cash flows*, are computed for Computstat firms in the banks' states to control for the demand for banking services. Stock market return volatility is calculated as the standard deviation of daily value-weighted market returns from the Wharton Research Data Service (WRDS) over the calendar-quarter period *t*. As an instrument for EPU, we follow Gulen and Ion (2016) and use the U.S. Senate polarization index, a measure of partisan polarization tracking legislators' ideological positions based on McCarty, Poole, and Rosenthal (1997). Finally, we include two alternative measures of bank liquidity creation and a measure of loan demand in robustness checks.

Table 1 Panel B reports summary statistics for the sample of 1,022,644 bank-quarter observations from 1985:Q2 through 2016:Q4. Total bank liquidity creation (*LC(total)/GTA*) has a mean value of 0.230, suggesting that banks create liquidity of 23% of the total gross assets (GTA) on average. There is a wide

dispersion of liquidity creation across banks. The standard deviation of *LC (total)/GTA* is 0.184, with the 25th and 75th percentile values at 0.101 and 0.358, respectively. Asset-side liquidity creation, *LC (asset)/GTA*, has a mean value of 0.009 with the 25th and 75th percentile values at -0.092 and 0.111, respectively. The low mean of *LC(asset)/GTA* is because most banks hold many liquid assets (e.g., cash due from other institutions, securities) with negative weights relative to illiquid assets (e.g., commercial loans) with positive weights.[13] The negative value at the bottom quartile of *LC(asset)/GTA* implies that some banks actually net destroyed liquidity on the asset side. The mean value of liability-side liquidity creation (*LC(liab)/GTA*) is 0.177, much greater than the asset-side component because most banks have many more liquid deposits than illiquid loans. The mean value of liquidity creation off the balance sheet (*LC(off)/GTA*) is 0.043, greater than the average value of asset-side liquidity creation, but much less than liability-side liquidity creation. As noted above, for the banking industry as a whole, off-balance sheet liquidity creation constitutes about half of all liquidity created, but the mean is only about one-fifth of mean *LC(total)/GTA* because the sample is dominated by small banks that typically have relatively few off-balance sheet activities. We analyze banks by size class separately below and find that the main results hold for all size classes.

The composite EPU measure, (*EPU(Composite*), has a mean of 4.642 and standard deviation of 0.247. The news-based element (*EPU(News*)) has a mean value of 4.631. EPU related to government spending (*EPU(Govt.)*), inflation risk (*EPU(CPI)*), and tax code expiration (*EPU (TAX)*) have mean values of 4.560, 4.572, and 3.760, respectively.

For the bank variables, the average size of banks (*GTA*, real 2016 values in $1000s) is $1.133 billion. The distribution of bank size is highly right-skewed with the median value of *GTA* of $116 million. Thus, most banks are quite small, but sizes range up to over $2 trillion. The average capital ratio (*Capital ratio*) is 0.070. The average Herfindahl-Hirschman index (*HHI*) based on bank deposits is 0.083. The average *Tobin's Q* of firms in states where banks have operations is 2.082, comparable to the average of

[13] For example, JPMorgan Chase holds about as much in securities as loans, presumably reflecting their liquidity needs for trading purposes, unexpected deposit withdrawals or loan commitment takedowns, and/or as well as meeting regulatory liquidity requirements (Berger and Bouwman 2016, p. 21, Table 3.1).

the full CRSP/Compustat universe (e.g., Bertrand and Schoar (2003)). The percentiles of *Cash flows* (25^{th} percentile = 0.000 and 75^{th} percentile = 0.022) suggest that *Cash flows* has a wide dispersion across companies in different states where banks are operating. Not surprisingly, about one quarter of our sample covers U.S. presidential election years, which occur every four years. The average standard deviation of aggregate stock market returns is 0.009. Our instrument for EPU, *Senate Polarization*, has a mean (median) value of 0.717 (0.732). The means of the two alternative normalized total liquidity creation measures (discussed below) are 0.199 and 0.294, close to the mean of *LC(total)/GTA*. The mean of *Loan Demand* (also discussed below) is a very low 0.001, suggesting that on average, the percentage of banks reporting increases in net commercial and industrial loan demand over time is approximately offset by those reporting net decreases.

Table 1 Panel C provides summary statistics of bank liquidity creation dependent variables by bank size class (the EPU measures have only a time dimension and so have essentially no variation by bank size). Following Kashyap and Stein (2000), we categorize banks into small, medium, and large banks based the 95^{th} and 99^{th} percentile cutoff values of the gross total asset (GTA). The 95^{th} and 99^{th} percentile values of GTA correspond to $1.3 billion and $11.0 billion, respectively. The small size class roughly corresponds to the usual research definition of community banks as those with up to $1 billion in assets (DeYoung, Hunter, and Udell (2004); Berger, Bouwman, and Kim (forthcoming)). The size cutoff between the medium and large banks is close to the alternative upper limit used by some for community banks of up to $10 billion in assets. Large banks create about twice as much total liquidity per dollar of assets (*LC(total)/GTA*) as small banks, with roughly half of the difference due to *LC(off)/GTA* alone. Mean *LC(off)/GTA* increases in bank size class, but still accounts for less than one-fourth of mean *LC(total)/GTA* for large banks, despite the fact noted above that *LC(off)* accounts for about half of *LC(total)* for the industry. The reason is that the means for large banks are dominated by the smallest large banks. As shown in Berger and Bouwman (2016, p. 139, Table 11.2, Panel B1), some large banks have *LC(off)* that exceed their *GTA*.

Figure 2 shows the temporal patterns of the liquidity creation ratios for the nation as a whole as well as *EPU(Composite)* over our sample period from 1985:Q2 to 2016:Q4. The figure shows *LC(total)/GTA* as the sum of liquidity creation for the banking industry at each point in time divided by the sum of *GTA* for

the industry at that time, and similarly for the components. They represent the industry, rather than the averages of the ratios, which would be dominated by the small banks. Off-balance sheet-side is the largest component of liquidity creation, although liability-side essentially pulled even with it in recent years. Asset-side is the smallest, and actually went negative for part of the sample when illiquid commercial loans were significantly outpaced by liquid assets, such as cash and securities. During the recent financial crisis and thereafter, the total liquidity creation ratio and the asset-side and off-balance sheet-side ratios declined, while the liability-side ratio increased as deposits became an attractive safe haven for investors. The data show that *EPU(Composite)* generally declined over time, shot up during the recent financial crisis, and stayed high for a time while policymakers figured out their responses. These aggregate data also appear to suggest that the total, asset-side, and off-balance sheet-side bank liquidity creation ratios are negatively related with *EPU(Composite)*, while the liability-side ratio is positively related with the uncertainty index, but we turn next to the correlations for confirmation.

Table 1 Panel D presents correlations of the key variables. The composite policy uncertainty (*EPU(Composite*)) is negatively related to total liquidity creation (*LC(total)/GTA*), asset-side liquidity creation (*LC(asset)/GTA*) and off-balance sheet-side liquidity creation (*LC(off)/GTA*), but is positively correlated with liability-side liquidity creation (*LC(liab)/GTA*), all significant at the 1% level. Most of the EPU elements tell similar stories. These findings are consistent with ***Hypotheses 1***, ***2***, ***3***, and ***4a***, although the *ceteris paribus* parts of the hypotheses are not enforced because no control variables are included. We next turn to our multivariate regression setting which includes these controls.

5. Regression methodology and results

This section first describes our methodology. We then present our tests of *Hypotheses 4a and 4b* about the effects of EPU on overall bank liquidity creation, followed by tests of *Hypotheses 1–3* about the components of liquidity creation. Finally, we check our results by size class, for financial crises versus normal times, and using an instrumental variable approach.

5.1 Regression methodology

We estimate regressions of the form:

$$LC/GTA_{i,t} = \beta\ EPU_{t-1} + \delta' X_{i,t-1} + \theta' W_{i,t-1} + \gamma' Z_{t-1} + \alpha_i + q_t + \epsilon_{i,t}, \quad (1)$$

where *i* indexes a bank, and *t* indicates a calendar quarter. The dependent variable is one of the normalized liquidity creation measures, *LC(total)/GTA, LC(asset)/GTA, LC(liab)/GTA, or LC(off)/GTA*, and the key independent variable is one of the EPU variables, *EPU(Composite*), *EPU(News), EPU(Govt.), EPU(CPI),* or *EPU(Tax)*. We lag the independent variables to mitigate potential reverse-causality concerns. We include a very strong set of controls to isolate the effects of *EPU.* Our bank controls (*X*) include *Ln(GTA), sqr. Ln(GTA),* and *Capital ratio.* Local market controls (*W*) are *HHI, Population, Tobin's Q,* and *Cash flows.* Finally, our controls for political, financial market, and general economic uncertainty (*Z*) include *Election year*, *SD (stock ret.),* and *GDP dispersion*. We include bank fixed effects (α) to control for omitted bank characteristics that are invariant over time, and quarter dummies (q) to account for seasonality. We cluster standard errors by bank and year-quarter to account for serial and cross-sectional correlations of error terms.

5.2 The effects of EPU on bank total liquidity creation

Table 2 presents regressions of bank total liquidity creation (*LC(total)/GTA*) on the EPU measures. The coefficient on *EPU(Composite)* is negative and statistically significant at the 1% level (coeff. = -0.034, *t*-statistic = -5.46). Given that *EPU(Composite)* is in natural log form and its standard deviation is 0.247, a one-standard-deviation increase in *EPU(Composite)* leads to a 3.65% decrease in bank liquidity creation compared to its average value.

