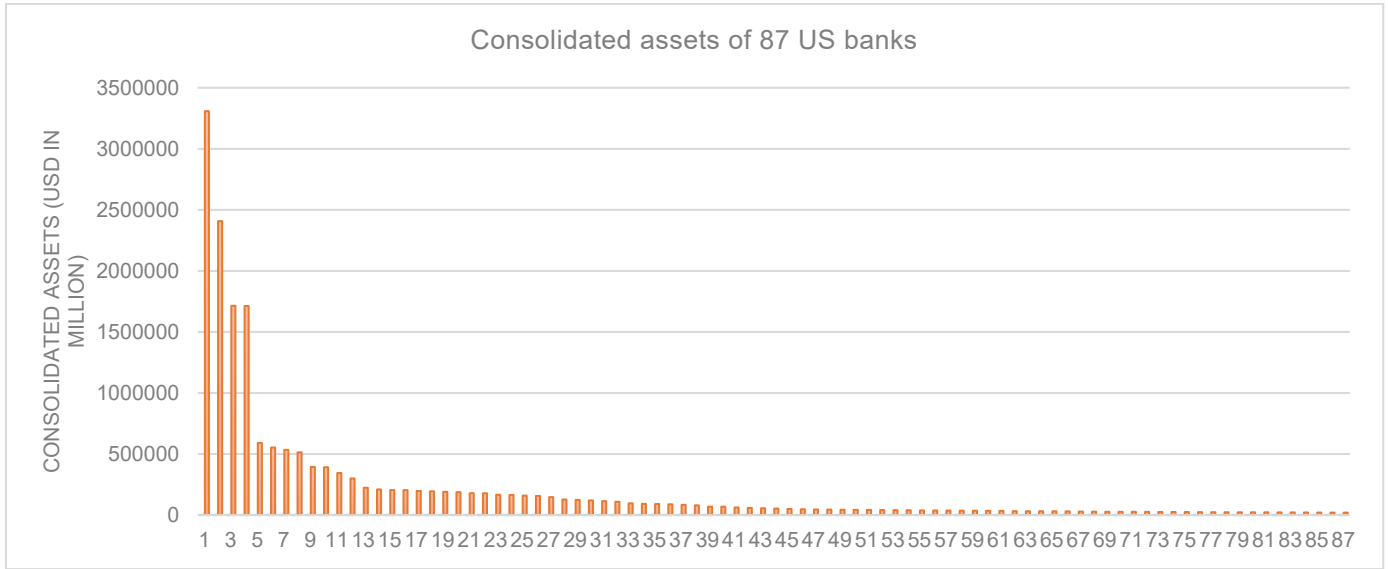


Appendix S1. Variable descriptions and data sources

Variables	Descriptions	Data sources
Loan-to-deposit (Loan/Deposit)	The ratio of the bank's total loans to its total deposits. It is expressed as a percentage.	BankFocus
Liquid assets to total assets (LA/TA)	The ratio of the bank's total liquid assets to total assets. It is expressed as a percentage.	BankFocus
Return on assets (ROA)	The ratio of net income to total assets. It is expressed as a percentage.	BankFocus
Return on equity (ROE)	The ratio of net income to total equity. It is expressed as a percentage.	BankFocus
Shadow short rate (SSR)	Shadow short rate (SSR) measures effective monetary policy stance, including intervention of unconventional monetary policy tools as QE, forward guidance, and other unconventional measures with the conventional monetary policy tool as the Fed funds rate to represent the combined effect. It is expressed as a percentage as an effective interest rate.	Krippner (2025)
COVID-19 cases (LogCOVID-19)	Number of COVID-19 cases in the U.S. expressed as a quarterly average and transformed into a natural logarithm.	World Health Organization (2025)
Cost-to-income (Cost/Income)	The ratio of total operating expenses divided by total operating revenues to represent the cost efficiency of the bank. It is expressed as a percentage.	BankFocus
LogZ-Score	The ratio of ROA added with capitalization (Equity/Assets) and divided by the standard deviation of ROA to indicate the financial stability of the bank. It has been transformed into a natural logarithm.	BankFocus
Impaired loans to gross customer loans and advances (IL/TL)	The ratio of impaired loans to total outstanding loans. It is expressed as a percentage.	BankFocus
Capital adequacy ratio (CAR)	The ratio measures the level of available capital of a bank as a percentage of its risk-weighted credit exposures. It is expressed as a percentage.	BankFocus
Bank size (LogAssets)	Total consolidated assets of the bank in million USD transformed into a natural logarithm.	BankFocus
Bank age (LogAge)	Age of bank in year transformed into the natural logarithm.	Bank's website
Bank leverage (Debt/Assets)	The ratio of total debt divided by total assets indicates a bank's debt to finance its assets. It is expressed as a percentage.	BankFocus
Cash to total assets (Cash/Assets)	The ratio of cash and cash equivalents to total assets of a bank is expressed as a percentage.	BankFocus
Economic policy uncertainty (LogEPU)	It measures economic policy uncertainty in the U.S. The U.S. EPU index value has been transformed into a natural logarithm.	EPU database
Sovereign risk (LogCDS)	It represents the Sovereign Credit Default Swap (CDS) spread (premium) against sovereign default risk measured in basis points, bps. It has been transformed into a natural logarithm.	Datastream
GDP growth rate (GDP)	Quarterly Real Gross Domestic Product (GDP) growth rate	Fed Bank of St. Louis
Inflation rate (Inflation)	Quarterly CPI inflation rate	Trading Economics (2025)
Unemployment rate (Unemployment)	Quarterly unemployment rate	Fed Bank of St. Louis

