Blocking the Credit Chain: Cryptocurrencies, Deposits, and Bank Loan Growth*

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Abstract

We find evidence suggesting that the demand for retail bank deposits declines when cryptocurrency returns are high, leading to lower loan growth for affected banks. We identify this channel using heterogeneity in banks' geographic exposures to cryptocurrency-investing households. Exposed banks have deposit outflows and lower loan growth when cryptocurrency returns are high. These findings aggregate to the county level, and result in slower establishment and employment growth, especially in bank-dependent sectors. Our findings highlight a novel indirect exposure of banks to cryptocurrency markets and illustrate how participation in cryptocurrency markets can affect the real economy by weakening traditional financial intermediation.

Keywords: financial intermediation, cryptocurrencies, deposit flows, credit supply

JEL Classification: D14, E44, G21, G23

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1 Introduction

In the decade between 2013 and 2023, the number of cryptocurrencies rose from fewer than one hundred to nearly ten thousand, and their collective market capitalization grew from about $10 billion to over $800 billion, peaking in November 2021 at around $2.9 trillion.[1] This significant rise has led banks and other financial institutions to consider how to participate in cryptocurrency markets in various roles, such as custodian, exchange, coin issuer, broker, payment processor, or participant.[2] A few regional banks began providing services to cryptocurrency firms by taking deposits and making loans, including some secured by cryptocurrency collateral (Congressional Research Service 2023; Auer, Farag, Lewrick, Orazem, and Zoss 2023).[3] Two among the most crypto-exposed institutions—Silvergate Bank and Signature Bank—failed in early 2023, raising questions about the direct financial stability implications and indirect financial intermediation implications of banks' evolving relationships with digital assets.

Meanwhile, nationally representative surveys from NORC at the University of Chicago and the Pew Research Center report that 13%–16% of Americans have personally invested in, traded, or used a cryptocurrency.[4] This retail participation has attracted policy attention. Following President Biden's March 9, 2022 Executive Order on Ensuring Responsible Development of Digital Assets, Treasury Secretary Janet Yellen observed that "[t]his approach will support responsible innovation that could result in substantial benefits for the nation, consumers, and businesses. It will also address risks related to illicit finance, protecting consumers and investors, and preventing threats to the financial system and broader economy."[5] To this end, prior research on cryptocurrency demand has studied

[1] According to Statista and CoinMarketCap, available at https://www.statista.com/statistics/863917/number-crypto-coins-tokens/ and https://coinmarketcap.com/charts/, respectively.

[2] See https://www.bankdirector.com/committees/risk-committees/cryptocurrency-the-risk-banks-already-have/

[3] Congressional Research Service, April 25, 2023, "The Role of Cryptocurrency in the Failures of Silvergate, Silicon Valley, and Signature Banks" https://crsreports.congress.gov/product/pdf/IN/IN12148

[4] See https://www.norc.org/research/library/more-than-one-in-ten-americans-surveyed-invest-in-cryptocurrenci.html and https://www.pewresearch.org/short-reads/2021/11/11/16-of-americans-say-they-have-ever-invested-in-traded-or-used-cryptocurrency/

[5] Secretary Yellen's statement is available at https://home.treasury.gov/news/press-releases/

the geographic distribution of ICO attention (Chava, Hu, and Paradkar 2022) and the motivations and beliefs of retail investors (Aiello, Baker, Balyuk, Di Maggio, Johnson, and Kotter 2023; Kogan, Makarov, Niessner, and Schoar 2023), but the effects of household cryptocurrency adoption on traditional financial intermediation remain underexplored.

In this paper, we use novel data on household cryptocurrency investments based on aggregated tax returns from the Internal Revenue Service to explore the effects of cryptocurrency markets on deposit flows, credit supply, and the real economy. Consistent with recent evidence on the relationship between equity returns and deposit flows (Lin 2020), we use cross-sectional variation in banks' geographic exposures to household cryptocurrency investments to show that deposit growth is less sensitive to cryptocurrency returns for banks with more exposure to areas with household cryptocurrency investments. This finding is consistent with a relative decline in households' demand for bank deposits when cryptocurrency prices are rising. Banks propagate these cryptocurrency-driven deposit flows to local businesses through reduced lending, similar to the channel identified in the case of wealth shocks from natural resource discoveries (Gilje 2019) or lotteries (Parra 2022). Together, our findings highlight a novel indirect exposure of banks to cryptocurrency markets and illustrate how cryptocurrency demand can weaken traditional financial intermediation.

We first explore the effect of cryptocurrency markets on bank deposit growth. Because deposit growth and cryptocurrency returns may both be driven by secular trends or economic conditions, we exploit cross-sectional variation in banks' exposures to local households' cryptocurrency investments for identification. Our strategy is based on the notion that while we expect household demand for deposits to vary with household participation in cryptocurrency markets, but that banks' deposit supply is unlikely to reverse-cause local households' investments in cryptocurrencies following relatively high or low cryptocurrency returns. As in the case of stock market participation (Hong, Ku-

jy0644; President Biden's Executive Order is at https://www.whitehouse.gov/briefing-room/presidential-actions/2022/03/09/executive-order-on-ensuring-responsible-development-of-digital-assets/

bik, and Stein 2004; Lin 2020), there is substantial county-level variation in households' cryptocurrency investments, which provides sufficient statistical power for our analysis.

We find that the deposit flows of banks with higher exposure to households with cryptocurrency investments are less sensitive to cryptocurrency returns than those of banks with low exposure to such households. This finding is consistent with cryptocurrency-investing households diverting savings to cryptocurrencies following high cryptocurrency returns (Aiello, Baker, Balyuk, Di Maggio, Johnson, and Kotter 2023), and is inconsistent with a wealth effect in which cryptocurrency gains would flow back into deposit accounts. This means that our findings contrast with prior work that links local wealth shocks to deposit inflows (Gilje 2019; Parra 2022). Our findings are also inconsistent with the assertion that decentralized finance is independent of traditional banks and centralized financial markets.

Our estimates suggest that a one-standard deviation increase in cryptocurrency returns is associated with approximately a 0.2 percentage point decrease in deposit growth for high-exposure banks relative to low-exposure banks, a figure that is empirically robust and stable across a range of measurement and sample selection criteria. We also find that while this phenomenon is evident for time, savings, insured, and uninsured deposits, it does not hold for transaction deposits. This null result for transaction deposits is consistent with households viewing cryptocurrencies as an alternative savings or investment vehicle rather than a payment service.

To evaluate whether exposed banks propagate these cryptocurrency shocks to borrowers, we next examine the effects on bank-level loan growth. Using Call Report data, we assess the extent to which banks' gross loan growth responds differently to cryptocurrency returns conditional on banks' exposures to cryptocurrency-investing households. We find that banks with high exposure to such households reduce loan growth by around 0.20 percentage points more in response to a one-standard deviation increase in cryptocurrency returns. This magnitude is economically significant and comparable to the deposit growth estimates in our main bank-level tests. As in those earlier tests, our loan growth estimates are robust to alternative measurement and sample definitions.

We extend this approach to a two-stage least squares (2SLS) specification in which we instrument for deposit growth with the interaction between cryptocurrency returns and bank exposure to cryptocurrency-investing households. This allows us to quantify a pass-through rate for cryptocurrency-driven deposit growth. We estimate that a 1% decline in cryptocurrency-driven deposit growth leads to a 0.75–0.80% decline in loan growth. This estimate is comparable in economic magnitude to the pass-through rate for deposit growth driven by local shocks such as shale discoveries (Gilje 2019; Gilje, Ready, and Roussanov 2016). While it is important to caveat these estimates with the same necessary identifying assumptions made in our earlier panel regression analysis, this 2SLS framework provides a useful benchmark for comparing deposit growth elasticities from different contexts.

We next extend our loan growth analysis to the county level in two sets of tests. First, we disaggregate loan growth to the bank-county level using small business loan data made available pursuant to the Community Reinvestment Act, and we find that our loan growth and deposit growth pass-through results are robust to a Khwaja-Mian approach that incorporates county-by-year fixed effects to more precisely control for local economic conditions, including local household cryptocurrency investment (Khwaja and Mian 2008). Second, we conduct an aggregated county-level analysis to assess whether these cryptocurrency-induced effects on deposit and loan growth lead to meaningful aggregate shifts in credit supply. To do so, we construct a measure of county exposure based on a weighted average of bank exposures to cryptocurrency-investing households for banks operating in that county. We combine this county-level measure measure of exposure to exposed banks with county-level data on small business lending made available pursuant to the Community Reinvestment Act. We find that counties served by banks with one standard deviation more exposure to cryptocurrency-investing households have 0.4–0.5% less small business loan growth in response to a one standard deviation increase in cryptocurrency returns than less exposed counties. This parallels our bank-level estimates and confirms that deposit outflows experienced by high-exposure banks are not simply reallocated to low-exposure banks with which they compete, but instead reduce the supply of credit in those markets.