In columns 2 - 5 of Table 2, we replace the independent variable *EPU(Composite)* with one of its four elements: *EPU(News)*, *EPU(Govt.)*, *EPU(CPI),* and *EPU(Tax)*. The coefficient estimates on the first three elements are negative and statistically significant at the 1% level. One-standard-deviation increases in *EPU(News)*, *EPU(Govt.)*, and *EPU(CPI)* are estimated to result in 2.1%, 7.8%, and 3.7%, respectively, reductions in bank liquidity creation.

In contrast, the uncertainty from tax code expiration (*EPU(Tax)*) is positively related to overall liquidity creation. There are at least two possible demand-related explanations for this result, and at least

one supply-related reason.[14] On the demand side, investors may shift into bank deposits, increasing liability-side bank liquidity creation, when tax-related policy uncertainty is high to have liquid funds available to pay any unexpected taxes. Another possible demand-related explanation is uncertainty regarding tax code expiration increases asset-side and off-balance sheet-side bank liquidity creation as more firms apply for commercial loans and loan commitments before any preferential tax code expires. On the supply side, banks are more highly levered, and thus tax-advantaged relative to their shadow-banking competitors.[15] They may therefore be better positioned to generate liquidity than others when tax-related policy uncertainty is high.

In column 6 of Table 2, we include all the EPU elements in the same regression. The coefficient estimates on all EPU elements are of the same sign and similar magnitudes as in columns 2-5. Only the news-based measure loses statistical significance, which may reflect multicollinearity or that *EPU(News)* partially reflects changes in policy uncertainty related to other EPU elements. As shown in Table 1 Panel D above, *EPU(News)* is statistically significantly positively correlated with the three other EPU elements, and the correlations with *EPU(Govt.)* and *EPU(Tax)* are very high, 0.272 and 0.321, respectively.

Coefficients on the controls are generally consistent with expectations. Large banks create more liquidity per dollar of assets (Berger and Bouwman (2009)). Well-capitalized banks create more liquidity, consistent with some, but not all of the bank liquidity creation literature. High competition (inversely measured by *HHI*) reduces bank liquidity creation, consistent with Jiang, Levine, and Lin (2017). Banks in U.S. states with high *Tobin's Q* ratio create more liquidity, consistent with more demand for liquidity in these states. Banks in states with firms with high cash flows create less liquidity, consistent with low liquidity demand in those states. Political uncertainty (proxied by *Election year*) has essentially no effect after including EPU elements in the regressions, and financial market uncertainty has a counterintuitive positive effect of bank liquidity creation. High uncertainty about future economic growth (proxied by *GDP*

[14] Our analysis does not allow to distinguish between demand and supply effects.

[15] Shadow banks are usually thought of as financial institutions that do not issue insured deposits, but provide financial services that compete with commercial banks.

dispersion) is associated with less liquidity creation. In the interest of brevity, we suppress tabulation of the coefficients of the controls in subsequent tables, although they are included in all the regressions.

Taken together, the estimation results in Table 2 support ***Hypothesis 4a***.

5.3 The effects of EPU on components of the bank liquidity creation

Table 3 Panels A, B, and C present estimates from regressions of *LC(asset)/GTA*, *LC(liab)/GTA*, and *LC(off)/GTA*, respectively, on the EPU measures. In Panel A column 1, the estimated coefficient on *EPU(Composite)* is -0.040 (*t-statistic*= -6.40), suggesting that a one-standard-deviation increase in uncertainty is associated with a 4.3% decrease in the asset-side liquidity creation. In the other columns, coefficients estimates on *EPU(News)* and *EPU(Govt.)* are also negative and statistically significant at the 1% level. The insignificant coefficient estimate on *EPU(CPI)* suggests that asset-side liquidity creation is not affected much by inflation-related policy uncertainty. The estimated coefficient on *EPU(Tax)* is 0.007 (*t-statistic*=5.10), suggesting policy uncertainty from tax code expiration increases asset-side liquidity creation, which is consistent with the increases in demand for and supply of bank liquidity creation discussed above. The results from Table 3 Panel A support ***Hypothesis 1***.

In Table 3 Panel B, the estimated effect of *EPU(Composite)* on *LC(liab)/GTA* is 0.029 (*t-statistic*=5.69) suggesting that an increase in EPU leads to an increase in liability-side bank liquidity creation, consistent with increases in demand for deposits in response to more uncertainty. Significant estimated coefficients on *EPU(News)* and *EPU(Govt.)* are 0.032 (*t-statistic*=5.81) and 0.012 (*t-statistic*=3.88), respectively, consistent with the same argument. Interestingly, the coefficient on *EPU(CPI)* is negative, although not significant, consistent with the possibility that firms and household may prefer hedging against inflation with investments with higher expected returns than deposits. In column 5, the positive coefficient on *EPU(Tax)* is consistent with the arguments above about demand for more liquid funds to pay taxes by the public and supply of liquidity by tax-advantaged banks. The results from Panel B support ***Hypothesis 2***.

In Table 3 Panel C, the estimates from regressions of *LC(off)/GTA* on *EPU(Composite)* and all its elements are negative and statistically significant, except for *EPU(Tax)*, which is insignificant. These

results are consistent with arguments above that both demand and supply of loan commitments decline in reaction to EPU, and support ***Hypothesis 3***.

Overall, the combined negative effects of EPU on asset-side and off-balance sheet-side bank liquidity creation more than offset the positive effects on liability-side liquidity creation. Thus, the data are consistent with ***Hypotheses 1***, ***2***, ***3***, and ***4a***.

5.4 The effects of EPU on bank liquidity creation by bank size class

Prior research suggests that the effects of bank capital on liquidity creation vary by size class (Berger and Bouwman (2009)). Here, we explore whether the effects of EPU differ by size class.

Table 4 Panel A shows the effects of *EPU(Composite)* on *LC(total)/GTA* and the three liquidity creation components by bank size class. All coefficients are statistically significant at the 1% level and of the same signs as in our main results. Columns 1–3 show the effects of *EPU(Composite)* on *LC(total)/GTA* are negative and are much greater in magnitude (i.e., more negative) for medium and large banks. Columns 4-6 show that the effects of *EPU(Composite)* on *LC(asset)/GTA* are negative and similar in magnitude across size classes. The remaining columns suggest that larger banks appear to react more to uncertainty in terms of liability-side and off-balance sheet-side liquidity creation than small banks, and medium banks also have more reaction for off-balance sheet liquidity creation than small banks.[16] The results in Table 4 Panel A continue to support ***Hypotheses 1***, ***2***, ***3***, and ***4a*** for all size classes.

The results for *EPU(News)*, *EPU(Govt.)*, *EPU(CPI) and EPU(Tax)* are reported in Panels B – E. The results for *EPU(News)* and *EPU(Govt.)* similarly show all coefficients have the same sign and significance across size classes. The impact of *EPU(CPI)* again shows negative, statistically significant effects for *LC(total)/GTA* and *LC(off)/GTA* for all bank sizes, and has insignificant effects across size classes for *(LC(asset)/GTA)* and *LC(liab)/GTA*. The effects of *EPU(Tax)* are the only ones with statistically significant coefficients of opposing signs across size classes. The effects of *EPU(tax)* on (*LC(total)/GTA*)

[16] Regarding the impact of *EPU(Composite)* on *LC(off)/GTA*, the coefficient estimates on *EPU(Composite)* for large and medium banks are not statistically different (*t*-statistic=1.15).

is positive and significant for small banks and negative and significant for large banks, driven by mostly by the effects on (*LC(asset)/GTA*).

Our size class results in Table 4 overall support ***Hypotheses 1***, ***2***, ***3***, and ***4a*** for all size classes, with some minor variations for *EPU(CPI) and EPU(Tax)*. Our findings of consistent results across size classes are robust to a different size class grouping, categorizing banks into five size classes based on a $10 billion-cutoff for large banks and quartile values for the smaller banks (not shown, but available on request).

5.5 The effects of EPU on bank liquidity creation by bank capital, Pre- and Post-Basel III, and by market economic conditions

Table 5 examines the effects of *EPU(Composite)* on *LC(total)/GTA* by bank capital, Pre- and Post-Basel III, and by market economic conditions. Columns (1) and (2) report coefficients estimates from regressions of *LC(total)/GTA* on *EPU(Composite)* and other controls for safe and risky banks, based on being above or below the median capital ratio. The results are almost identical for the two groups of banks, suggesting that the effects of EPU are robust to differences in bank financial health. Columns (3) and (4) present regression coefficients for the Pre-Basel III period through 2013 when the Basel Committee announced the new liquidity requirements, and the Post-Basel period after 2013, respectively. The new Liquidity Coverage Ratio (LCR) and Net Stable Funding Ratio (NSFR) liquidity ratios were not implemented immediately, but we allow for the possibility that our results might be driven by bank movements into compliance with the new liquidity regulations, given that the LCR and NSFR are correlated with our liquidity creation dependent variable (Berger and Bouwman (2016, p. 63, Figure 6.1)). The coefficient on *EPU(Composite)* is negative and statistically and economically significant for both time periods, and actually decreases in the Post-Basel III period, suggesting the results are not driven by the Basel III liquidity requirements. Columns (5) and (6) report regression results for favorable and unfavorable market economic conditions, based on being above or below the median Coincident Index for the bank's state. The results are stronger when the local economy is in relatively unfavorable conditions (i.e., Low Coincident Index), consistent with economic policy uncertainty having greater harm when local conditions are worse.