Appendix S2. Consolidated assets of the 87 U.S. banks in descending order



Data Source: Federal Reserve Statistical Release (2022).

Appendix S3.

Table C.1: The impact of shadow short rate SSR on liquidity indicators of U.S. banks

Variables	Pooled OLS		Fixed effects OLS		Random effects	Fixed effects
	(1)	(2)	(3)	(4)	(5)	(6)
	Loan/Deposit	LA/TA	Loan/Deposit	LA/TA	Loan/Deposit	LA/TA
SSR	-3.181** (1.531)	2.065** (1.015)	-3.125*** (0.704)	2.344*** (0.552)	-3.055*** (0.758)	2.344*** (0.495)
LogCOVID-19	-2.300 (1.638)	1.863* (1.086)	-3.237*** (0.606)	1.856*** (0.287)	-3.275*** (0.816)	1.856*** (0.533)
Cost/Income	-0.087* (0.051)	0.033 (0.033)	-0.021 (.)	-0.003 (0.016)	-0.033 (0.047)	-0.003 (0.032)
LogZ-Score	-1.266** (0.643)	-0.571 (0.426)	1.044* (0.628)	-0.532 (0.390)	0.893** (0.434)	-0.532* (0.289)
NPL	1.064 (0.912)	0.424 (0.604)	-2.057 (1.605)	2.403** (1.202)	-0.702 (1.097)	2.403*** (0.798)
CAR	-0.686*** (0.113)	0.756*** (0.075)	-0.149 (0.283)	0.282 (0.238)	-0.495*** (0.154)	0.282** (0.140)
LogAssets	-6.520*** (0.495)	3.556*** (0.328)	-14.685*** (4.525)	8.063** (3.891)	-5.756*** (1.103)	8.063*** (2.245)
LogAge	-0.915 (0.851)	1.306** (0.564)	56.989 (45.139)	-33.024 (25.529)	-1.835 (2.061)	-33.024 (22.156)
Debt/Assets	1.413*** (0.140)	-0.081 (0.092)	0.326 (0.346)	-0.111 (0.104)	0.463*** (0.135)	-0.111 (0.094)
Cash/Assets	-0.230** (0.098)	0.438*** (0.064)	-0.319*** (0.086)	0.305*** (0.068)	-0.384*** (0.080)	0.305*** (0.056)
LogEPU	15.130* (7.878)	-11.199** (5.223)	17.264*** (4.526)	-11.008*** (2.886)	16.319*** (3.885)	-11.008*** (2.550)
LogCDS	-7.353 (4.528)	3.649 (3.002)	-6.123*** (2.215)	3.995*** (1.352)	-6.856*** (2.223)	3.995*** (1.445)
GDP	0.861** (0.384)	-0.650** (0.254)	0.803*** (0.221)	-0.568*** (0.149)	0.851*** (0.188)	-0.568*** (0.122)
Inflation	0.308 (1.454)	-0.236 (0.964)	-0.113 (0.424)	-0.086 (0.281)	-0.218 (0.720)	-0.086 (0.469)
Unemployment	0.081 (0.876)	-0.139 (0.581)	0.013 (0.422)	-0.157 (0.202)	0.041 (0.434)	-0.157 (0.283)
Constant	122.637*** (43.806)	5.370 (29.045)	-109.524 (217.733)	144.198 (127.494)	113.914*** (25.793)	113.704 (99.972)
Bank FE	No	No	No	No	No	Yes
Quarter FE	No	No	No	No	No	No
Clustering (Bank x Quarter)	No	No	Yes	Yes	No	No
Observations	677	677	677	677	677	677
R-squared	0.370	0.441	0.874	0.889	0.289	0.017

