IMPLICATIONS OF RECORD DEPOSIT INFLOWS FOR BANKS DURING THE PANDEMIC

Overview

In 2020, the COVID-19 pandemic disrupted the global economy, creating stress and uncertainties for consumers and businesses. The U.S. government responded with assistance programs that, combined with increased personal savings, contributed to a record inflow of deposits to the banking industry. The deposit inflows in 2020, especially in each of the first two quarters, created historically high levels of bank liquidity. Economic uncertainty and high levels of liquidity prompted many banks to shift their balance sheet composition to shorter-term, lower-yielding assets. The loans-to-deposits ratio reached record lows in 2020 and 2021, while the cash-to-deposits ratio rose to 1.6 times the pre-pandemic level and almost three times the previous trough, which occurred in 2006, ahead of the Great Recession.[1]

This article explores the benefits and challenges that community and noncommunity banks face when liquidity is abundant.[2] Benefits of higher liquidity include less dependence on less stable sources of funding and an ability to respond effectively to unforeseen deposit account withdrawals. However, higher liquidity can also challenge bank earnings, depending on loan demand and the shape of the yield curve. Given the economic uncertainty associated with the pandemic, record deposit inflows, and tepid loan demand, banks deployed unusually high proportions of deposits into cash and securities. The shift in the composition of assets and a prolonged period of low interest rates have caused the industry net interest margin (NIM) to decline to its lowest level on record.[3]

The Pandemic Led to a Record Level of Deposits and Abundant Liquidity

Uncertainty about financial markets had repercussions on the U.S. economy in 2020. Consumer spending declined and personal savings increased. Deposits from businesses increased from programs such as the Paycheck Protection Program (PPP). Banks reported an influx of $3.3 trillion in total deposits in 2020, including more than $1 trillion in deposits in each of the first two quarters. Before this, the largest increase in deposits during a quarter had been $313.1 billion in fourth quarter 2012. Cash and securities also climbed to the highest level on record in 2020. The rapid growth in deposits was broad-based, with almost one-fourth of all banks reporting an increase of at least 25 percent in 2020.

Lack of liquidity played a role in the failure of many banks during the Great Recession. Almost 500 banks failed from 2008 through 2013. As described in the FDIC's study of the crisis, "In 2008, concerns about the value of mortgage-related assets were the main cause of the liquidity crisis experienced by many large financial institutions. For smaller banks, the effects of a declining housing market and the accompanying recession were gradual at first, but in 2009 and 2010 the number of failed and problem banks increased exponentially."[4] Concentrations of noncore funding, such as brokered deposits, created problems for many banks. Even with unprecedented liquidity support from the Federal Reserve and the FDIC's Temporary Liquidity Guarantee Program (TLGP), banks in

[1] This article compares the unprecedented conditions of 2020 to those of the Great Recession, which began in fourth quarter 2007. See National Bureau of Economic Research, "U.S. Business Cycle Expansions and Contractions," https://www.nber.org/research/data/us-business-cycle-expansions-and-contractions, July 19, 2021.

[2] The analysis covers year-end periods between 2000 and 2020 and includes third quarter 2021. All changes reflect a 12-month time period. Data are as of September 15, 2021. Data presented on community banks and noncommunity banks are merger-adjusted on an annual period-by-period basis. Any references to ratios are not merger-adjusted. All charts include third quarter 2021 data points. This article uses the definition of "community bank" in the Notes to Users in the FDIC *Quarterly Banking Profile*. That definition uses criteria outlined in the *2020 FDIC Community Banking Study* to identify community banks. The 2020 *FDIC Community Banking Study* is available at https://www.fdic.gov/resources/community-banking/report/2020/2020-cbi-study-full.pdf.

[3] The net interest margin is a weighted average for all filers of Consolidated Reports of Condition and Income (Call Reports).

[4] FDIC, *Crisis and Response: An FDIC History, 2008–2013*, 2017, https://www.fdic.gov/bank/historical/crisis/crisis-complete.pdf.

aggregate experienced a 5 percent decline in cash and a 43 percent decline in federal funds sold from 2008 to 2009. However, liquid assets of banks in aggregate fell by a modest 2 percent. The liquidity ratio, which measures liquid assets to total assets, reached a low of 16.87 percent in 2007 but rebounded in 2008 and continued on an upward trend.[5]

Due to the economic uncertainties driven by the onset of the pandemic, bank regulators grew concerned about the potential liquidity problems. As it transpired, however, fiscal and monetary policies minimized the impact of the pandemic on banks and the real economy. These policies contributed to the largest one-year increase in deposits and the largest one-year increase in cash in 13 years. Over the same period, federal funds sold rose more than 39 percent. These factors resulted in a 49 percent rise in liquid assets and a 7.54 percentage point increase in the liquidity ratio to 35.46 percent from 2019 to 2020.