Finally, we analyze whether these aggregate credit effects translate into real economic disruptions. We collect county-level data on establishments across sectors from the Bureau of Labor Statistics' Quarterly Census of Employment and Wages and, following Lin 2020, calculate establishment growth rates for bank-dependent and non-bank-dependent sectors. Consistent with bank lending channel, counties served by banks with more exposure to cryptocurrency-investing households exhibit lower establishment growth (about 0.6%) and employment growth (about 0.3%) following a one standard deviation increase in cryptocurrency returns. These negative effects are especially pronounced in bank-dependent sectors, further corroborating a bank lending channel. Together with our findings on deposit and loan growth, this evidence confirms that household participation in cryptocurrency markets can dampen traditional bank intermediation and spill over into the real economy.

Our paper contributes to two important strands of the literature. First, we add to the body of work on the behavior of cryptocurrency investors. Prior research in this domain has examined how factors like stimulus checks (Divakaruni and Zimmerman 2023) and behavioral biases (Hackethal, Hanspal, Lammer, and Rink 2022) affect cryptocurrency investment decisions, as well as how investor beliefs drive trading outcomes (Kogan, Makarov, Niessner, and Schoar 2023). Others have linked retail cryptocurrency enthusiasm to credit defaults and local house prices (Chava, Hu, and Paradkar 2022; Aiello, Baker, Balyuk, Di Maggio, Johnson, and Kotter 2023). We extend this literature by showing that cryptocurrency returns and household cryptocurrency participation can meaningfully draw deposits away from traditional banks, highlighting a novel bridge between decentralized finance and legacy financial institutions (Parlour, Stanton, and Walden 2012; Campbell and Viceira 1999; Cocco, Gomes, and Maenhout 2005; Kimball, Shapiro, Shumway, and Zhang 2018).

Second, our findings contribute to the broader literature on spillovers from asset prices to credit and the real economy (Morck, Shleifer, and Vishny 1990; Warther 1995; Poterba 2000; Greenwood and Shleifer 2014; Adam, Marcet, and Beutel 2017). Past work has demonstrated that equity market wealth can affect nontradable employment, consumption, and local house prices (Chodorow-Reich, Nenov, and Simsek 2021; Hartman-Glaser, Thibodeau, and Yoshida 2023). Closest to ours are Gilje (2019) and Lin (2020), which document that deposit flows respond to localized resource shocks and stock market booms and affect bank lending. We show that cryptocurrency investments—though decentralized—generate similar shifts in household finances that decrease bank deposits and hamper traditional bank intermediation. By capturing how cryptocurrency-driven "wealth shocks" cut in the opposite direction from conventional windfalls, our results underscore the blurred lines between new digital finance and the established banking system.

The remainder of the paper proceeds as follows. Section II describes our data sources and variable construction. Section III outlines our empirical strategy and presents results on the relationship between cryptocurrency returns, deposit flows, and loan growth, including the 2SLS estimates of deposit-to-credit pass-through. Section IV details the broader local economic effects on small business lending, establishment formation, and employment. Section V concludes.

2 Data

2.1 Sample Selection and Sources

We study the period 2020:Q1–2022:Q4, driven largely by the availability of cryptocurrency interest data from the IRS, which is only reported for the 2020 tax year. Our analysis therefore focuses on this three-year window to investigate how cryptocurrency market participation may affect traditional banking and local economic outcomes.

Cryptocurrency Data. We obtain cryptocurrency trading data from Coinmarketcap.com, a well-regarded source known for its extensive and dependable daily statistics on thousands of cryptocurrency assets. Coinmarketcap.com provides information on opening and closing prices, high and low prices, trading volume, and market capitalization (denominated in dollars). The price of each cryptocurrency on the website is calculated by taking the volume-weighted average of all prices reported on each market.

We remove any coin with a market capitalization of less than $1,000,000. Using the remaining universe of coins, we construct a value-weighted cryptocurrency market index. Specifically, we use the daily closing prices and market capitalizations to compute quarterly coin returns, then aggregate these returns into a single market index. The average (mean) of this cryptocurrency market return is 0.275, with a standard deviation of 0.536 (Table 1), underscoring the high volatility that characterizes cryptocurrency markets.

Bank Financial Data. Bank-level financial information comes from two main sources:

1. *Call Reports,* which are released quarterly and provide balance-sheet and income-statement data for commercial banks.
2. *Summary of Deposits (SOD),* an annual dataset from the Federal Deposit Insurance Corporation (FDIC), providing county-level deposit data (aggregated to the county level from branch-level deposits). We also calculate the number of branches per county using SOD.

These data allow us to capture changes in deposits, loans, and overall bank size over time.

Household Cryptocurrency Investment. We measure household-level interest in cryptocurrencies using the Virtual Currency Indicator (`VRTCRIND`) from the Internal Revenue Service (IRS) Statistics of Income (SOI) Tax Stats. This indicator gives us the number of tax returns that report cryptocurrency ownership or transactions at the county level for the 2020 tax year, alongside the total number of tax returns in that county. We define

$$\text{CryptoInterest}_c \;=\; \frac{\text{Number of tax filers declaring cryptocurrency in county } c}{\text{Total number of tax filers in county } c}.$$

Because the IRS only reports this measure for 2020, it restricts our sample period to 2020–2022.

2.2 Bank-Level Analysis

At the bank level, we combine three datasets: (1) county-level tax-reporter information from the IRS, (2) bank financial data from Call Reports, and (3) county-level deposits for each bank from the SOD.

Our main independent variables are the bank's exposure to local *CryptoInterest*, and The quarterly cryptocurrency market index return. Our main dependent variables are the (logged) growth rates of total domestic deposits and gross total loans from Call Reports, alongside additional controls (e.g. bank size, capital ratios, etc.). We compute logged growth rates using:

$$\text{Growth Rate}_{i,t} \;=\; \ln\!\left(\frac{y_{i,t}}{y_{i,t+1}}\right),$$

where i indicates the relevant entity (e.g. bank or county), and t indexes time (quarterly or annually).

Constructing Bank Exposure. To capture how exposed each bank is to the local interest in cryptocurrency assets, we weight the share of a bank's deposits in each county by that county's CryptoInterest_c. Specifically, we use county-level deposit shares from

2019 (to mitigate reverse-causality concerns) and define

$$\text{BankExposure}_b \;=\; \sum_{c \in C_b} \left(\frac{\text{Total Domestic Deposits}_{c,b,2019}}{\text{Total Domestic Deposits}_{b,2019}} \right) \times \text{CryptoInterest}_c,$$

where b indexes banks, c indexes counties, and C_b is the set of all counties in which bank b operates. The idea is that if a larger fraction of a bank's deposit base lies in counties that have higher cryptocurrency adoption, that bank is more "exposed" to deposit outflows (or reallocation) following periods of high cryptocurrency returns.

2.3 Bank-County Level Analysis

We further refine the analysis at the bank-county level using data from the Community Reinvestment Act (CRA) Aggregate & Disclosure Flat Files for 2020–2022, in addition to our Call Report and SOD datasets. The main outcome here is the logged growth rate of CRA loans at the bank-county level:

$$\text{CRA Loan Growth}_{b,c,t} \;=\; \ln\!\left(\frac{\text{CRA Loans}_{b,c,t}}{\text{CRA Loans}_{b,c,t-1}} \right).$$

The core regressors continue to be quarterly cryptocurrency market return and the bank-level BankExposure_b. We match each bank b to the counties c where it operates, thereby exploring whether banks with higher exposure reduce or expand their lending in particular counties when cryptocurrency markets experience strong returns.

2.4 County-Level Analysis

At the county level, we bring in additional macroeconomic controls and outcome variables: *Quarterly Census of Employment and Wages (QCEW),* which provides data on county-level establishments, employment, and wages; *Bureau of Economic Analysis (BEA),* from which we collect county GDP and population data (used as controls); *Compustat* (nonfinancial firms), which we use to measure external finance dependence following Rajan and Zingales (1998).

Our main outcome variables at this level are the (logged) growth rates of establishments and employment. To study how heavily a county c is "exposed" to banks that serve cryptocurrency-investing households, we construct a *county-level* measure of bank exposure as follows:

$$\text{CountyExposure}_c = \sum_{b \in B_c} \left[\text{BankExposure}_b \times \left(\tfrac{\text{Deposits}_{b,c,2019}}{\text{Deposits}_{c,2019}} \right) \right],$$

where B_c is the set of all banks operating in county c. Intuitively, we weight each bank's overall exposure by its deposit market share in that county, then sum across all banks in the county. Counties with more *exposed* banks may see greater spillovers in employment and establishment growth following high cryptocurrency returns.