5.6 The effects of EPU on bank liquidity creation during financial crises and NBER recessions

Many economic relations change over during financial crises and recessions. In Table 6 Panel A, we examine how the effects of *EPU(Composite)* on *LC(total)/GTA* and the three liquidity creation components change during financial crises. We add to each of our regressions a financial crisis dummy (*Fin. Crisis*) and interaction with the EPU term. The interaction term coefficient is an estimate of how the effect differs on average during financial crises. We consider the five financial crises from Berger and Bouwman (2013): the 1987 stock market crash (1987:Q4), the credit crunch (1990:Q1–1992:Q4), the Russian debt crisis and LTCM bailout (1998:Q3–1998:Q4), the dot.com bubble and 9/11 terrorist attacks (2000:Q2–2002:Q3), and the subprime lending crisis (2007:Q3–2009:Q4).

The results in Table 6 Panel A show that all of the interaction term coefficients are of opposing sign to the main EPU coefficients, and are statistically significant for *LC(total)/GTA* and *LC(off)/GTA*. These suggest that at least some of the effects of uncertainty on bank liquidity creation are less during financial crises. While this conclusion may seem surprising, it is consistent with the possibility that banks sometimes receive favorable government treatment during financial crises that shields them from uncertainty, allowing them to create more liquidity or decrease liquidity less than they otherwise would during these times. Examples of this favorable treatment would include the Troubled Asset Relief Program (TARP) bailouts, extraordinary access to Federal Reserve liquidity facilities such as the expanded discount window access and Term Auction Facilities (TAF), and expanded FDIC insurance coverage during the subprime lending crisis. These actions may have boosted confidence in the banks, offsetting some of the effects of the uncertainty.

To examine this conjecture, in Panel B, we replace the *Fin. Crisis* dummy with *TARP*, a dummy which equals one for TARP banks after they receive the funds. For these regressions, we confine the sample to be 2006:Q1-2011:Q4, the period including and surrounding the subprime lending crisis. The results show that EPU had lesser effects on TARP banks during the time they received the bailouts, consistent with the conjecture that government aid helps offset the effects of EPU.

In Panel C, we remove the observations for the subprime lending crisis to determine whether this one crisis is driving the results. The results suggest that the findings of less effects of EPU during crises generally extend to the other financial crises.

In Panel D, we examine whether our financial crisis results merely reflect the effects of recessions that often coincide with financial crises by using a dummy for NBER recessions (NBER *Recession*). The findings suggest that the financial crisis results are not driven by recessions. In fact, the increase in liability-side liquidity creation (*LC(liab.)/GTA*) becomes much stronger during recessions and offsets the reductions in liquidity creation from the other components.

Table 7 presents coefficient estimates from regressions of liquidity creation and its components by bank survival categories to determine if the results may be driven by different subsets of banks that enter and exit the sample. A bank is categorized as *Surviving* if it exists throughout the sample period, as *Exiting* if it existed at the beginning of the sample but subsequently exited, as *Entering banks* if it did not exist at the beginning of the sample, but later joined the sample. All other banks (e.g., ones that entered late and exited early) are categorized as *Other*. The result shows that the impacts of EPU on liquidity creation holds across all survival categories consistent with our ***Hypotheses 1, 2, 3*** and ***4a***.

5.7 Instrumental variable analysis and placebo tests

It is possible that EPU may reflect, to some extent, uncertainties in the banking sector related to liquidity creation. For example, a significant drop in bank liquidity creation due to crisis conditions could create uncertainty among politicians regarding how to handle the crisis. To address concerns that EPU may be endogenous to bank liquidity creation, we follow Gulen and Ion (2016) and implement an instrumental variable approach using the U.S. Senate polarization index of McCarty, Poole, and Rosenthal (1997) as an instrument for *EPU(Composite)*. It is unlikely that U.S. Senate polarization would directly affect bank liquidity creation, satisfying the exclusion restriction. The first stage regression in Table 8 column 1 finds the expected positive and significant effect of Senate polarization on *EPU(Composite)*, suggesting that the

relevance condition of our instrument is satisfied.[17] The final stage regressions are shown in Table 8 columns 2-5, in which we regress the liquidity creation measures on the instrumented *EPU* measure, $\widehat{EPU}(Composite)$, and the control variables. *t*-statistics are based on bootstrapped standard errors to mitigate biases of errors in the estimated independent variables. The coefficients all have the same signs and significance and comparable magnitudes as our main results. Thus, the instrumental variable analysis provides additional support to ***Hypotheses 1***, ***2***, ***3***, and ***4a***.

To address a concern regarding potential spurious correlations between EPU and bank liquidity creation, we perform placebo tests. In Table 9, we replace the true *EPU(Composite)* measure with $\widetilde{EPU}$ *(Composite)* randomly drawn from the sample distribution of *EPU(Composite)*. We estimate regression coefficients with 100 different random samples of $\widetilde{EPU}$*(Composite)* and report the average coefficient estimates on $\widetilde{EPU}$ *(Composite)*. The results show that the $\widetilde{EPU}$ *(Composite)* is neither statistically nor economically significantly related to any components of bank liquidity creation. These placebo tests further support our hypotheses.

Finally, we conduct some untabulated robustness checks to address a variety of potential concerns for our main tests. To rule out the possibility that our liquidity creation measures are biased by takedown and securitization level of banks, we repeat our analysis with takedown- and securitization-adjusted liquidity creation measures as alternative dependent variables. The takedown-adjusted liquidity creation measure assigns an observed fraction of drawdowns (0.3) to the illiquid off-balance sheet guarantees. Securitization-adjusted liquidity creation measure reflects an observed fraction of securitized assets when classifying residential and real estate loans into semiliquid and illiquid assets. The fraction of securitization is based on annual U.S. Flow of Funds data on the total amount of outstanding residential loans and the loans securitized.[18] The coefficient estimates on the *EPU(Composite)* are still negative and statistically significant. To address a concern that our baseline model does not allow for persistence of bank liquidity creation over time, we augment our baseline model with a lagged dependent variable as an additional

[17] In our first-stage regression, the *F*-statistic for the instrumental variable is 28.68, which is well above the weak instrument criteria (Stock and Yogo (2005)).

[18] For example, in 1993, the fraction of securitized residential and real estate loans was 48.4%. For more information, refer to section 6 of Berger and Bouwman (2009).

independent variable. Our main results still hold. To rule out the alternative explanation that the policy uncertainty affects bank liquidity creation only through the credit demand channel, we add a proxy for credit demand as an additional control in our baseline regression. As the proxy for credit demand, we use the net percentage of domestic banks reporting stronger demand for commercial and industrial loans from large and middle-market firms reported by the Board of Governors of the Federal Reserve System's Senior Loan Officer Opinion Survey on Bank Lending Practices. The coefficient on *EPU(Composite)* is still negative and statistically significant at the 1% level. Taken together, our results are robust to alternative measures of liquidity creation, an alternative specification of regression model, and credit demand shocks.

6. Conclusions, policy implications, and topics for future research

An exciting new research agenda explores the implications of economic policy uncertainty (EPU), primarily through adverse effects on firm behavior. Much of this literature employs an innovative set of measures of EPU provided by Baker, Bloom, and Davis (BBD, 2016). We extend this literature by investigating an important potential channel through which EPU may affect the economy more broadly – by influencing bank liquidity creation, using measures created by Berger and Bouwman (2009). Strong effects of bank liquidity creation on the economy are shown in prior research. We specifically examine the effects of EPU on bank total liquidity creation and its three components – asset-side, liability-side and off-balance sheet-side bank liquidity creation – testing hypotheses about these effects. Each of these bank liquidity creation components may affect the economy in different ways.

Our empirical analysis covers over one million U.S. bank-quarter observations on over 17,000 banks for more than a 30-year period from 1985:Q2 to 2016:Q4, and yields very clear economically and statistically significant results that support our hypotheses. EPU reduces bank liquidity creation on the asset- and off-balance sheet-sides, but increases liability-side bank liquidity creation by a lesser amount, resulting in reduced total liquidity creation. Findings suggest EPU likely hampers banks' abilities to perform their key function of intermediating liquid funds for productive purposes. This may be an important channel through which EPU affects the economy, given that bank liquidity creation has a strong link to GDP.

The findings hold across bank size classes and for different degrees of bank financial health, are somewhat stronger for banks in markets with worse economic conditions, hold both before and after the Basel III liquidity requirements were introduced, and are robust to the use of instrumental variables and placebo tests. The findings are somewhat weaker during financial crises relative to normal times, possibly because banks sometimes receive favorable government treatment during financial crises that partially shields them from the uncertainty. Our evidence of weaker effects of EPU for banks that received TARP bailouts is consistent with this conjecture. Finally, we show that the financial crisis findings are not driven by the recessions that often accompany these crises.