The extraordinary growth in deposits during the first half of 2020 was driven by pandemic policy actions that supported individuals and businesses, and by precautionary savings behavior of individuals, businesses, and financial market participants. As the pandemic spread throughout the United States, individual states and major metropolitan areas implemented widespread stay-at-home orders and business closures that severely reduced economic activity and forced many businesses to furlough employees. The abrupt disruption to the economy and the weakening outlook resulted in heightened financial market stress. As a result of this stress, corporations conserved cash and drew down their lines of credit. In addition, individuals changed their spending behavior as a result of the lockdowns and conserved cash in response to weak labor market prospects. All of these factors contributed to higher deposits.

Fiscal support programs contributed to unprecedented deposit growth for both individuals and businesses in 2020 and 2021. Deposit growth typically has been modest during recessions, even with fiscal policy support. In contrast to previous recessions, the fiscal response to the COVID-19 pandemic, which consisted primarily of direct payments to households and businesses, was larger, more immediate, and more frequent than programs in the past. The U.S. government approved more than $5 trillion in fiscal support between March 2020 and March 2021, or 22.7 percent of first quarter 2021 U.S. gross domestic product (GDP).[6] This far exceeded the Great Recession fiscal support passed between first quarter 2008 and first quarter 2009, which was 11.7 percent of U.S. GDP.[7] Of the $5 trillion appropriated, more than $3.7 trillion was disbursed as of June 14, 2021, under three major pieces of legislation (Table 1).[8] A large share of fiscal support directly targeted consumers, particularly Economic Impact Payments and expanded unemployment benefits. The PPP supported small businesses and payrolls for their employees. These programs boosted personal income. Personal income was $35.5 trillion for the seven quarters ending third

[5] The liquidity ratio measures the percentage of marketable assets available to cover deposits and other borrowings. For purposes of this analysis, the liquidity ratio is defined as liquid assets to total assets. Liquid assets are defined as cash, federal funds sold, and securities including unrealized gains on held-to-maturity securities less pledged securities [LIQUIDITY RATIO = (LIQUID ASSETS/ASSET)] where [LIQUID ASSETS = SUM(CHBAL + FREPO + SC + SCHF) − SUM(SCPLEDGE + SCHA)]. See https://www7.fdic.gov/DICT/app/templates/Index.html#!/Main for RIS variable definitions.

[6] The CARES Act, Public Law 116-136, March 27, 2020; The Consolidated Appropriations Act of 2021, Public Law 116-260, December 27, 2020; and The American Rescue Plan Act of 2021, Public Law 117-2, March 11, 2021. Bureau of Economic Analysis, "Gross Domestic Product, 1st Quarter 2021 (Second Estimate); Corporate Profits, 1st Quarter 2021 (Preliminary Estimate)," news release BEA 21-22, May 27, 2021, https://www.bea.gov/news/2021/gross-domestic-product-1st-quarter-2021-second-estimate-corporate-profits-1st-quarter.

[7] Congressional Budget Office, "Estimated Impact of the American Recovery and Reinvestment Act on Employment and Economic Output in 2014," February 2015, https://www.cbo.gov/sites/default/files/114th-congress-2015-2016/reports/49958-ARRA.pdf; Congressional Budget Office, "Congressional Budget Office Cost Estimate—Economic Stimulus Act of 2008," February 2008, cbo.gov/sites/default/files/110th-congress-2007-2008/costestimate/hr5140pg00.pdf; and Congressional Budget Office, "Troubled Asset Relief Program," April 2009, https://www.bea.gov/news/2009/gross-domestic-product-1st-quarter-2009-final-and-corporate-profits; and Bureau of Economic Analysis, "Gross Domestic Product, 1st Quarter 2009 (final) and Corporate Profits," news release bea.gov/news/2009/gross-domestic-product-1st-quarter-2009-final-and-corporate-profits.