External Finance Dependence. In keeping with Rajan and Zingales (1998), we construct an industry-level external finance dependence measure using Compustat (2019–2021). For each firm n,

$$\text{ExtFinDependence}_n = \frac{\sum_{t=2019}^{2021} \text{CapitalExpenditures}_{n,t} - \sum_{t=2019}^{2021} \text{OperatingCashFlow}_{n,t}}{\sum_{t=2019}^{2021} \text{CapitalExpenditures}_{n,t}},$$

and then take the median of all firms in each two-digit NAICS industry. We define a dummy variable, Dependence, equal to 1 if an industry's external finance dependence is above the median across all industries, and 0 otherwise. We later interact this measure with CountyExposure_c to study whether counties with more "bank-dependent" industries respond more strongly to cryptocurrency shocks.

2.5 Summary Statistics

Figure 1 provides a county-level map of cryptocurrency interest based on IRS reporting year 2020, illustrating the spatial distribution of households declaring income from cryptocurrency investments. Building on this geographic perspective, Figure 2 displays a histogram of bank-level exposure—i.e., the deposit-weighted share of a bank's footprint in counties with higher rates of cryptocurrency adoption—revealing that most banks cluster between 0.5% and 2% exposure, though a tail of institutions surpasses 3%. At the county level, Figure 3 shows the distribution of overall county exposure (again weighted by banks' deposit shares), indicating that most counties lie below 1% but a few outliers approach 4%.

Table 1 presents descriptive statistics for all variables, with observations winsorized at the 1% and 99% levels. The data are organized into three panels: a quarterly *Bank Panel* (2020:Q1–2022:Q4), an annual *County Panel* (2020–2022), and an annual *Bank–County Panel* (2020–2022). At the bank level, *Domestic Deposit Growth* shows an average (mean) of 0.031 with a standard deviation of 0.060, reflecting moderate growth and some heterogeneity across institutions. *Bank Exposure Weighted by Deposits* has a mean of 0.010 (std. 0.005), aligning with the histogram in Figure 2, where most banks' exposure is relatively modest. Meanwhile, *Transaction Deposit Growth* tends to be higher (mean 0.066, std. 0.192) than *Savings Deposit Growth* (mean 0.038, std. 0.094), and *Time Deposits* exhibit a slight net decline (mean −0.005, std. 0.097). This mix suggests a gradual shift in deposit composition over the sample period.

At the market (cryptocurrency) level, the *Cryptocurrency Market Return* has a mean of 0.275 (std. 0.563). Turning to the county panel, average *CryptoInterest* is under 1% but varies across regions (mean 0.008, std. 0.005), consistent with the spatial disparities observed in Figure 1. When aggregating bank exposure within each county, *County Exposure* centers around 0.0099 (std. 0.0041), which the histogram in Figure 3 depicts as right-skewed.

Finally, we also compare large versus small banks (not tabulated here) using the median of *Bank Exposure* to split the sample. While large banks display somewhat higher deposit and loan growth, their overall characteristics are broadly similar to those of small banks, lessening concerns about systematic differences in cryptocurrency-prone institutions. All variable definitions are provided in Table A1.

3 Results

3.1 cryptocurrency Exposure and Bank Deposit Growth

Table 2 presents estimates from a panel regression of the growth rate of total domestic deposits on a bank's exposure to crypto-investing households (*Exposure*) interacted with lagged cryptocurrency market returns (*Crypto Return*). The sample period is 2020:Q1 to 2022:Q4, and the dependent variable is $\log\left(\Delta \text{Total Deposits}_{b,t}\right)$, where Δ indicates the percentage change. Formally, we estimate:

$$\log(\Delta Y_{b,t}) \;=\; \beta_1 \Big[\text{Exposure}_b \times \text{CryptoReturn}_{t-1}\Big] \;+\; \text{Controls}_{b,t-1} \;+\; b \;+\; t \;+\; \varepsilon_{b,t},$$

where Exposure_b is the deposit-weighted share of counties with higher cryptocurrency interest in bank b's footprint, and $\text{CryptoReturn}_{t-1}$ is a value-weighted cryptocurrency market index lagged by one quarter. We include bank and year-quarter fixed effects in some specifications, and standard errors are clustered at the bank level.

Columns (1)–(4) sequentially add time fixed effects, bank fixed effects, and other controls (e.g., log of gross total assets, capital ratio, return on assets, ratio of non-performing loans to total assets, ratio of total loans to gross total assets, and ratio of total expenses to gross total assets). Across all specifications, the coefficient on

$\text{Exposure}_b \times \text{CryptoReturn}_{t-1}$ is negative and statistically significant, ranging from -0.654 to -0.527. In the most comprehensive model (Column (4)), the interaction term is -0.527 with a t-statistic of 5.54, implying that deposit growth declines more sharply at banks whose customer base is more heavily involved in cryptocurrency during quarters of strong cryptocurrency performance.

To quantify the economic significance, we evaluate a one-standard-deviation (1SD) shock to both $\text{CryptoReturn}_{t-1}$ (0.5346) and Exposure_b (0.0048). Using a representative coefficient of -0.5527, this joint increase translates into approximately a 0.16% (-0.00156) reduction in deposit growth.[6] Although modest in absolute terms, the result underscores that high cryptocurrency returns can divert households' financial flows away from traditional deposits—consistent with Aiello et al. (2023), who find that higher past cryptocurrency returns induce greater household investment in cryptocurrency rather than bank deposits. These findings suggest that, rather than serving as a catalyst for deposit inflows (e.g., via consumption or portfolio rebalancing), cryptocurrency gains appear to siphon off deposits from banks, especially those located in regions where households already exhibit stronger interest in digital assets.

3.2 Cryptocurrency Exposure and Deposit Type Heterogeneity

Table 3 explores whether the negative effect of cryptocurrency exposure on deposit growth varies by deposit type. In each column, the dependent variable is the logged growth rate of a specific deposit category—transaction, time, savings, insured, or uninsured—while the key explanatory variable remains $\text{Exposure}_b \times \text{CryptoReturn}_{t-1}$. All specifications include the full set of controls, as well as bank and year-quarter fixed effects, and standard errors are clustered at the bank level.

The results indicate that higher cryptocurrency returns, for banks operating in more crypto-investing areas, are strongly associated with lower growth in time, savings, in-

[6] Computed as $-0.5527 \times 0.005 \times 0.563 \approx -0.00156$.

sured, and uninsured deposits (Columns (2)–(5)). In contrast, Column (1) shows a small and statistically insignificant coefficient for transaction deposits, suggesting that transactional balances—likely used for routine payments—are not drawn down in response to cryptocurrency gains. By comparison, time deposits exhibit the largest sensitivity (-1.641), and savings, insured, and uninsured balances each fall substantially (-0.929, -0.808, and -0.765, respectively). These patterns are consistent with a shift away from non-transactional deposit balances toward cryptocurrency investments, reinforcing the idea that households substitute funds held in relatively long-term or interest-bearing deposit accounts for cryptocurrency assets when market conditions appear favorable. In this sense, the decomposition of deposit types aligns with the hypothesis that cryptocurrency returns primarily divert resources from savings-type products, rather than from transactional liquidity needs.

3.3 Robustness Checks on Cryptocurrency Exposure and Deposit Growth

Table 4 reports a series of robustness tests for the main result that higher cryptocurrency returns reduce deposit growth at more exposed banks. In each column, the dependent variable is $\log(\Delta \text{TotalDeposits}_{b,t})$, and the key regressor is the interaction $\text{Exposure}_b \times \text{CryptoReturn}_{t-1}$. All specifications include the standard control variables, as well as bank and year-quarter fixed effects, with standard errors clustered at the bank level.

Column (1) constructs Exposure_b using branch-level weights instead of deposit shares, yielding an interaction coefficient of -0.448 (t=4.67). Column (2) replaces the continuous exposure measure with an indicator that equals one if $\text{Exposure}_b > 0$. While the point estimate (-0.004, t=5.07) appears small, it reflects the scaling inherent in a dummy variable. Column (3) restricts the sample to banks with total assets under \$250 billion, whereas Columns (4) and (5) examine banks with assets above \$100 million and banks with strictly positive exposure, respectively. Across these variants, the estimated interaction consistently remains negative and highly significant (ranging from -0.484 to -0.527), confirming the robustness of our findings to different sample splits and definitions of exposure.