The findings have potential policy implications. First, they suggest that policymakers might take into account the adverse consequences of leaving the public uncertain of their actions, which adversely affect the economy through effects on firms, households, banks, and other financial institutions and markets. Second, they suggest that policymakers may consider promulgating policies that ensure that banks can continue to create liquidity during times of uncertainty. Our finding of weaker effects of EPU during financial crises suggests that policymakers may already be doing this to some degree.

Finally, our findings suggest more potential topics for future research. Clearly, more research on EPU, liquidity creation, and the real economy are in order. To our knowledge, there is no research yet on the effects of EPU on the economy through direct effects on households – part of our Figure 1 above. As noted above, we also do not include the effects of EPU on liquidity creation by non-bank financial institutions or by financial markets. Future research could investigate these effects, which may also have significant implications for the real economy. Finally, large data sets on EPU and its elements and bank liquidity creation and its components are both freely available to the public, and many independent topics on each of these sets of variables are yet to be explored.

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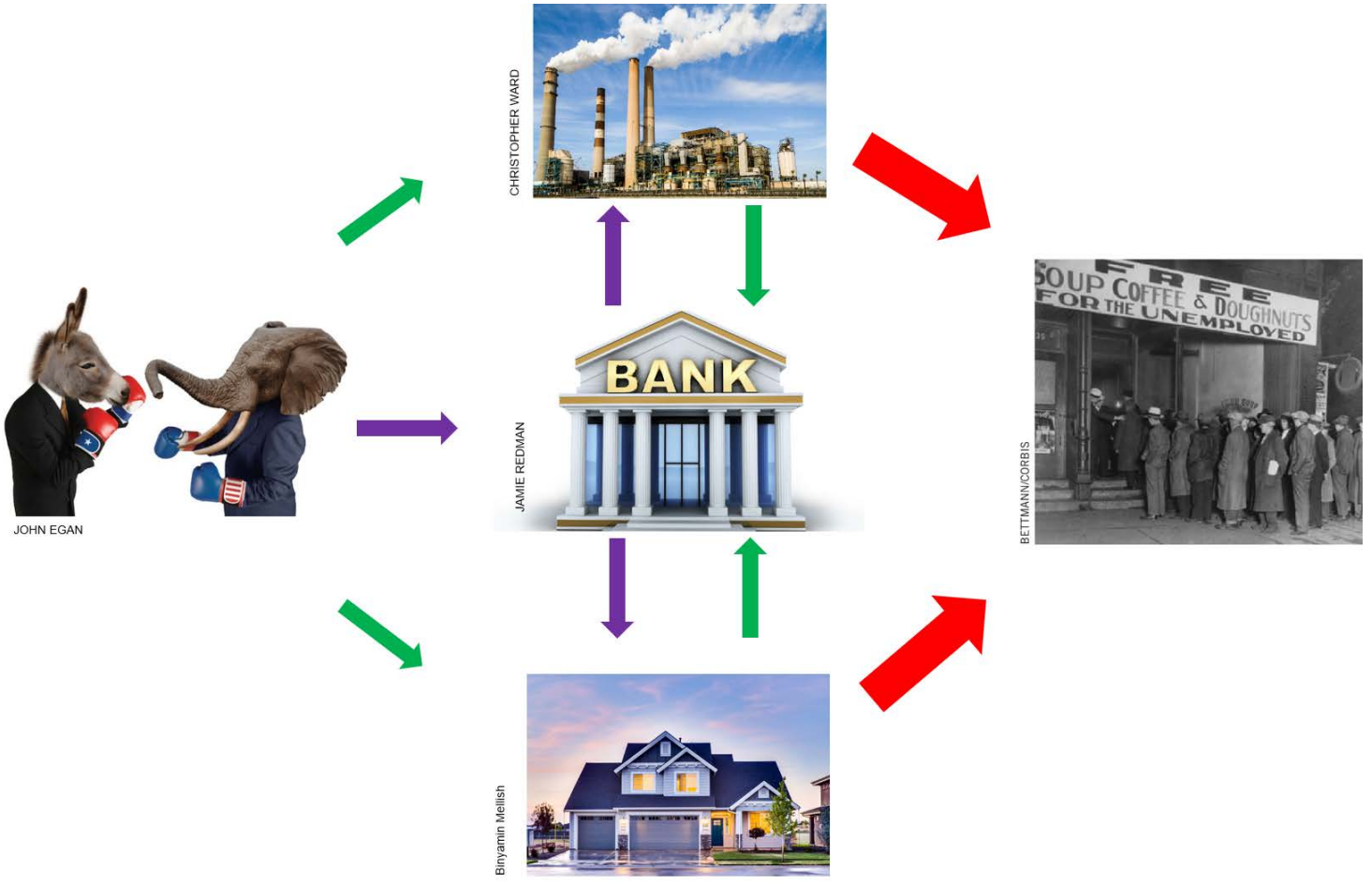
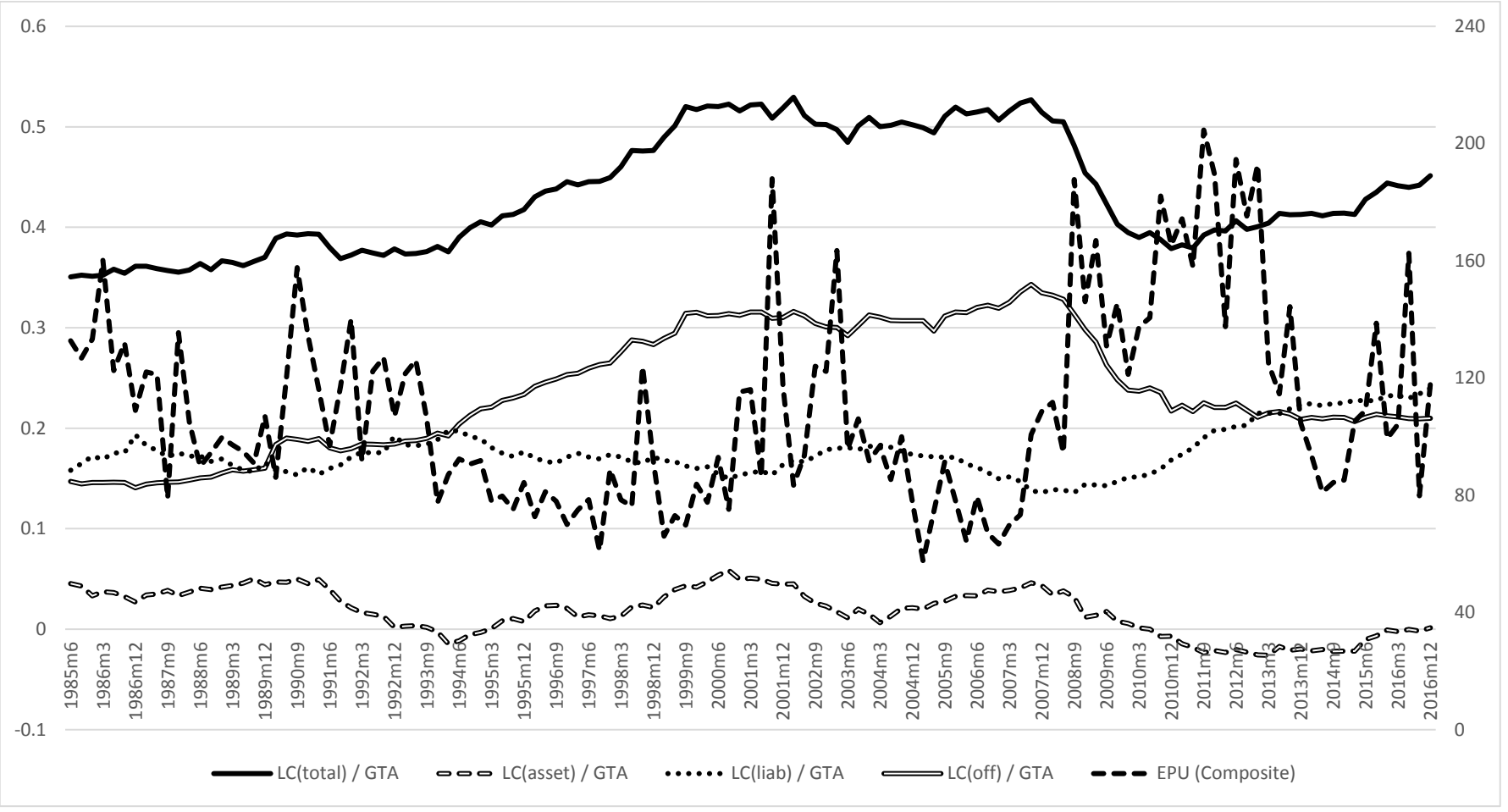
Figure 1: How Economic Policy Uncertainty may affect the Economy



This figure illustrates how economic policy uncertainty (EPU) can affect the economy. EPU is illustrated by the fighting symbols of the U.S. Democratic and Republican Parties, firms are (illustrated by the factory picture, households are illustrated by the house picture, banks are illustrated by the bank picture, and the economy is illustrated by the soup lines. Arrows show directions of causation.

Figure 2: Patterns of bank liquidity creation and economic policy uncertainty (1985:Q2 – 2016:Q4)



This figure shows the temporal patterns of the liquidity creation ratios for the nation as a whole as well as *EPU(Composite)* over our sample period from 1985:Q2 to 2016:Q4. *LC(total)/GTA* is defined as the sum of liquidity creation for the banking industry at each point in time divided by the sum of *GTA* for the industry at that time. Other components of liquidity creation measures are similarly defined. Sources: Bank liquidity creation data from Christa Bouwman's website (https://sites.google.com/a/tamu.edu/bouwman/data) and EPU data from Baker, Bloom and Davis' website (http://www.policyuncertainty.com).