[8] Committee for a Responsible Federal Budget, June 14, 2021.

quarter 2021, up from $31.8 trillion during the previous seven quarters (second quarter 2018 through fourth quarter 2019). Income excluding compensation of employees increased $2.5 trillion over the same period, primarily driven by increased government social benefits to individuals.[9]

Table 1

Total Funds Distributed Under Major Fiscal Support Programs Since March 2020 ($ Billions)

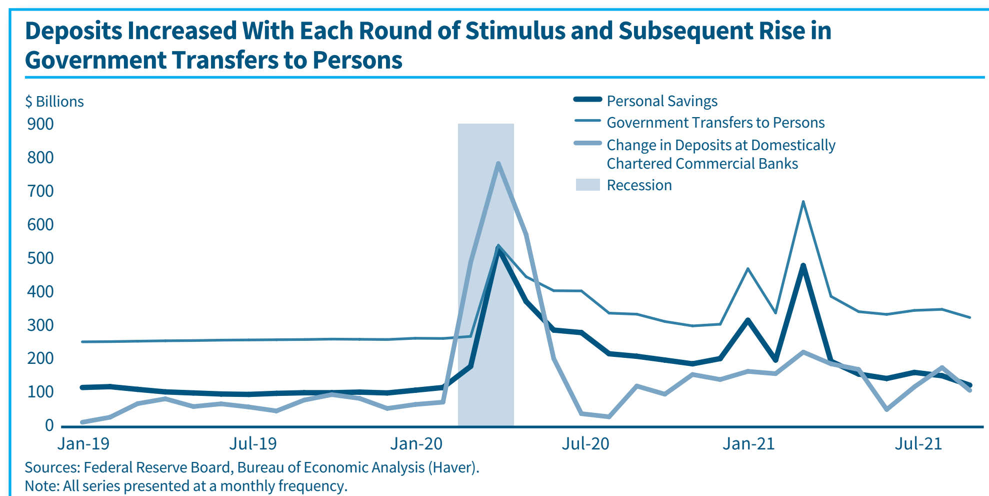
	CARES Act (March 2020)	Response and Relief Act (December 2020)	American Rescue Plan (March 2021)	Total
Economic Impact Payments	274.0	141.0	395.0	810.0
Income Support	473.0	132.0	199.0	804.0
State and Local Funding	191.0	82.6	359.0	632.6
Paycheck Protection Program	330.0	284.0	7.3	621.3
Tax Policy	324.0	9.6	70.6	404.2
Other Spending	125.0	53.0	77.6	255.6
Health Spending	147.0	51.4	52.4	250.8
Other Loan and Grant Programs	111.0	33.0	50.7	194.7
Total	1,975.0	786.6	1,211.6	3,973.2

Source: Committee for a Responsible Federal Budget.
Note: Data as of October 8, 2021.

During the pandemic, the monthly personal savings rate varied with fiscal support payments (Chart 1).[10] The savings rate spiked to 34 percent in April 2020, up from the pre-pandemic average rate of 7.5 percent, and declined through much of the year, ending at 14 percent in December 2020.[11] As many individuals received additional government payments, personal savings rose again to 27 percent in March 2021. The savings rate declined through third quarter 2021 to 8 percent in September 2021.

Chart 1

Deposits Increased With Each Round of Stimulus and Subsequent Rise in Government Transfers to Persons



Sources: Federal Reserve Board, Bureau of Economic Analysis (Haver).
Note: All series presented at a monthly frequency.

[9] Bureau of Economic Analysis, "National Income and Product Accounts," Table 2.1.

[10] The Bureau of Economic Analysis calculates personal savings by subtracting taxes and outlays from personal income. The personal savings rate is personal savings divided by disposable personal income.

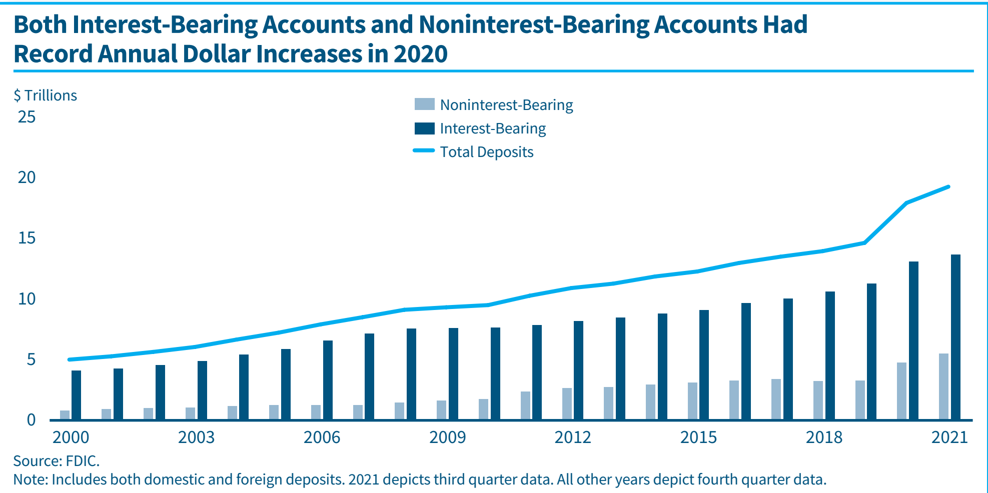
[11] Bureau of Economic Analysis, "National Income and Product Accounts," Table 2.6.