Quantitatively, a one-standard-deviation (1SD) increase in $\text{CryptoReturn}_{t-1}$ is associated with roughly 0.20% lower deposit growth for high-exposure banks compared to low-exposure banks, reinforcing the notion that cryptocurrency gains draw funds away from traditional deposit accounts under a wide array of sample restrictions and measurement choices.

3.4 Cryptocurrency Exposure and Bank Loan Growth

Table 5 extends our analysis to bank lending by regressing gross loan growth on the interaction of a bank's cryptocurrency exposure and the lagged cryptocurrency market return. Formally, we replace the deposit growth outcome in

$$\log(\Delta Y_{b,t}) \;=\; \beta_1\big[\text{Exposure}_b \times \text{CryptoReturn}_{t-1}\big] \;+\; \text{Controls}_{b,t-1} \;+\; b \;+\; t \;+\; \varepsilon_{b,t}$$

with $Y_{b,t} = \text{Gross Loans}_{b,t}$. As before, Exposure_b measures the deposit-weighted share of a bank's footprint in counties with higher cryptocurrency activity, and $\text{CryptoReturn}_{t-1}$ is a lagged, value-weighted index of major cryptocurrencies. All columns include the indicated controls, plus bank and year-quarter fixed effects, and we cluster standard errors at the bank level.

Across Columns (1)–(4), the interaction $\text{Exposure}_b \times \text{CryptoReturn}_{t-1}$ is consistently negative and statistically significant, with estimates ranging from -0.518 to -0.377. In the most saturated model (Column 4), the coefficient of -0.377 (t=4.33) implies that when cryptocurrency returns rise, banks operating in areas with greater cryptocurrency interest reduce loan growth more sharply. These findings mirror the patterns we observe for deposits, suggesting that deposit outflows linked to rising cryptocurrency prices constrain credit expansion. As a back-of-the-envelope calculation, a one-standard-deviation increase in both $\text{CryptoReturn}_{t-1}$ and Exposure_b translates into roughly a 0.15% drop in gross loan growth.[7]

Overall, this evidence indicates that banks heavily exposed to cryptocurrency-investing households do not merely lose deposits following strong cryptocurrency performance; they also scale back lending. Such a contraction in credit supply is consistent with a funding-driven mechanism: as deposit inflows diminish, banks' capacity or willingness to extend new loans declines. These results align with the broader narrative that robust cryptocurrency market returns prompt a reallocation of household assets away from traditional bank intermediaries, thereby spilling over into loan supply. Consistent with Aiello et al. (2023), the pattern underscores that households increase cryptocurrency holdings rather than replenish deposit or loan-financed spending when cryptocurrency valuations surge.

3.5 Robustness Checks on Cryptocurrency Exposure and Loan Growth

Table 6 presents a series of robustness checks on the negative relationship between cryptocurrency exposure and bank loan growth. In each column, the dependent variable is $\log(\Delta\text{GrossLoans}_{b,t})$, and the key regressor is $\text{Exposure}_b \times \text{CryptoReturn}_{t-1}$. We include the full set of bank-level controls, as well as bank and year-quarter fixed effects, with standard errors clustered at the bank level.

Column (1) constructs Exposure_b using branch-level weighting instead of deposit shares, yielding an interaction coefficient of -0.279 (t=3.35). In column (2), we replace the continuous measure of exposure with an indicator for whether $\text{Exposure}_b > 0$. Despite the shift in scale, the coefficient of -0.004 (t=4.77) remains economically meaningful. Columns (3) through (5) restrict the sample to banks with total assets below \$250 billion, banks above \$100 million in assets, and banks reporting strictly positive cryptocurrency

[7] For example, using -0.518 as a representative coefficient: $-0.518 \times 0.005 \times 0.563 \approx -0.00145$.

exposure, respectively. In each case, the interaction term stays negative and highly significant (ranging from -0.371 to -0.396).

Overall, these results confirm that, across a range of sample splits and definitions, higher cryptocurrency returns are associated with slower loan growth at banks more exposed to cryptocurrency-investing households. Quantitatively, a one-standard-deviation increase in $\text{CryptoReturn}_{t-1}$ can reduce loan growth by about 0.2 percent for high-exposure banks relative to their lower-exposure peers, reinforcing the conclusion that cryptocurrency-induced deposit outflows constrain credit expansion.

3.6 Cryptocurrency Exposure and Bank Loan Growth

Table 7 provides a two-stage least squares (2SLS) analysis examining how cryptocurrency-driven deposit inflows propagate into loan growth. In the first stage (Columns (1) and (2)), we regress $\log(\Delta\text{Total Deposits}_{b,t})$ on the instrument $\text{Exposure}_b \times \text{CryptoReturn}_{t-1}$, controlling for balance-sheet variables, as well as bank and year-quarter fixed effects. The negative coefficients (-0.629 and -0.645) align with earlier findings that high cryptocurrency returns prompt greater deposit outflows at banks with higher cryptocurrency exposure Aiello, Baker, Balyuk, Di Maggio, Johnson, and Kotter 2023. The strong F-statistics (42.193 and 45.154) confirm the instrument's relevance.

In the second stage (Columns (3) and (4)), the dependent variable is $\log(\Delta\text{Gross Loans}_{b,t})$, with the predicted deposit growth serving as the main regressor. The coefficients (0.774 and 0.796) indicate that a 1 percentage point increase in cryptocurrency-driven deposit growth leads to roughly a 0.8 percentage point increase in loan growth, suggesting a near one-for-one pass-through. This elasticity is consistent with other settings in which local deposit expansions spur proportional rises in lending Gilje, Ready, and Roussanov 2016; Gilje 2019. Overall, the 2SLS estimates confirm that households' reallocation toward cryptocurrency does not merely affect banks' deposit base, it also constrains their capacity or willingness to extend credit.

3.7 Cryptocurrency Exposure and Bank Loan Growth Robustness

Table 8 reports a set of two-stage least squares (2SLS) robustness tests for the link between cryptocurrency-driven deposit growth and subsequent loan expansion. In each specification, the first stage remains the same as in Table 7 (regressing deposit growth on the interaction of Exposure and CryptoReturn), while the second stage regresses $\log(\Delta \text{GrossLoans}_{b,t})$ on the instrumented deposit growth. Columns (1) through (5) vary key sample restrictions or exposure definitions, including branch-based weighting, an exposure dummy, size cutoffs ($250B or $100M), and strictly positive exposure. All regressions include controls, as well as bank and year-quarter fixed effects, and standard errors are clustered at the bank level.

Across these columns, the coefficient on instrumented deposit growth ranges from 0.510 to 0.846 and is statistically significant in every case (t-statistics from 2.77 to 3.71). This implies that a 1 percentage point increase in cryptocurrency-driven deposit growth consistently raises loan growth by about 0.51 to 0.85 percentage points. The F-statistics, which fall between 22.775 and 30.340, remain comfortably above conventional weak-instrument thresholds. Taken together, these findings corroborate the stable pass-through from deposit inflows to lending activity under a range of exposure definitions and sample splits, reinforcing the view that shifts in cryptocurrency-driven deposit supply can meaningfully influence banks' credit provision.

3.8 Cryptocurrency Exposure and Bank-County Small Business Lending

Table 9 examines whether the cryptocurrency-induced deposit outflows documented at the bank level translate into reduced lending to small businesses at the local (bank-county) level. Small businesses often depend more heavily on local banks for external financing, so a contraction in deposit supply could disproportionately affect their access to credit. To explore this channel, we construct a bank-county panel of small business loan growth using Community Reinvestment Act (CRA) data.

Formally, we estimate

$$\log(\Delta \text{SmallBusinessLoans}_{b,c,t}) = \beta_1 \left[\text{Exposure}_b \times \text{CryptoReturn}_{t-1}\right] + \text{Controls}_{b,t-1} + b + (c \times t) + \varepsilon_{b,c,t},$$

where $\log(\Delta \text{SmallBusinessLoans}_{b,c,t})$ is the annual growth rate of small business lending by bank b in county c. The specification includes bank fixed effects (b) and county-by-year fixed effects ($c \times t$), thereby comparing loan growth among banks with differing cryptocurrency exposures but operating in the same county-year. Standard errors are clustered by bank-county.

Columns (1) and (2) employ a deposit-weighted measure of Exposure_b, while columns (3) and (4) use a dummy that equals one if a bank's exposure exceeds a certain threshold (e.g., the sample median). Across all columns, $\text{Exposure}_b \times \text{CryptoReturn}_{t-1}$ is negative and statistically significant, with t-statistics as high as 24.31 for the dummy-based specifications. Economically, a one-standard-deviation increase in cryptocurrency returns correlates with about 0.4 percent lower small business loan growth for banks with relatively high cryptocurrency exposure, compared to lower-exposure peers in the same county-year. These findings reinforce our earlier bank-level results, indicating that cryptocurrency-driven deposit outflows can meaningfully limit credit supply to small businesses at the local level.