Table 1: Description of variables and summary statistics for the sample of U.S. banks

This table presents definitions of variables and summary statistics for the sample of U.S. banks and policy uncertainty measures. The sample includes 17,164 banks from 1985:Q2 through 2016:Q4. The observations are on a bank-calendar quarter level. Panel A describes variables definitions. Panel B presents descriptive statistics for the whole sample and Panel C provides descriptive statistics by bank size. Banks are categorized into size classes based on gross total assets (GTA). Panel D presents Pearson correlation coefficients across dependent variables and key independent variables. All dollar values are adjusted to real 2016 values using the implicit GDP price deflator. All control variables except macro variables are winsorized at 1% level.

Panel A: Description of variables

Variable	Description
Dependent variables	
LC(total) / GTA	A bank's total bank liquidity creation measure including on- and-off balance sheet activities normalized by the total asset size of a bank. For a more detailed definition, please refer to Berger and Bouwman (2009).
LC(asset) / GTA	A bank's bank liquidity creation measure including only asset-side activities normalized by the total asset size of a bank. For a more detailed definition, please refer to Berger and Bouwman (2009).
LC(liab) / GTA	A bank's bank liquidity creation measure including only liability-side activities normalized by the total asset size of a bank. For a more detailed definition, please refer to Berger and Bouwman (2009).
LC(off) / GTA	A bank's bank liquidity creation measure including only off-balance sheet activities normalized by the total asset size of a bank. For a more detailed definition, please refer to Berger and Bouwman (2009).
Key independent variables	
EPU(Composite)	The natural log of the arithmetic average of the overall policy uncertainty measure developed by Baker, Bloom, and Davis (2016) over the three months of calendar quarter *t*.
EPU(News)	The natural log of the arithmetic average of the news-based element of the policy uncertainty measure developed by Baker, Bloom, and Davis (2016) over the three months of calendar quarter *t*.
EPU(Govt.)	The natural log of the arithmetic average of the government spending element of the policy uncertainty measure developed by Baker, Bloom, and Davis (2016) over the three months of calendar quarter *t*.
EPU(CPI)	The natural log of the arithmetic average of the inflation element of the policy uncertainty measure developed by Baker, Bloom, and Davis (2016) over the three months of calendar quarter *t*.
EPU(Tax)	The natural log of the arithmetic average of the tax-code element of the policy uncertainty measure developed by Baker, Bloom, and Davis (2016) over the three months of calendar quarter *t*.
Control variables	
Ln(GTA)	The natural log of the gross total asset (GTA) of a bank defined as the total asset + allowance for loan and lease losses + allocated transfer risk reserve (a reserve for certain foreign loans) in $1000.
Capital ratio	The total equity capital as a proportion of GTA for each bank.

HHI	A bank-level competition level calculated as a weighted average of the Herfindahl-Hirschman index in all areas (MSA or counties if not included in MSA) in which a bank has a business. For each bank, the proportion of deposits in each area is used as weights.
Population	A bank-level population index calculated as the natural log of a weighted average of the population (in millions) in all areas in which a bank has a business. For each bank, the proportion of deposits in each area is used as weights.
Tobin's Q	A state-level cross-sectional average of normalized Tobin's Q defined as a firm-level Tobin's Q in quarter *t* normalized by a lagged total asset of each firm in the Compustat data whose headquarter is located in a corresponding state. Tobin's Q is defined as the market value of assets divided by the book value of assets (Compustat Item 6). A firm's market value of assets equals the book value of assets plus the market value of common stock less the sum of the book value of common stock (Compustat Item 60) and balance sheet deferred taxes (Compustat Item 74).
Cash flows	A state-level cross-sectional average of operating cash flows for each firm in quarter *t* divided by a lagged total asset of each firm in the Compustat data whose headquarter is located in a corresponding state. *Cash flows* is defined as the sum of earnings before extraordinary items (Compustat Item 18) and depreciation (Compustat Item 14).
Election year	A binary variable equal to one if the calendar year is a presidential election year and zero otherwise
SD (stock ret.)	The standard deviation of daily value-weighted stock market returns from WRDS in quarter *t.*
GDP dispersion	Forecast dispersion of real GDP defined as 75^{th} percentile minus 25^{th} percentile scaled by the absolute value of 75^{th} percentile of expected real GDP growth in the next quarter from the Survey of Professional Forecasters (SPF) of the Federal Reserve Bank of Philadelphia.
Instrumental variable	
Senate Polarization	A measure of partisan polarization tracking legislators' ideological positions based on McCarty, Poole, and Rosenthal (1997).
Variables for robustness checks	
Fin. Crisis	A binary variable equal to one if a sample period belongs to one of five financial crises from Berger and Bouwman (2013): the 1987 stock market crash (1987:Q4), the credit crunch (1990:Q1–1992:Q4), the Russian debt crisis and LTCM bailout (1998:Q3–1998:Q4), the dot.com bubble and 9/11 terrorist attacks (2000:Q2–2002:Q3), and the subprime lending crisis (2007:Q3–2009:Q4). The sample includes 17,006 banks from 1985:Q2 through 2016:Q4.
TARP	A binary variable equal to one if a bank has received the Troubled Asset Relief Program (TARP) support as of the observation time and zero otherwise. The sample period for this variable is from 2006:Q1 through 2011:Q4.
Fin. Crisis (w/o Subprime	A binary variable equal to *Fin. Crisis* without the subprime lending crisis (2007:Q3–2009:Q4).

NBER Recession	A binary variable equal to one if a sample period belongs to recession periods compiled by the National Bureau of Economic Research (NBER): 1990:Q3–1991:Q1, 2001: Q1–2001:Q4, 2007:Q4–2009:Q2.
Survival categories (Surviving/Exiting/ Entering/Others)	A bank is categorized into *Surviving banks* if it exists throughout the whole sample period. A bank is categorized into *Exiting banks* if it exists at the beginning of the sample but subsequently exits the sample. A bank is categorized into *Entering banks* if it does not exist at the beginning of the sample but subsequently enters the sample. All other banks are categorized into *Other banks*.
Takedown adj. /GTA	Takedown probability-adjusted liquidity creation normalized by the total asset size of a bank. For a more detailed definition, please refer to Berger and Bouwman (2009).
Securitizn. adj. /GTA	Securitization-adjusted liquidity creation measure normalized by the total asset size of a bank. For a more detailed definition, please refer to Berger and Bouwman (2009).
Loan demand	Net percentage of domestic banks reporting stronger demand for commercial and industrial loans from large and middle-market firms (the Board of Governors of the Federal Reserve System's Senior Loan Officer Opinion Survey on Bank Lending Practices).
Coincident Index	Bank level weighted average of the Coincident Index with the proportion of deposits in each state as weights. The Coincident Index is from the Federal Reserve Bank of Philadelphia measure of the state-level economic conditions.

Panel B: Summary statistics for the sample

	N	Mean	StDev	25th Percentile	Median	75th Percentile
Dependent variables						
LC(total) / GTA	1,022,644	0.230	0.184	0.101	0.227	0.358
LC(asset) / GTA	1,022,644	0.009	0.147	-0.092	0.009	0.111
LC(liab) / GTA	1,022,644	0.177	0.068	0.129	0.172	0.221
LC(off) / GTA	1,022,644	0.043	0.040	0.013	0.033	0.061
Key independent variables						
EPU(Composite)	1,022,644	4.642	0.247	4.463	4.636	4.809
EPU(News)	1,022,644	4.631	0.277	4.427	4.586	4.828
EPU(Govt.)	1,022,644	4.560	0.451	4.164	4.544	4.882
EPU(CPI)	1,022,644	4.572	0.293	4.402	4.556	4.807
EPU(Tax)	1,022,644	3.760	1.614	2.602	2.821	4.871
Control variables						
GTA	1,022,644	1133312	22900000	61440	116168	250467
Capital ratio	1,022,644	0.070	0.030	0.049	0.064	0.086
HHI	1,022,644	0.083	0.099	0.019	0.053	0.119
Population	1,022,644	1.776	0.888	1.182	1.693	2.469
Tobin's Q	1,022,644	2.087	0.844	1.625	1.876	2.272
Cash flows	1,022,644	0.008	0.024	0.000	0.013	0.022
Election year	1,022,644	0.242	0.429	0.000	0.000	0.000
SD (stock ret.)	1,022,644	0.009	0.005	0.006	0.008	0.010
GDP dispersion	1,022,644	0.427	0.454	0.240	0.304	0.437
Instrumental variable						
Senate Polarization	975,206	0.717	0.107	0.611	0.732	0.796
Variables for robustness checks						
Fin. Crisis	1,022,644	0.284	0.451	0.000	0.000	1.000
TARP	155,383	0.006	0.075	0.000	0.000	0.000
Fin. Crisis (w/o Subprime)	957,122	0.235	0.424	0.000	0.000	0.000
NBER Recession	1,022,644	0.104	0.306	0.000	0.000	0.000
Takedown adj. /GTA	1,022,644	0.199	0.165	0.086	0.201	0.316
Securitizn. adj. /GTA	1,022,644	0.294	0.176	0.179	0.303	0.416
Loan demand	731,235	0.001	0.254	-0.116	0.035	0.193
Coincident Index	1,022,644	118.116	24.362	97.780	117.908	134.126

Panel C: Descriptive statistics for bank liquidity creation dependent variables by bank size class

	Small banks (GTA<95th percentile ($1.3 billion)			Medium banks (95th percentile ($1.3 billion) ≤$GTA$ <99th percentile ($11.0 billion))			Large banks (99th percentile ($11.0 billion) ≤$GTA$)		
	N	Mean	StDev	N	Mean	StDev	N	Mean	StDev
LC(total) / GTA	971511	0.221	0.180	40906	0.388	0.165	10227	0.445	0.177
LC(asset) / GTA	971511	0.006	0.147	40906	0.072	0.132	10227	0.056	0.125
LC(liab) / GTA	971511	0.175	0.067	40906	0.212	0.074	10227	0.190	0.083
LC(off) / GTA	971511	0.040	0.036	40906	0.097	0.054	10227	0.158	0.058

Panel D: Correlation matrix for key variables

Correlations with *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels, respectively.