Expansionary monetary policy also likely contributed to deposit growth. Beginning in March 2020, the Federal Reserve announced a series of monetary policy actions, including large-scale asset purchases and emergency lending facilities.[12] These programs contributed to an increase in deposits, as market participants sold financial assets to the Federal Reserve. The specific impact of monetary policy on deposit growth is unclear, however, as market participants likely reinvested a portion of the funds in other financial assets and held some in bank deposits.

While the specific impact of monetary policy on deposit growth might be unclear, it is evident that low interest rates did not deter households and businesses from placing funds in banks. Deposits at FDIC-insured commercial banks and savings institutions increased $3.3 billion (22.6 percent) in 2020. Both interest-bearing and noninterest-bearing accounts reported record annual dollar increases in 2020: interest-bearing accounts increased $1.8 trillion (16.1 percent) and noninterest-bearing accounts increased $1.5 trillion (45 percent) (Chart 2).[13] The growth in both deposit categories would suggest that customers were less concerned about near-zero interest rates, and more intent on placing their funds in insured depository institutions. In comparison with the Great Recession, during which certain programs were created to restore stability and strengthen liquidity in the banking industry, the proactive government actions during the 2020 economic downturn resulted in large amounts of liquidity in the banking industry.

Chart 2

Both Interest-Bearing Accounts and Noninterest-Bearing Accounts Had Record Annual Dollar Increases in 2020



Source: FDIC.
Note: Includes both domestic and foreign deposits. 2021 depicts third quarter data. All other years depict fourth quarter data.

Economic uncertainty and a lack of loan demand from households and businesses contributed to a shift in the deployment of deposits from loans to cash. Lower loan demand resulted in fewer opportunities to fund loans with the surge of deposits. As a result, banks invested a high level of deposits in bank accounts at other financial institutions (known as "due from accounts") and in securities. Tepid loan demand combined with strong deposit growth resulted in substantial shifts in balance sheet composition (Table 2). The loans-to-deposits ratio decreased from a 20-year high in 2000 to a 20-year low in 2020. Conversely, the cash-to-deposits ratio increased from a low in 2006 to a high in 2020. The ratio of

[12] Federal Reserve, "Federal Reserve Announces Extensive New Measures to Support the Economy," press release, March 23, 2020, federalreserve.gov/newsevents/pressreleases/monetary20200323b.htm.

[13] Deposits can be categorized as interest-bearing and noninterest-bearing accounts. Interest-bearing accounts are accounts in which an individual can deposit money and earn interest, while noninterest-bearing accounts are transaction accounts in which money can quickly be accessed but does not earn interest. For the purpose of this analysis, interest-bearing accounts and noninterest-bearing accounts include deposits in domestic and foreign offices.

securities-to-deposits increased for noncommunity banks but decreased for community banks. The shift from higher-yielding assets (loans) to lower-yielding assets (securities) and non-yielding assets (cash) was a main factor that reduced interest income on earning assets, resulting in NIM compression.[14]

Table 2

Average Cash to Deposits Increased While Average Loans to Deposits Declined During the Pandemic (Percent)