3.9 Cryptocurrency Exposure and County-Level Small Business Lending

Table 10 shifts the analysis to the county level by examining how small business loan growth relates to a county's overall exposure to crypto-investing banks. Specifically, the dependent variable is $\log(\Delta\text{SmallBusinessLoans}_{c,t})$, the annual growth rate of total small business lending in county c. The key regressor is $\text{CountyExposure}_c \times \text{CryptoReturn}_{t-1}$, where CountyExposure_c aggregates banks' Exposure_b values (from earlier tables) according to one of three definitions: a deposit-weighted average of all banks operating in the county (Columns (1)–(2)), a dummy that equals one if the deposit-weighted average in the county is above a threshold (Columns (3)–(4)), or the deposit-weighted fraction of banks in the county that rank in the top quartile of Exposure_b (Columns (5)–(6)).

All specifications include county and year fixed effects, forcing comparisons within each county over time, and standard errors are clustered at the county level. Across Columns (1)–(6), the interaction $\text{CountyExposure}_c \times \text{CryptoReturn}_{t-1}$ remains negative and statistically significant, with t-statistics ranging from 1.66 to 2.54 under the deposit-weighted or dummy measures, and around 2.25 for the high-exposure specification. These estimates suggest that in counties where a larger share of banks is heavily exposed to crypto-investing households, higher cryptocurrency returns coincide with weaker small business loan growth. For example, in Columns (1)–(2), a county with one-standard-deviation higher CountyExposure_c experiences approximately 0.8% lower small business loan growth when cryptocurrency returns surge, compared to a county with fewer exposed banks. In this way, deposit outflows linked to household cryptocurrency activity appear to curtail credit provision at the local level, mirroring the patterns observed in both bank- and bank-county-level analyses but now aggregated across all lenders in the local market.

3.10 Cryptocurrency Exposure and Real Economic Outcomes

In Table 11, we examine whether the deposit- and loan-level effects of cryptocurrency exposure carry over to local economic activity at the county level. We focus on two measures of economic growth: the number of establishments (Panel A) and total employment (Panel B). Smaller firms often rely on local banks for credit, so a contraction in funding due to cryptocurrency-driven deposit outflows could reduce both new business formation and hiring.

Panel A uses $\log(\Delta \text{Establishments}_{c,t})$ as the dependent variable. Columns (1), (3), and (5) capture county-wide establishment growth, while columns (2), (4), and (6) disaggregate into bank-dependent sectors (see Lin 2020). CountyExposure is defined in three ways: a deposit-weighted average (columns (1)-(2)), a binary exposure indicator (columns (3)-(4)), or the share of high-exposure banks (columns (5)-(6)). In most cases, the interaction $\text{CountyExposure}_c \times \text{CryptoReturn}_{t-1}$ is negative and statistically significant, indicating that higher cryptocurrency returns coincide with lower establishment growth when local banks have greater cryptocurrency exposure. Where an additional interaction with a sector-specific bank-dependence measure is present, the effect becomes more pronounced in industries heavily reliant on external financing.

Panel B repeats the analysis for $\log\big(\Delta \text{Employment}_{c,t}\big)$. The results generally mirror Panel A, with higher cryptocurrency returns dampening job growth in counties characterized by banks with more cryptocurrency-exposed depositors. Again, the estimates intensify in bank-dependent sectors. Overall, these findings suggest that cryptocurrency-related deposit outflows extend beyond the banking system to affect real economic outcomes, slowing both establishment creation and employment gains in regions where businesses depend more on local credit availability.

4 Conclusion

This paper demonstrates that cryptocurrency markets can materially disintermediate traditional banks and spill over into the broader economy through an indirect exposure channel. Rising cryptocurrency returns prompt households with cryptocurrency holdings to withdraw deposits from their banks, leading to weaker deposit growth. Banks operating in regions more exposed to crypto-investing households bear the greatest outflows, which translate into smaller loan portfolios at both the bank and bank-county levels.

Our two-stage least squares estimates confirm that the resulting deposit shortfalls effectively curtail credit supply, with small businesses—often reliant on stable local lending—being particularly affected. By linking crypto-driven deposit shocks to reduced bank lending, these findings highlight an important feedback mechanism: when cryptocurrency markets are booming, banks in highly exposed areas face liquidity pressures that inhibit credit expansion.

Further evidence indicates that the impact extends beyond individual banks and borrowers to the local economy at large. Counties served by banks with greater cryptocurrency exposure exhibit slower growth in establishment counts and employment, especially in sectors that depend heavily on external financing. This outcome underscores that household reallocations into cryptocurrency can have tangible, real-sector effects that reverberate throughout the community.

Overall, our results highlight that the rise of cryptocurrency represents not only a novel investment avenue for households but also a potential challenge for traditional intermediaries and local economic development. Policymakers seeking to understand the financial stability implications of cryptocurrency adoption should note that even modest household participation can trigger meaningful shifts in bank funding and credit supply, ultimately dampening growth prospects for regions most exposed to crypto-investing households.

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Figure 1: **County-Level Map of Cryptocurrency Interest as of IRS Reporting Year (i.e., 2020)**

This figure plots the household taxable income from cryptocurrency investment in the US by county in 2021.

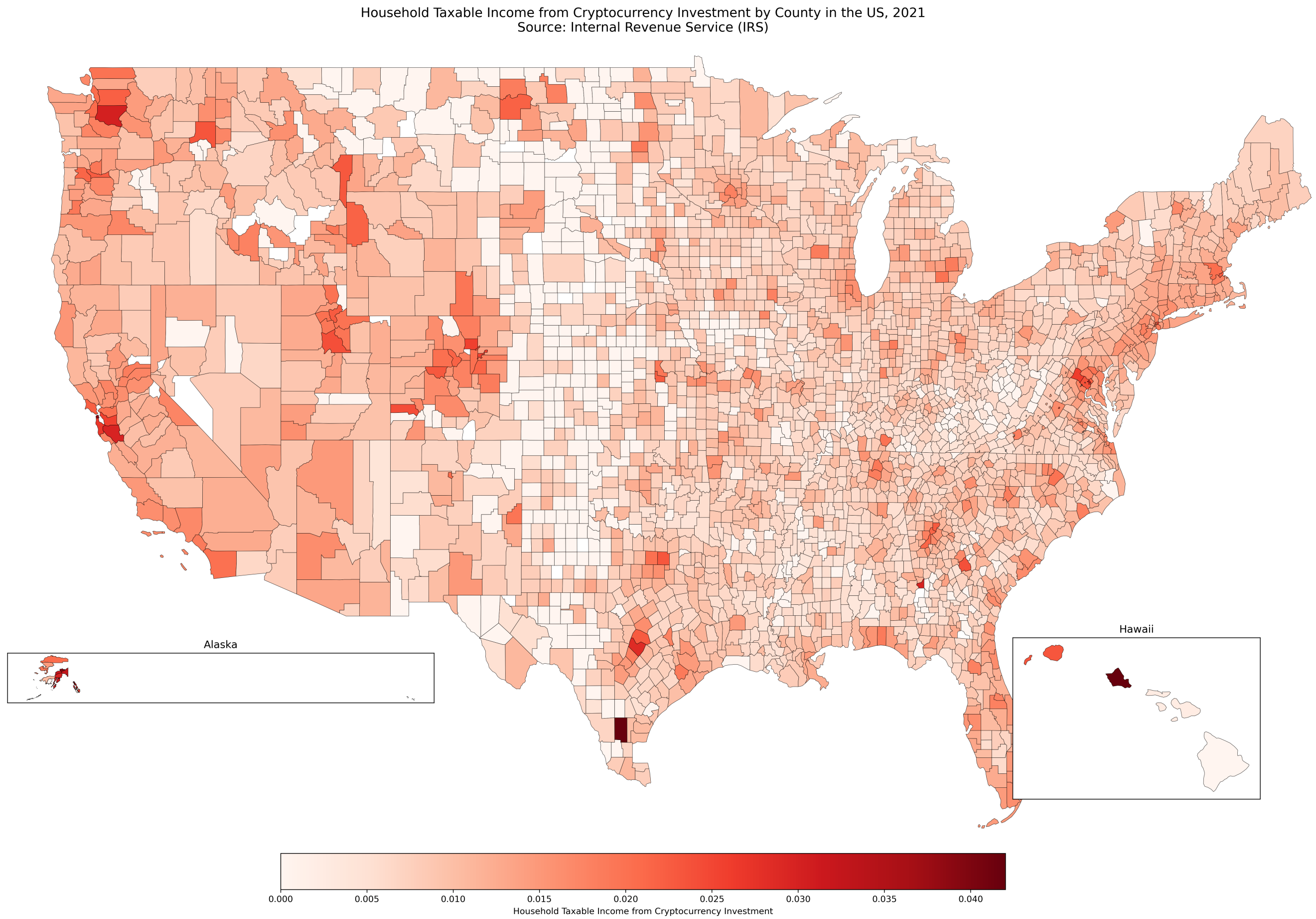

FIGURE 2: **Bank-Level Histogram of Cryptocurrency Exposure as of IRS Reporting Year (i.e., 2020)**

This figure plots the distribution of banks' exposure to households with cryptocurrency investments in 2021.