	LC(total) / GTA	*LC(asset) / GTA*	*LC(liab) / GTA*	*LC(off) / GTA*	*EPU(Composite)*	*EPU(News)*	*EPU(Govt.)*	*EPU(CPI)*	*EPU(Tax)*
LC(total) / GTA	1.000								
LC(asset) / GTA	0.878***	1.000							
LC(liab) / GTA	0.360***	-0.058***	1.000						
LC(off) / GTA	0.690***	0.472***	0.189***	1.000					
EPU(Composite)	**-0.026*** **	**-0.025*** **	**0.058*** **	**-0.117*** **	**1.000**				
EPU(News)	0.041***	0.031***	0.056***	-0.020***	0.874***	1.000			
EPU(Govt.)	-0.234***	-0.244***	0.056***	-0.269***	0.584***	0.272***	1.000		
EPU(CPI)	-0.142***	-0.106***	-0.041***	-0.185***	0.454***	0.096***	0.504***	1.000	
EPU(Tax)	0.299***	0.296***	0.059***	0.190***	0.353***	0.321***	-0.210***	-0.034***	1.000

Table 2: The effects of EPU on bank total liquidity creation

This table presents coefficient estimates from regressions of the total bank liquidation creation normalized by the gross total assets (*LC(total) / GTA*) on the economic policy uncertainty measures and controls. The sample includes 17,164 banks from 1985:Q2 through 2016:Q4. All variables are described in Table 1. Coefficients on constant terms are omitted. *t*-statistics are reported in parentheses and are based on standard errors clustered at a bank and year-quarter level. Statistical significance at the 10%, 5%, and 1% levels is denoted by *, **, and ***, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
EPU(Composite)	**-0.034*** **					
	(-5.46)					
EPU(News)		**-0.017****				**-0.012**
		(-2.31)				**(-1.31)**
EPU(Govt.)			**-0.040*** **			**-0.042*** **
			(-9.00)			**(-6.82)**
EPU(CPI)				**-0.029*** **		**-0.028****
				(-3.29)		**(-2.54)**
EPU(Tax)					**0.012*** **	**0.018*** **
					(6.32)	**(7.86)**
Ln(GTA)	0.111***	0.111***	0.105***	0.109***	0.101***	0.088***
	(12.85)	(12.87)	(12.64)	(12.70)	(12.29)	(10.66)
Sqr. Ln(GTA)	-0.001***	-0.001***	-0.001***	-0.001***	-0.002***	-0.001***
	(-4.13)	(-4.18)	(-4.26)	(-4.23)	(-4.66)	(-4.76)
Capital ratio	0.687***	0.704***	0.533***	0.643***	0.454***	0.124
	(12.07)	(11.87)	(9.97)	(10.84)	(6.34)	(1.28)
HHI	0.011	0.015*	0.008	0.018*	0.018	0.002
	(1.34)	(1.72)	(0.99)	(1.95)	(1.61)	(0.17)
Population	0.165***	0.165***	0.148***	0.157***	0.126***	0.090***
	(8.64)	(8.67)	(8.30)	(8.39)	(7.54)	(5.32)
Tobin's Q	0.004***	0.004***	0.004***	0.005***	0.004***	0.002**
	(3.74)	(3.97)	(3.82)	(4.25)	(3.55)	(2.19)
Cash flows	-0.100***	-0.101***	-0.063*	-0.107***	-0.110**	-0.086**
	(-2.89)	(-2.77)	(-1.86)	(-2.84)	(-2.59)	(-2.53)
Election year	0.002	0.003	0.001	0.002	0.000	-0.003
	(0.54)	(0.63)	(0.19)	(0.46)	(0.08)	(-0.54)
SD (stock ret.)	1.351***	1.311**	0.648	0.939*	0.900*	0.787
	(2.73)	(2.50)	(1.32)	(1.92)	(1.67)	(1.52)
GDP dispersion	-0.012***	-0.014***	-0.007	-0.011**	-0.017***	-0.003
	(-2.66)	(-3.01)	(-1.40)	(-2.31)	(-3.21)	(-0.63)
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes
Seasonal FE	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R-squares	0.750	0.749	0.754	0.750	0.754	0.765
Number of obs.	1,022,644	1,022,644	1,022,644	1,022,644	1,022,644	1,022,644

Table 3: The effects of EPU on components of the bank liquidity creation

This table presents coefficient estimates from regressions of components of liquidity creation measures on elements of economic policy uncertainty measures. The sample includes 17,164 banks from 1985:Q2 through 2016:Q4. *Controls* include *Ln(GTA), Sqr. Ln(GTA), Capital ratio, HHI, Population, Tobin's Q, Cash flows, Election year, SD (stock ret.), GDP dispersion*. Coefficients on *Controls* are omitted for brevity. Panel A presents coefficient estimates from regressions of total liquidity creation (*LC(total)/GTA*) and off-balance sheet liquidity creation (*LC(off)/GTA*). Panel B presents coefficient estimates from regressions of asset-side liquidity creation (*LC(asset)/GTA*) and liability-side liquidity creation (*LC(liab.)/GTA*). All variables are described in Table 1. *t*-statistics are reported in parenthesis and are based on standard errors clustered at a bank and year-quarter level. Statistical significance at the 10%, 5%, and 1% levels is denoted by *, **, and ***, respectively.

Panel A: The effects of EPU on asset-side liquidity creation (*LC(asset)/GTA*)

	Dep. = *LC(asset) / GTA*					
	(1)	(2)	(3)	(4)	(5)	(6)
EPU(Composite)	**-0.040*** **					
	(-6.40)					
EPU(News)		**-0.037*** **				**-0.028*** **
		(-5.79)				**(-3.59)**
EPU(Govt.)			**-0.036*** **			**-0.036*** **
			(-7.51)			**(-7.65)**
EPU(CPI)				**-0.005**		**0.001**
				(-0.96)		**(0.19)**
EPU(Tax)					**0.007*** **	**0.012*** **
					(5.10)	**(9.95)**
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes
Seasonal FE	Yes	Yes	Yes	Yes	Yes	Yes
Number of obs.	1,022,644	1,022,644	1,022,644	1,022,644	1,022,644	1,022,644

Panel B: The effects of EPU on liability-side liquidity creation (*LC(liab)/GTA*)

	Dep. = *LC(liab) / GTA*					
	(1)	(2)	(3)	(4)	(5)	(6)
EPU(Composite)	**0.029*** **					
	(5.69)					
EPU(News)		**0.032*** **				**0.021*** **
		(5.81)				**(2.88)**
EPU(Govt.)			**0.012*** **			**0.008***
			(3.88)			**(1.81)**
EPU(CPI)				**-0.009**		**-0.020*** **
				(-1.61)		**(-2.77)**
EPU(Tax)					**0.006*** **	**0.005*** **
					(3.67)	**(2.96)**
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes
Seasonal FE	Yes	Yes	Yes	Yes	Yes	Yes
Number of obs.	1,022,644	1,022,644	1,022,644	1,022,644	1,022,644	1,022,644

Panel C: The effects of EPU on off balance sheet liquidity creation (*LC(off)/GTA*)

	Dep. = *LC(off) / GTA*					
	(1)	(2)	(3)	(4)	(5)	(6)
EPU(Composite)	**-0.022*** **					
	(-13.57)					
EPU(News)		**-0.012*** **				**-0.004** **
		(-5.08)				**(-2.22)**
EPU(Govt.)			**-0.015*** **			**-0.013*** **
			(-14.42)			**(-9.90)**
EPU(CPI)				**-0.014*** **		**-0.009*** **
				(-6.20)		**(-3.83)**
EPU(Tax)					**-0.000**	**0.002*** **
					(-0.49)	**(5.88)**
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes
Seasonal FE	Yes	Yes	Yes	Yes	Yes	Yes
Number of obs.	1,022,644	1,022,644	1,022,644	1,022,644	1,022,644	1,022,644

Table 4: The effects of EPU on the bank liquidity creation by bank size class

This table presents regression coefficient estimates from regressions of components of liquidity creation measures on elements of economic policy uncertainty measure by bank size class. Following Kashyap and Stein (2000), we categorize banks into *small*, *medium* and *large banks* with cutoff values of 95th percentile ($1.3 billion) and 99th percentile ($11.0 billion) of gross total assets (GTA). Panel A presents coefficient estimates from regressions of L*C(total)/GTA*, *LC(asset)/GTA*, *LC(liab.)/GTA*, and *LC(off)/GTA* on *EPU(Composite)*, respectively. Panels B – E replicate Panel A with *EPU(News)*, *EPU(Govt.)*, *EPU(CPI)*, and *EPU(Tax)* as an independent variable, respectively. The sample includes 17,164 banks from 1985:Q2 through 2016:Q4. *Controls* include *Ln(GTA)*, *Sqr. Ln(GTA)*, *Capital ratio*, *HHI*, *Population*, *Tobin's Q*, *Cash flows*, *Election year*, *SD (stock ret.)*, *GDP dispersion*. Coefficients on *Controls* are omitted for brevity. All variables are described in Table 1. *t*-statistics are reported in parenthesis and are based on standard errors clustered at a bank and year-quarter level. Statistical significance at the 10%, 5%, and 1% levels is denoted by *, **, and ***, respectively.