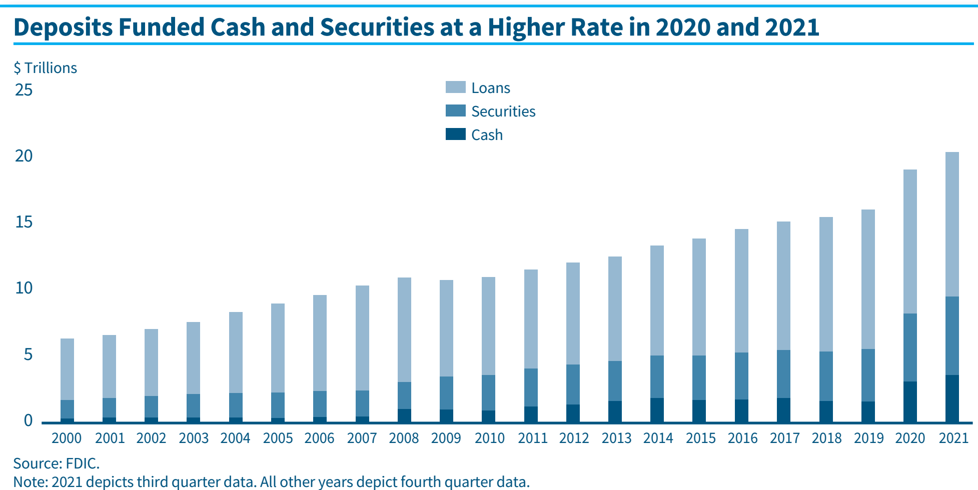
		2000–2007	2008–2011	2012–2019	2020	2021
Noncommunity Banks	Loans-to-Deposits	95.01	78.77	70.17	58.37	54.76
	Cash-to-Deposits	7.47	12.49	14.83	18.57	19.68
	Securities-to-Deposits	27.12	26.74	27.75	29.73	31.98
Community Banks	Loans-to-Deposits	83.99	82.72	82.58	80.07	72.96
	Cash-to-Deposits	5.09	7.69	8.24	12.88	14.34
	Securities-to-Deposits	27.88	25.20	24.45	20.93	24.42

Source: FDIC.
Note: 2020 depicts fourth quarter data while 2021 depicts third quarter data. All other timeframes are averages over the time period.

Liquid assets and the liquidity ratio spiked in 2020 and 2021, mainly attributable to the influx of deposits that were converted to cash and securities (Charts 3 and 4). Liquid assets grew at a similar rate between noncommunity banks and community banks. Noncommunity banks have exhibited higher and more rapidly growing liquidity ratios than community banks since 2006 (Chart 5). During the Great Recession in 2008, the liquidity ratio was 6.55 percentage points higher for noncommunity banks (21.29 percent) than for community banks (14.74 percent). In 2020, the difference reached a high of 14.82 percentage points, as the liquidity ratio reached a record high of 37.18 percent for noncommunity banks at that time. Of the liquid asset components, securities were the main driver of the higher divergence in the liquidity ratio.

Chart 3

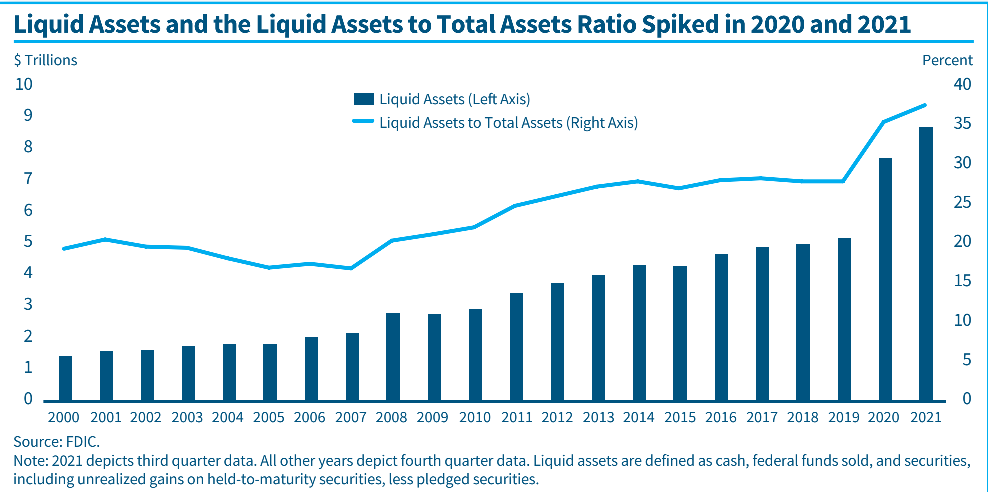
Deposits Funded Cash and Securities at a Higher Rate in 2020 and 2021



Source: FDIC.
Note: 2021 depicts third quarter data. All other years depict fourth quarter data.