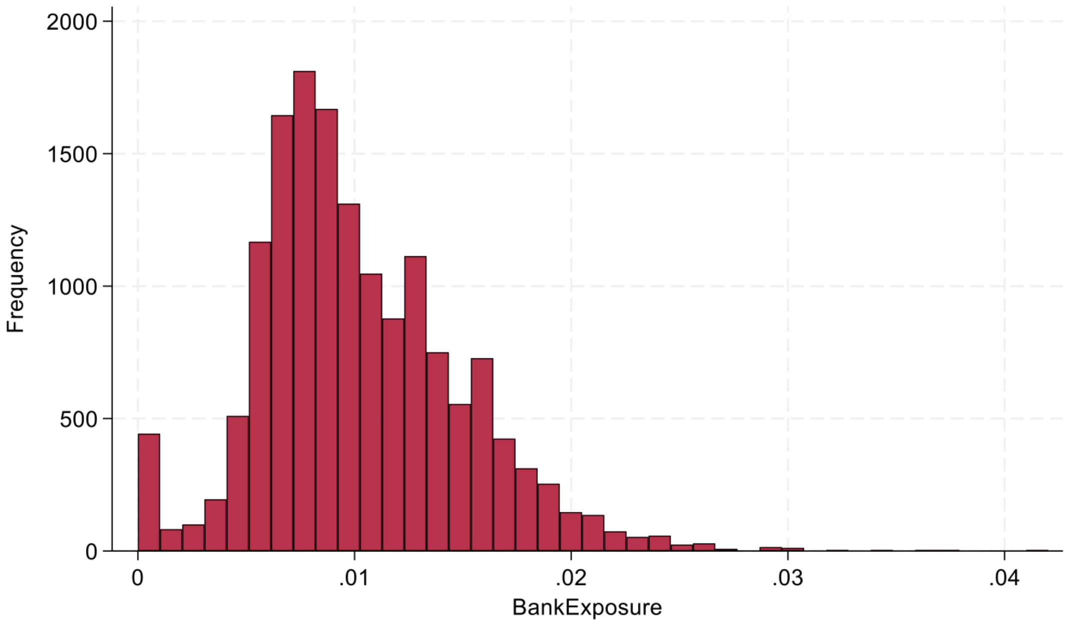

Figure 3: **County-Level Histogram of County Exposure as of IRS Reporting Year (i.e., 2020)**

This figure plots the county-level distribution of the deposit-weighted average of banks' exposure to households with cryptocurrency investments in 2021.

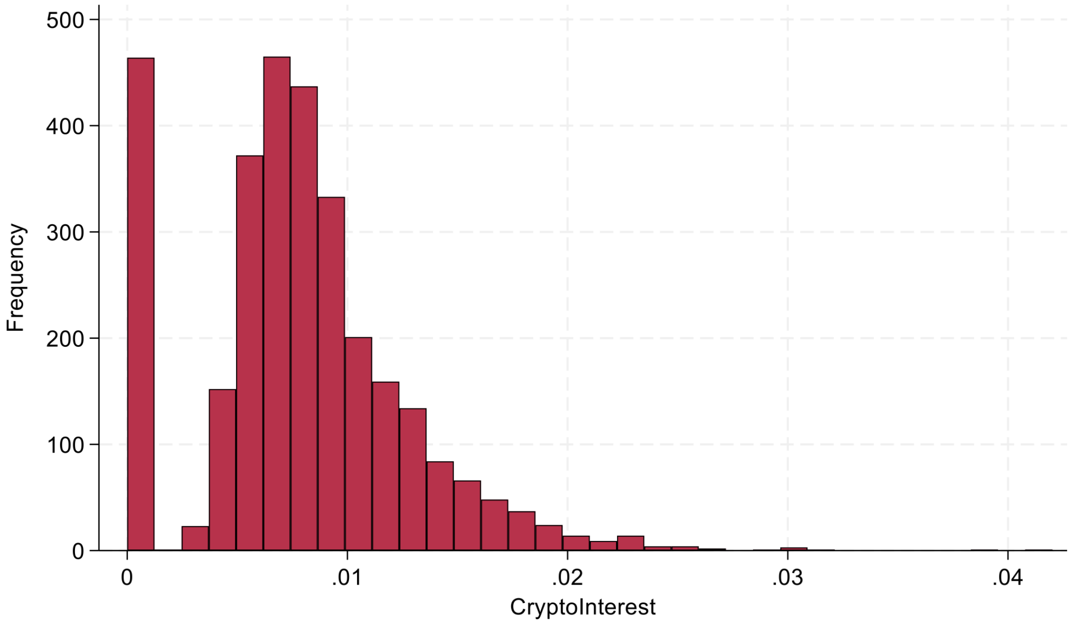

Table 1: **Descriptive Statistics**

This table summarizes statistics for regression variables, winsorized at the 1% and 99% levels. The sample period for the "Bank Panel", which is a quarterly panel of banks, is 2020:Q1 to 2022:Q4. The sample period for the "County Panel", which is an annual county panel, and the "Bank-County Panel", which is an annual bank-county panel, are both 2020 to 2022.

	Count	Mean	SD	25%	50%	75%
Bank Panel						
Crypto Interest	3054	0.0077	0.0049	0.0054	0.0076	0.0102
Market Return	44627	0.2772	0.5346	-0.0200	0.1861	0.5414
Bank Exposure	44627	0.0102	0.0048	0.0070	0.0093	0.0131
Bank Exposure Weighted by Branches	44627	0.0100	0.0049	0.0070	0.0093	0.0130
High Bank Exposure	44627	0.4249	0.4943	0	0	1
log Growth Rate of gross loans	44627	0.0176	0.0534	-0.0077	0.0086	0.0392
log Growth Rate of Domestic Deposits	44627	0.0284	0.0555	-0.0042	0.0210	0.0524
log Growth Rate of Transaction Deposits	44538	0.0526	0.1465	-0.0159	0.0314	0.0927
log Growth Rate of Time Deposits	44627	-0.0094	0.0902	-0.0483	-0.0158	0.0131
log Growth Rate of Savings Deposits	44627	0.0337	0.0906	-0.0060	0.0323	0.0743
log Growth Rate of Insured Deposits	44627	0.0184	0.0569	-0.0095	0.0108	0.0378
log Growth Rate of Uninsured Deposits	44627	0.0471	0.1140	-0.0163	0.0386	0.1022
log(GTA)	44627	13.0609	1.3466	12.1271	12.8592	13.7433
Capital Ratio	44627	0.1079	0.0349	0.0884	0.1018	0.1198
ROA	44627	0.0066	0.0061	0.0029	0.0056	0.0093
NPL/Total Loans	44627	0.0156	0.0207	0.0027	0.0088	0.0197
Total Loans/GTA	44627	0.6301	0.1461	0.5398	0.6486	0.7393
Total Expense/GTA	44627	0.0191	0.0133	0.0100	0.0168	0.0250
County Panel						
County Exposure	65751	0.0099	0.0041	0.0073	0.0098	0.0127
County Exposure Using High Exposure Banks	6339	0.0068	0.0057	0.0014	0.0057	0.0118
High County Exposure	6339	0.2516	0.4340	0	0	1
log Growth Rate of Establishments	65751	0.0002	0.3093	-0.0406	0.0016	0.0423
log Growth Rate of Employment	65751	0.0226	0.3308	-0.0708	0.0434	0.1185
log Growth Rate of CRA Loans	6339	-0.1299	0.3084	-0.2944	-0.1658	0.0033
log Growth Rate of Deposits	6339	0.0829	0.1143	0.0407	0.0831	0.1275
log GDP Growth Rate	6339	0.0093	0.0679	-0.0297	0.0068	0.0483
log Population Growth Rate	6339	0.0011	0.0119	-0.0047	0	0.0064
Bank-County Panel						
log Growth Rate of CRA Loans	196215	0.0135	1.2889	-0.5622	0	0.5991

Table 2: **Cryptocurrency Exposure and Bank Deposit Growth**

This table examines how exposure to cryptocurrency interest influences banks' deposits. The dependent variable is the log growth rate of total domestic deposits, and the main independent variable of interest is the interaction between Exposure and CryptoReturn. All independent variables are lagged by one period. The sample period is 2020:Q1 to 2022:Q4. Standard errors are clustered at the bank level. $*$, $**$, and $***$ denote statistical significance at the 10%, 5%, and 1% level, respectively. T-statistics are reported in parentheses. Δ represents the percentage growth rate of the corresponding variable.