Panel A: The effects of *EPU(Composite)* on components of bank liquidity creation

	Dep. = *LC(total) / GTA*			Dep. = *LC(asset) / GTA*			Dep. = *LC(liab) / GTA*			Dep. = *LC(off) / GTA*		
	(1) Small bank	(2) Medium bank	(3) Large bank	(4) Small bank	(5) Medium bank	(6) Large bank	(7) Small bank	(8) Medium bank	(9) Large bank	(10) Small bank	(11) Medium bank	(12) Large bank
EPU(Composite)	-0.035***	-0.050***	-0.055***	-0.041***	-0.038***	-0.040***	0.028***	0.028***	0.035***	-0.021***	-0.037***	-0.031***
	(-5.84)	(-6.19)	(-3.32)	(-6.65)	(-4.96)	(-3.31)	(5.50)	(4.79)	(4.38)	(-13.60)	(-10.45)	(-6.86)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Seasonal FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of obs.	971511	40906	10227	971511	40906	10227	971511	40906	10227	971511	40906	10227

Panel B: The effects of *EPU(News)* on components of bank liquidity creation

	Dep. = *LC(total) / GTA*			Dep. = *LC(asset) / GTA*			Dep. = *LC(liab) / GTA*			Dep. = *LC(off) / GTA*		
	(1) Small bank	(2) Medium bank	(3) Large bank	(4) Small bank	(5) Medium bank	(6) Large bank	(7) Small bank	(8) Medium bank	(9) Large bank	(10) Small bank	(11) Medium bank	(12) Large bank
EPU(News)	-0.019***	-0.028***	-0.027**	-0.038***	-0.040***	-0.038***	0.031***	0.032***	0.039***	-0.011***	-0.020***	-0.019***
	(-2.63)	(-3.90)	(-2.11)	(-6.00)	(-6.44)	(-4.25)	(5.65)	(5.70)	(5.38)	(-5.11)	(-5.03)	(-5.00)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Seasonal FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of obs.	971511	40906	10227	971511	40906	10227	971511	40906	10227	971511	40906	10227

Panel C: The effects of *EPU(Govt.)* on components of bank liquidity creation

	Dep. = *LC(total) / GTA*			Dep. = *LC(asset) / GTA*			Dep. = *LC(liab) / GTA*			Dep. = *LC(off) / GTA*		
	(1) Small bank	(2) Medium bank	(3) Large bank	(4) Small bank	(5) Medium bank	(6) Large bank	(7) Small bank	(8) Medium bank	(9) Large bank	(10) Small bank	(11) Medium bank	(12) Large bank
EPU(Govt.)	-0.038***	-0.037***	-0.029***	-0.035***	-0.024***	-0.017**	0.012***	0.016***	0.019***	-0.015***	-0.026***	-0.017***
	(-8.83)	(-6.78)	(-2.89)	(-7.46)	(-4.51)	(-2.09)	(3.91)	(4.00)	(3.58)	(-14.17)	(-11.37)	(-5.99)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Seasonal FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of obs.	971511	40906	10227	971511	40906	10227	971511	40906	10227	971511	40906	10227

Panel D: The effects of *EPU(CPI)* on components of bank liquidity creation

	Dep. = *LC(total) / GTA*			Dep. = *LC(asset) / GTA*			Dep. = *LC(liab) / GTA*			Dep. = *LC(off) / GTA*		
	(1) Small bank	(2) Medium bank	(3) Large bank	(4) Small bank	(5) Medium bank	(6) Large bank	(7) Small bank	(8) Medium bank	(9) Large bank	(10) Small bank	(11) Medium bank	(12) Large bank
EPU(CPI)	-0.027***	-0.029***	-0.029***	-0.005	0.006	0.008	-0.009	-0.008	-0.009	-0.013***	-0.022***	-0.013***
	(-3.13)	(-4.23)	(-2.74)	(-0.87)	(0.91)	(0.91)	(-1.61)	(-1.41)	(-1.63)	(-6.07)	(-6.32)	(-3.89)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Seasonal FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of obs.	971511	40906	10227	971511	40906	10227	971511	40906	10227	971511	40906	10227

Panel E: The effects of *EPU(Tax)* on components of bank liquidity creation

	Dep. = *LC(total) / GTA*			Dep. = *LC(asset) / GTA*			Dep. = *LC(liab) / GTA*			Dep. = *LC(off) / GTA*		
	(1) Small bank	(2) Medium bank	(3) Large bank	(4) Small bank	(5) Medium bank	(6) Large bank	(7) Small bank	(8) Medium bank	(9) Large bank	(10) Small bank	(11) Medium bank	(12) Large bank
EPU(Tax)	0.011***	0.000	-0.013***	0.006***	0.002	-0.009***	0.005***	0.001	0.002	-0.000	-0.002**	-0.004***
	(6.00)	(0.08)	(-3.24)	(4.60)	(1.10)	(-3.08)	(3.55)	(0.56)	(0.73)	(-0.64)	(-2.49)	(-3.47)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Seasonal FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of obs.	971511	40906	10227	971511	40906	10227	971511	40906	10227	971511	40906	10227

Table 5: The effects of EPU on bank liquidity creation by bank capital, Pre- and Post-Basel III, and by market economic conditions

This table presents coefficient estimates from regressions of the total bank liquidity creation normalized by the gross total assets (*LC(total) / GTA*) on the economic policy uncertainty measure by bank capital, pre- and post-Basel III, and by market economic conditions. *High* and *Low capital* are differentiated by the median of the capital ratio. Pre-Basel III and Post-Basel III belong to sample periods through 2013 when the Basel Committee announced the new liquidity requirements, and after 2013, respectively. *High* and *Low Coincident Index* are differentiated by the median of a weighted average of Coincident Index with state deposits as weight. *Controls* include *Ln(GTA), Sqr. Ln(GTA), Capital ratio, HHI, Population, Tobin's Q, Cash flows, Election year, SD (stock ret.), GDP dispersion*. All variables are described in Table 1. Coefficients on constant terms are omitted for brevity. *t*-statistics are reported in parentheses and are based on standard errors clustered at a bank and year-quarter level. Statistical significance at the 10%, 5%, and 1% levels is denoted by *, **, and ***, respectively.

	Dep. = *LC(total) / GTA*					
	(1) High Capital	(2) Low Capital	(3) Pre- Basel III	(4) Post- Basel III	(5) High Coincident Index	(6) Low Coincident Index
EPU(Composite)	**-0.040*** **	**-0.038*** **	**-0.034*** **	**-0.022*** **	**-0.016** **	**-0.048*** **
	(-6.170)	**(-5.153)**	**(-4.98)**	**(-9.29)**	**(-2.072)**	**(-4.521)**
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes
Seasonal FE	Yes	Yes	Yes	Yes	Yes	Yes
Number of obs.	511,323	511,321	959913	62731	511,257	511,387

Table 6: The effects of EPU on bank liquidity creation during financial crises and NBER recession

This table presents coefficient estimates from regressions of components of liquidity creation on *EPU(Composite)* during periods of financial crises or NBER recessions. Panel A presents coefficient estimates from regressions including all *Fin. Crisis* periods. *Fin. Crisis* is a binary variable equal to one if a sample period belongs to one of five financial crises from Berger and Bouwman (2013): the 1987 stock market crash (1987:Q4), the credit crunch (1990:Q1–1992:Q4), the Russian debt crisis and LTCM bailout (1998:Q3–1998:Q4), the dot.com bubble and 9/11 terrorist attacks (2000:Q2–2002:Q3), and the subprime lending crisis (2007:Q3–2009:Q4). Panel B presents coefficient estimates from regressions of components of liquidity creation on an interaction term of the *EPU(Composite)* and a binary variable for the Troubled Asset Relief Program (*TARP*). *TARP* is a binary variable equal to one if a bank has received a TARP support as of the observation time and zero otherwise. The sample period for Panel B is from 2006:Q1 through 2011:Q4. Panel C replicates Panel A omitting the subprime lending crisis period. *Fin. Crisis (w/o Subprime)* is a binary variable equal to *Fin. Crisis* without the subprime lending crisis (2007:Q3–2009:Q4). Panel D replicates Panel A with the NBER recession periods instead of the *Fin. Crisis*. NBER *Recession* is a binary variable equal to one if a sample period belongs to recession periods compiled by the National Bureau of Economic Research (NBER): 1990:Q3–1991:Q1, 2001: Q1–2001:Q4, 2007:Q4–2009:Q2. *Controls* include *Ln(GTA), Sqr. Ln(GTA), Capital ratio, HHI, Population,Tobin's Q, Cash flows, Election year, SD (stock ret.), GDP dispersion*. Coefficients on *Controls* are omitted for brevity. All variables are described in Table 1. *t*-statistics are reported in parenthesis and are based on standard errors clustered at a bank and year-quarter level. Statistical significance at the 10%, 5%, and 1% levels is denoted by *, **, and ***, respectively.