Notes: Based on the Hausman test, we adopt fixed effects or random effects specification in Table 3 and report pooled OLS, fixed effects OLS, and FE or RE (excluded from Table 3 by Hausman test) in this table. To address concerns about unobserved common shocks arising from the exclusion of time fixed effects, we report standard errors that are conservatively two-way clustered at the bank and quarter levels in columns 3 and 4. The cost-income (Cost/Income) variable is not estimated in column 3 because it is constant within banks in the corresponding sample and therefore absorbed by bank fixed effects. Standard errors are given in brackets. * $p < .1$, ** $p < .05$, *** $p < .01$.

Table C.2: The impact of SSR on profitability indicators of U.S. banks

Variables	Pooled OLS		Fixed effects OLS		Random effect	
	(1)	(2)	(3)	(4)	(5)	(6)
	ROA	ROE	ROA	ROE	ROA	ROE
SSR	-0.074** (0.036)	-0.607* (0.324)	-0.071*** (0.008)	-0.583*** (0.069)	-0.073** (0.035)	-0.601* (0.319)
LogCOVID-19	0.015 (0.038)	0.250 (0.347)	0.011 (0.016)	0.173 (0.118)	0.014 (0.038)	0.241 (0.341)
Cost/Income	-0.005*** (0.001)	-0.055*** (0.010)	-0.007** (0.003)	-0.067** (0.028)	-0.005*** (0.001)	-0.055*** (0.011)
LogZ-Score	0.092*** (0.015)	0.782*** (0.136)	0.125 (0.089)	1.097 (0.824)	0.096*** (0.015)	0.814*** (0.142)
NPL	0.033 (0.021)	0.184 (0.193)	-0.072** (0.033)	-0.584* (0.300)	0.032 (0.024)	0.176 (0.214)
CAR	-0.001 (0.002)	-0.012 (0.024)	0.008 (0.007)	0.026 (0.062)	-0.000 (0.002)	-0.012 (0.026)
LogAssets	-0.003 (0.011)	0.033 (0.104)	-0.369** (0.146)	-2.541** (1.068)	-0.001 (0.013)	0.050 (0.118)
LogAge	0.026 (0.020)	0.203 (0.180)	1.494* (0.807)	8.961** (4.461)	0.026 (0.022)	0.197 (0.204)
Debt/Assets	0.008** (0.003)	0.093*** (0.029)	-0.014* (0.007)	-0.100** (0.049)	0.006* (0.004)	0.082** (0.032)
Cash/Assets	-0.001 (0.002)	-0.003 (0.020)	0.001 (0.003)	0.027 (0.027)	-0.001 (0.003)	-0.004 (0.022)
LogEPU	-0.061 (0.186)	-0.930 (1.669)	-0.013 (0.060)	-0.465 (0.543)	-0.059 (0.183)	-0.889 (1.640)
LogCDS	-0.006 (0.107)	0.127 (0.959)	0.049 (0.062)	0.583 (0.582)	-0.002 (0.105)	0.161 (0.941)
GDP	-0.000 (0.009)	-0.014 (0.081)	-0.001 (0.002)	-0.019 (0.030)	-0.001 (0.008)	-0.013 (0.079)
Inflation	0.014 (0.034)	0.142 (0.308)	0.018 (0.013)	0.172 (0.110)	0.014 (0.033)	0.143 (0.303)
Unemployment	-0.003 (0.020)	-0.020 (0.185)	-0.001 (0.007)	-0.001 (0.059)	-0.003 (0.020)	-0.020 (0.182)
Constant	-0.019 (1.038)	0.509 (9.281)	-4.494 (4.833)	-23.650 (29.682)	-0.059 (1.024)	0.107 (9.155)
Bank FE	No	No	No	No	No	No
Quarter FE	No	No	No	No	No	No
Clustering (Bank x Quarter)	No	No	Yes	Yes	No	No
Observations	677	677	677	677	677	677
R-squared	0.176	0.189	0.334	0.338	0.176	0.189

Notes: Based on the Hausman test, we adopt fixed effects or random effects specification in Table 3 and report pooled OLS, fixed effects OLS, and FE or RE (excluded from Table 3 by Hausman test) in this table. To address concerns about unobserved common shocks arising from the exclusion of time fixed effects, we report standard errors that are conservatively two-way clustered at the bank and quarter levels in columns 3 and 4. Standard errors are given in brackets. * $p < .1$, ** $p < .05$, *** $p < .01$.