	(1)	**(2)**	**(3)**	**(4)**
	Log(ΔTotal Deposit)			
Exposure * Crypto Return	-0.654***	-0.643***	-0.629***	-0.527***
	(6.79)	(6.68)	(6.50)	(5.54)
Exposure	0.621***	0.605***		
	(7.75)	(7.56)		
Crypto Return	0.019***			
	(18.39)			
Controls	No	No	No	Yes
Bank FE	No	No	Yes	Yes
Year-quarter FE	No	Yes	Yes	Yes
R-squared	0.016	0.231	0.332	0.406
Observations	44,629	44,629	44,564	44,562

Table 3: **Cryptocurrency Exposure and Bank Deposit Growth by Deposit Type**

This table examines how exposure to cryptocurrency interest influences banks' deposits. The main independent variable of interest is the interaction between Exposure and CryptoReturn, and the dependent variable of interest is the log growth rate of deposits in different account types, including transaction, time, savings, insured, and uninsured. Each column corresponds to a different account type. All independent variables are lagged by one period. The sample period is 2020:Q1 to 2022:Q4. Standard errors are clustered at the bank level. $*$, $**$, and $***$ denote statistical significance at the 10%, 5%, and 1% level, respectively. T-statistics are reported in parentheses. Δ represents, growth rate of that variable.

	(1)	(2)	(3)	(4)	(5)
			Log(ΔDeposit)		
	Transaction	**Time**	**Savings**	**Insured**	**Uninsured**
Exposure*Crypto Return	0.221	-1.641***	-0.929***	-0.808***	-0.765***
	(0.81)	(7.91)	(5.43)	(6.21)	(3.84)
Controls	Yes	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes
Year-quarter FE	Yes	Yes	Yes	Yes	Yes
R-squared	0.212	0.206	0.223	0.277	0.234
Observations	44,473	44,562	44,562	44,562	44,562

Table 4: **Cryptocurrency Exposure and Bank Deposit Growth Robustness**

This table examines a set of robustness conditions for regression analysis of the relationship between exposure to cryptocurrency interest and bank deposit growth. The dependent variable is the log growth rate of total domestic deposits, and the main independent variable of interest is the interaction between Exposure and CryptoReturn. All independent variables are lagged by one period. The sample period is 2020:Q1 to 2022:Q4. Standard errors are clustered at the bank level. $*$, $**$, and $***$ denote statistical significance at the 10%, 5%, and 1% level, respectively. T-statistics are reported in parentheses. Δ represents the percentage growth rate of the corresponding variable.

	(1)	**(2)**	**(3)**	**(4)**	**(5)**
			Log(ΔTotal Deposit)		
Condition	**Branch weights**	**Exposure dummy**	**Assets<$250B**	**Assets>$100M**	**Exposure>0**
Exposure*Crypto Return	-0.448***	-0.004***	-0.527***	-0.484***	-0.482***
	(4.67)	(5.07)	(5.51)	(4.77)	(4.84)
Controls	Yes	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes
Year-quarter FE	Yes	Yes	Yes	Yes	Yes
R-squared	0.405	0.405	0.406	0.411	0.408
Observations	44,473	44,562	44,442	40,734	43,561

Table 5: **Cryptocurrency Exposure and Bank Loan Growth**

This table examines how exposure to cryptocurrency interest influences banks' deposits. The dependent variable is the log growth rate of gross loans, and the main independent variable of interest is the interaction between Exposure and CryptoReturn. All independent variables are lagged by one period. The sample period is 2020:Q1 to 2022:Q4. Standard errors are clustered at the bank level. $*$, $**$, and $***$ denote statistical significance at the 10%, 5%, and 1% level, respectively. T-statistics are reported in parentheses. Δ represents the percentage growth rate of the corresponding variable.

	(1)	(2)	(3)	(4)
	Log(ΔGross Loans (t to t+1))			
Exposure*Crypto Return	-0.518***	-0.501***	-0.486***	-0.377***
	(5.50)	(5.34)	(5.19)	(4.33)
Exposure	0.768***	0.759***		
	(9.30)	(9.18)		
Crypto Return	-0.004***			
	(3.74)			
Controls	No	No	No	Yes
Bank FE	No	No	Yes	Yes
Year-quarter FE	No	Yes	Yes	Yes
R-squared	0.012	0.229	0.357	0.428
Observations	44,629	44,629	44,564	44,562

Table 6: **Cryptocurrency Exposure and Bank Loan Growth Robustness**

This table examines a set of robustness conditions for regression analysis of the relationship between exposure to cryptocurrency interest and bank loan growth. The dependent variable is the log growth rate of gross loans, and the main independent variable of interest is the interaction between Exposure and CryptoReturn. All independent variables are lagged by one period. The sample period is 2020:Q1 to 2022:Q4. Standard errors are clustered at the bank level. $*$, $**$, and $***$ denote statistical significance at the 10%, 5%, and 1% level, respectively. T-statistics are reported in parentheses. Δ represents the percentage growth rate of the corresponding variable.

	(1)	**(2)**	**(3)**	**(4)**	**(5)**
	Log(ΔGross Loans)				
Condition	**Branch weights**	**Exposure dummy**	**Assets<$250B**	**Assets>$100M**	**Exposure>0**
Exposure*Crypto Return	-0.279***	-0.004***	-0.393***	-0.371***	-0.396***
	(3.35)	(4.77)	(4.52)	(4.19)	(4.42)
Controls	Yes	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes
Year-quarter FE	Yes	Yes	Yes	Yes	Yes
R-squared	0.428	0.428	0.429	0.443	0.431
Observations	44,562	44,562	44,442	40,734	43,550

TABLE 7: **Cryptocurrency Exposure and Bank Loan Growth**

This table examines the passthrough rate from cryptocurrency-driven deposit growth to gross loan growth using a two-stage least squares regression model. In the first stage, the dependent variable is the log growth rate of total domestic deposits, and the main independent variable of interest is the interaction between Exposure and CryptoReturn. All independent variables are lagged by one period. In the second stage, the dependent variable is the growth rate of gross loans, and the independent variable of interest is the instrumented growth rate of total domestic deposits. Second stage coefficient estimates represent the percentage point increase in gross loan growth associated with a one percentage point increase in cryptocurrency-driven deposit growth. The sample period is 2020:Q1 to 2022:Q4. Standard errors are clustered at the bank level. $*$, $**$, and $***$ denote statistical significance at the 10%, 5%, and 1% level, respectively. T-statistics are reported in parentheses. Δ represents the growth rate of that variable.

	(1)	(2)	(3)	(4)
	First Stage		**Second Stage**	
	Log(ΔTotal Deposits)		**Log(ΔGross Loans**	
Exposure*Crypto Return	-0.629***	-0.645***		
	(6.50)	(6.72)		
$\mathbf{\Delta}$ $\widehat{\text{Total Deposits}}$			0.774***	0.796***
			(4.18)	(4.39)
Controls	No	Yes	No	Yes
Bank FE	Yes	Yes	Yes	Yes
Year-quarter FE	Yes	Yes	Yes	Yes
F-statistic	42.193	45.154		
Observations	44,564	44,627	44,564	44,627

Table 8: **Cryptocurrency Exposure and Bank Loan Growth Robustness**

This table examines a variety of robustness conditions for the passthrough rate from cryptocurrency-driven deposit growth to gross loan growth using a two-stage least squares regression model. In the first stage, the dependent variable is the log growth rate of total domestic deposits, and the main independent variable of interest is the interaction between Exposure and CryptoReturn. All independent variables are lagged by one period. In the second stage, the dependent variable is the log growth rate of gross loans, and the independent variable of interest is the instrumented growth rate of total domestic deposits. Second stage coefficient estimates represent the percentage point increase in gross loan growth associated with a one percentage point increase in cryptocurrency-driven deposit growth. The sample period is 2020:Q1 to 2022:Q4. Standard errors are clustered at the bank level. $*$, $**$, and $***$ denote statistical significance at the 10%, 5%, and 1% level, respectively. T-statistics are reported in parentheses. Δ represents the percentage growth rate of the corresponding variable.