Panel A: Five financial crises from Berger and Bouwman (2013)

	(1) *LC(total) / GTA*	(2) *LC(asset) / GTA*	(3) *LC(liab) / GTA*	(4) *LC(off) / GTA*
EPU(Composite)	-0.040***	-0.043***	0.028***	-0.024***
	(-5.92)	(-6.52)	(5.25)	(-14.22)
Fin. Crisis	-0.220**	-0.114	-0.009	-0.091***
	(-2.15)	(-1.11)	(-0.18)	(-3.74)
EPU (Composite)	**0.046****	**0.025**	**-0.002**	**0.020*****
×Fin. Crisis	**(2.08)**	**(1.15)**	**(-0.13)**	**(3.92)**
Controls	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes
Seasonal FE	Yes	Yes	Yes	Yes
Number of obs.	1,022,644	1,022,644	1,022,644	1,022,644

Panel B: The Troubled Asset Relief Program (TARP) banks

	(1) *LC(total) / GTA*	(2) *LC(asset) / GTA*	(3) *LC(liab) / GTA*	(4) *LC(off) / GTA*
EPU(Composite)	-0.033***	-0.038***	0.028***	-0.022***
	(-9.98)	(-6.89)	(6.08)	(-14.00)
TARP	-0.266*	-0.195*	-0.032	-0.048**
	(-2.06)	(-1.77)	(-0.41)	(-2.73)
EPU(Composite)	**0.053***	**0.040***	**0.007**	**0.007***
× *TARP*	**(2.03)**	**(1.85)**	**(0.47)**	**(2.06)**
Controls	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes
Seasonal FE	Yes	Yes	Yes	Yes
Number of obs.	155383	155383	155383	155383

Panel C: Omitting the Subprime lending crisis (2007:Q3–2009:Q4).

	(1) *LC(total) / GTA*	(2) *LC(asset) / GTA*	(3) *LC(liab) / GTA*	(4) *LC(off) / GTA*
EPU(Composite)	-0.036***	-0.041***	0.030***	-0.024***
	(-5.12)	(-5.91)	(5.62)	(-13.61)
Fin. Crisis (w/o Subprime)	-0.291***	-0.109	-0.035	-0.139***
	(-2.69)	(-1.12)	(-0.53)	(-4.37)
EPU (Composite)	**0.060****	**0.023**	**0.005**	**0.031*****
×*Fin. Crisis (w/o Subprime)*	**(2.57)**	**(1.08)**	**(0.35)**	**(4.52)**
Controls	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes
Seasonal FE	Yes	Yes	Yes	Yes
Number of obs.	957,122	957,122	957,122	957,122

Panel D: The effects of EPU during NBER recession.

	(1) *LC(total) / GTA*	(2) *LC(asset) / GTA*	(3) *LC(liab) / GTA*	(4) *LC(off) / GTA*
EPU(Composite)	-0.035***	-0.041***	0.029***	-0.022***
	(-5.44)	(-6.31)	(5.74)	(-13.50)
NBER Recession	-0.167	0.118	-0.262***	-0.022
	(-0.96)	(0.83)	(-3.13)	(-0.59)
EPU (Composite)	**0.037**	**-0.021**	**0.051*** **	**0.006**
× *NBER Recession*	**(1.00)**	**(-0.68)**	**(2.90)**	**(0.73)**
Controls	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes
Seasonal FE	Yes	Yes	Yes	Yes
Number of obs.	1,022,644	1,022,644	1,022,644	1,022,644

Table 7: The effects of EPU on bank liquidity creation by survival categories

This table presents coefficient estimates from regressions of components of liquidity creation on *EPU(Composite)* by bank survival categories. A bank is categorized into *Surviving banks* if it exists throughout the whole sample period. A bank is categorized into *Exiting banks* if it exists at the beginning of the sample but subsequently exits the sample. A bank is categorized into *Entering banks* if it does not exist at the beginning of the sample but subsequently enters the sample. All other banks are categorized into *Other banks*. The sample includes 17,164 banks from 1985:Q2 through 2016:Q4. *Controls* include *Ln(GTA), Sqr. Ln(GTA), Capital ratio, HHI, Population, Tobin's Q, Cash flows, Election year, SD (stock ret.), GDP dispersion*. Coefficients on *Controls* are omitted for brevity. All variables are described in Table 1. *t*-statistics are reported in parenthesis and are based on standard errors clustered at a bank and year-quarter level. Statistical significance at the 10%, 5%, and 1% levels is denoted by *, **, and ***, respectively.

	Dep. = *LC(total) / GTA*				Dep. = *LC(asset) / GTA*			
	(1) Surviving banks	(2) Exiting banks	(3) Entering banks	(4) Other banks	(5) Surviving banks	(6) Exiting banks	(7) Entering banks	(8) Other banks
EPU(Composite)	**-0.028*** **	**-0.044*** **	**-0.047*** **	**-0.045*** **	**-0.043*** **	**-0.039*** **	**-0.044*** **	**-0.036*** **
	(-3.77)	**(-6.34)**	**(-7.58)**	**(-5.75)**	**(-5.80)**	**(-5.65)**	**(-6.69)**	**(-5.42)**
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Seasonal FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of obs.	396965	390345	110406	124928	396965	390345	110406	124928

	Dep. = *LC(liab.) / GTA*				Dep. = *LC(off) / GTA*			
	(1) Surviving banks	(2) Exiting banks	(3) Entering banks	(4) Other banks	(5) Surviving banks	(6) Exiting banks	(7) Entering banks	(8) Other banks
EPU(Composite)	**0.032*** **	**0.018*** **	**0.021*** **	**0.021*** **	**-0.017*** **	**-0.022*** **	**-0.023*** **	**-0.029*** **
	(6.04)	**(3.01)**	**(2.63)**	**(3.58)**	**(-11.35)**	**(-9.11)**	**(-11.54)**	**(-10.80)**
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Seasonal FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of obs.	396965	390345	110406	124928	396965	390345	110406	124928

Table 8: Instrumental variable analysis

This table presents coefficient estimates from the two-stage least-squares regressions approach with the U.S. Senate polarization measure as an instrumental variable for the overall policy uncertainty (*EPU(Composite)*). The sample period for the Senate polarization is from 1985:Q2 to 2015:Q1. *Controls* include *Ln(GTA), Sqr. Ln(GTA), Capital ratio, HHI, Population, Tobin's Q, Cash flows, Election year, SD (stock ret.), GDP dispersion*. Coefficients on *Controls* are omitted for brevity. All variables are described in Table 1. *t*-statistics are reported in parenthesis and are based on bootstrap standard errors clustered at a quarter level. Statistical significance at the 10%, 5%, and 1% levels is denoted by *, **, and ***, respectively.

	First Stage	Second Stage			
	(1) *EPU (Composite)*	(2) *LC (total)/ GTA*	(3) *LC (asset)/ GTA*	(4) *LC (liab.)/ GTA*	(5) *LC (off)/ GTA*
$\widehat{EPU}(Composite)$		**-0.029*** **	**-0.027*** **	**0.035*** **	**-0.035*** **
		(-2.84)	**(-3.12)**	**(4.51)**	**(-12.34)**
Sen. Polar.	**4.208*** **				
	(5.36)				
Controls	Yes	Yes	Yes	Yes	Yes
Bank FE	-	Yes	Yes	Yes	Yes
Seasonal FE	Yes	Yes	Yes	Yes	Yes
Adj. R-squares	0.485	0.251	0.205	0.088	0.213
Number of obs.	119	975,206	975,206	975,206	975,206

Table 9: Placebo tests

This table presents coefficient estimates from the regressions of components of liquidity creation on a random sample of *EPU(Composite)* drawn from the sample distribution of *EPU(Composite)*. We present an average coefficient estimate on *EPU(Composite)* based on 100 random samples of *EPU(Composite)*. *Controls* include *Ln(GTA), Sqr. Ln(GTA), Capital ratio, HHI, Population, Tobin's Q, Cash flows, Election year, SD (stock ret.), GDP dispersion*. Coefficients on *Controls* are omitted for brevity. All variables are described in Table 1. *t*-statistics are based on sample standard errors of the estimated coefficients. Statistical significance at the 10%, 5%, and 1% levels is denoted by *, **, and ***, respectively.

	(1) *LC(total) / GTA*	(2) *LC(asset) / GTA*	(3) *LC(liab) / GTA*	(4) *LC(off) / GTA*
$\widetilde{EPU}$(Composite)	**-0.002**	**-0.001**	**-0.001**	**0.000**
	(-0.23)	**(-0.30)**	**(-0.23)**	**(0.06)**
Controls	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes
Seasonal FE	Yes	Yes	Yes	Yes
Number of obs.	1,022,644	1,022,644	1,022,644	1,022,644