	(1)	**(2)**	**(3)**	**(4)**	**(5)**
			Log(ΔGross Loans)		
Condition	**Branch weights**	**Exposure dummy**	**Assets<$250B**	**Assets>$100M**	**Exposure>0**
$\mathbf{\Delta}$ $\widehat{\text{Total Deposits}}$	0.510***	0.846***	0.745***	0.768***	0.814***
	(2.77)	(3.56)	(3.71)	(3.31)	(3.47)
Controls	Yes	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes
Year-quarter FE	Yes	Yes	Yes	Yes	Yes
F-statistic	25.933	25.697	30.340	22.775	23.509
Observations	46,049	44,562	44,442	40,734	43,561

Table 9: **Cryptocurrency Exposure and Bank-County Loan Growth**

This table examines the within-county relationship between banks' small business loan growth and their exposure to cryptocurrency interest. The fixed effects regressions follow the approach of Khwaja and Mian (2008); county $\times$ year fixed effects force identifying variation to come from loan growth comparisons between banks with high and low exposure to cryptocurrency interest in other markets. The sample period is 2020 to 2022. Standard errors are clustered at the bank $\times$ county level. $*$, $**$, and $***$ denote statistical significance at the 10%, 5%, and 1% level, respectively. T-statistics are reported in parentheses. Δ represents the percentage growth rate of the corresponding variable.

	(1)	(2)	(3)	(4)
	Log(ΔSmall Business Loans)			
Exposure	**Deposit-weighted**		**Exposure Dummy**	
Exposure*Crypto Return	-1.758***	-1.702**	-0.144***	-0.122***
	(2.60)	(2.30)	(24.31)	(19.65)
Controls	No	Yes	No	Yes
Bank FE	Yes	Yes	Yes	Yes
County*Year FE	Yes	Yes	Yes	Yes
R-squared	0.150	0.157	0.154	0.159
Observations	182,864	182,864	182,864	182,864

Table 10: **Cryptocurrency Exposure and Small Business Loan Growth**

This table examines the county-level relationship between small business loan growth and banks' exposure to cryptocurrency interest in other markets. The dependent variable is the log growth rate of small business loan amounts among all banks operating in the county, and the main independent variable of interest is the interaction between CountyExposure and CryptoReturn. In columns (1) and (2), CountyExposure is defined as the deposit-weighted average of Exposure for banks that operate within the county. In columns (3) and (4), CountyExposure is defined as an indicator if the deposit-weighted average of Exposure for banks that operate within the county is in the top quartile of the county-level distribution. In columns (5) and (6), CountyExposure is defined as the deposit-weighted share of banks operating in the county that are in the top quartile of the bank-level distribution of Exposure. The sample period is 2020 to 2022. Standard errors are clustered at the county level. $*$, $**$, and $***$ denote statistical significance at the 10%, 5%, and 1% level, respectively. T-statistics are reported in parentheses. Δ represents the percentage growth rate of the corresponding variable.

	(1)	(2)	(3)	(4)	(5)	(6)
	Log(ΔSmall Business Loans)					
CountyExposure	**Deposit-Weighted**		**Exposure Dummy**		**High Exposure Banks' Share**	
CountyExposure*CryptoReturn	-1.741*	-1.678*	-0.016**	-0.015**	-1.381**	-1.370**
	(1.75)	(1.66)	(2.54)	(2.49)	(2.25)	(2.21)
Controls	No	Yes	No	Yes	No	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
County FE	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.431	0.432	0.431	0.489	0.431	0.433
Observations	6,064	6,064	6,064	6,064	6,064	6,064

Table 11: **Cryptocurrency Exposure and County Loan Growth**

This table examines the county-level relationship between establishment and employment growth and banks' exposure to cryptocurrency interest in other markets. The dependent variable in Panel A is Log(ΔEstablishments), and the dependent variable in Panel B is Log(ΔEmployment). Columns (1), (3), and (5) of each panel are county-level aggregate growth rates, and columns (2), (4), and (6) disaggregate to county-sector level growth rates in order to isolate bank-dependent sectors as in Lin (2020). In columns (1) and (2), CountyExposure is defined as the deposit-weighted average of Exposure for banks that operate within the county. In columns (3) and (4), CountyExposure is defined as an indicator if the deposit-weighted average of Exposure for banks that operate within the county is in the top quartile of the county-level distribution. In columns (5) and (6), CountyExposure is defined as the deposit-weighted share of banks operating in the county that are in the top quartile of the bank-level distribution of Exposure. The sample period is 2020Q1 to 2022Q4. Standard errors are clustered at the county level. $*$, $**$, and $***$ denote statistical significance at the 10%, 5%, and 1% level, respectively. T-statistics are reported in parentheses. Δ represents the percentage growth rate of the corresponding variable.

Panel A. Establishment Growth

	(1)	(2)	(3)	(4)	(5)	(6)
	Log(ΔEstablishments)					
CountyExposure	**Deposit-weighted**		**Exposure dummy**		**High Exposure Banks' Share**	
CountyExposure*CryptoReturn	-1.727***	-2.154***	-0.011***	-0.013**	-1.200***	-0.267
	(5.64)	(2.65)	(5.33)	(2.22)	(6.09)	(0.49)
CountyExposure*CryptoReturn		-3.154**		-0.043***		-4.983***
***Dependent**		(2.55)		(5.21)		(5.60)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year-Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
County FE	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.066	0.056	0.059	0.056	0.102	0.059
Observations	36,431	65,751	36,431	65,751	36,431	54,972

Panel B. Employment Growth

	(1)	(2)	(3)	(4)	(5)	(6)
	Log(ΔEmployment)					
CountyExposure	**Deposit-weighted**		**Exposure dummy**		**High Exposure Banks' Share**	
CountyExposure*CryptoReturn	-0.855**	-2.183**	-0.006***	-0.012**	-0.663***	-0.195
	(2.22)	(2.56)	(2.23)	(2.27)	(2.69)	(0.35)
CountyExposure*CryptoReturn		-1.170		-0.024***		-3.109***
***Dependent**		(0.88)		(2.87)		(3.53)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year-Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
County FE	Yes	Yes	Yes	Yes	Yes	Yes
Adj R-squared	0.066	0.057	0.103	0.059	0.103	0.068
Observations	36,431	65,758	36,431	65,758	36,431	54,973

Appendix

Table A1: **Variable Definitions**

Variable	Definition
Bank Level	
Domestic Deposit Growth	Growth rate of total domestic deposits.
Transaction Deposit Growth	Growth rate of transaction deposits.
Time Deposit Growth	Growth rate of time deposits.
Savings Deposit Growth	Growth rate of savings deposits.
Insured Deposit Growth	Growth rate of insured deposits, where insured deposits are the deposits accounts with value no more than $250,000.
Uninsured Deposit Growth	Growth rate of insured deposits, where insured deposits are the deposits accounts with value above $250,000.
Log(Gross Total Assets)	Log of Gross total Assets, where gross total assets equal to the sum of total assets, the allowance for loan and lease losses, and the allocated transfer risk reserve.
Capital Ratio	Total equity divided by GTA.
ROA	Return on GTA, calculated as net income divided by GTA.
Non-Performing Loans/Total Loans	Non-performing loans divided by GTA.
Total Loans/Gross Total Assets	Total loans divided by GTA.
Total Expenditure/Gross total assets	Total expenses divided by GTA.
Total Loan Growth Rate	Growth rate of total gross loans.
County Level	
Crypto Interest	Interest of cryptocurrency assets in a focal county, measured by the percentage of taxpayers possessing digital assets.
GDP	Gross domestic product in a focal county.
Population	Population in a focal county.
Quarterly Establishment (count)/Capita	The count of establishments in a county per capita
Bank County Level	
log Out of County Deposit Growth (CRA)	The growth of the total deposits of a given bank outside of a focal county from t to t+1.
log CRA loan Growth	CRA loan Growth rate of a bank in a county from t to t+1.
Out of County Local Exposure to Bank Shock Weighted by Branch (CRA)	The sum of bank level exposure distributed to counties it operates in out side of a focal county weighted by branches in those counties in CRA sample.
Out of County Local Exposure to Bank Shock Weighted by deposits (CRA)	The sum of bank level exposure distributed to counties it operates in out side of a focal county weighted by Deposits in those counties in CRA sample.
CryptoMarket Return	Quarterly return of the market of cryptocurrency assets.