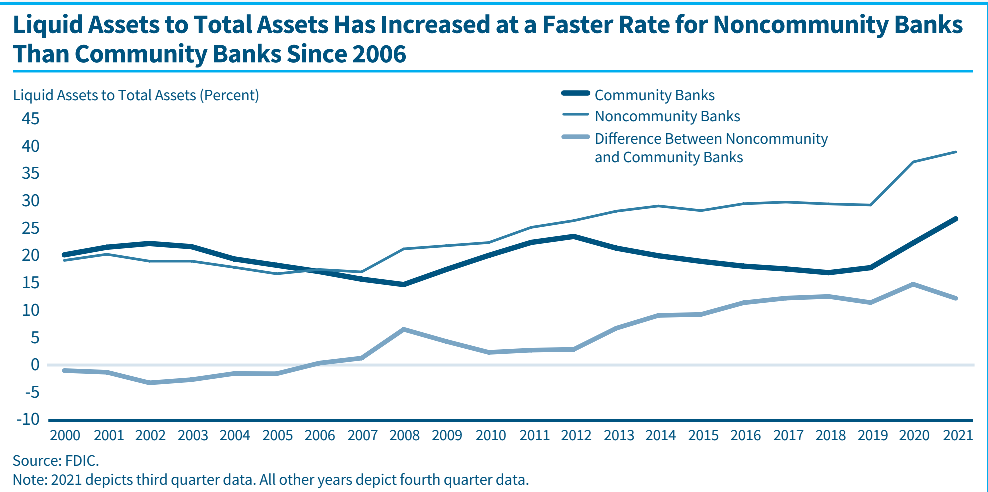
[14] Another contributor to NIM compression was an influx of earning assets, due to temporary PPP balances.

Chart 4



Source: FDIC.
Note: 2021 depicts third quarter data. All other years depict fourth quarter data. Liquid assets are defined as cash, federal funds sold, and securities, including unrealized gains on held-to-maturity securities, less pledged securities.

Chart 5



Source: FDIC.
Note: 2021 depicts third quarter data. All other years depict fourth quarter data.

Benefits of Abundant Liquidity in the Banking Industry

Dependency on wholesale funding declined to an all-time low following strong deposit growth in 2020.[15] In the early 2000s and leading up to the Great Recession, the banking industry steadily increased its dependency on wholesale funding. Wholesale funding-to-total assets at year-end 2007 stood at 27.64 percent, with most of the growth derived from the reliance on borrowings from Federal Home Loan Banks (FHLBs), other borrowed funds (excluding FHLBs), and brokered deposits.[16] During the post-Great Recession period, dependency on wholesale funding progressively declined for the banking industry. Leading up to 2020, the dependency continued to decline, and by year-end 2020 wholesale funding-to-total assets reached an all-time low of 15.51 percent for the banking industry (Chart 6).

The benefit of having a lower exposure to wholesale funding is less reliance on a potentially unstable source of funds, which may be rapidly withdrawn or transferred. With an abundance of liquidity in the banking sector, dependency on certain components

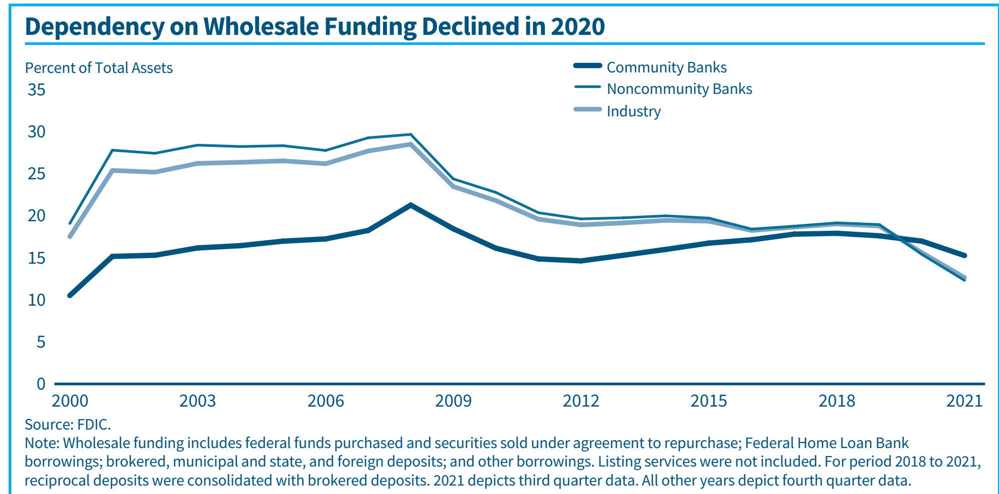
[15] Wholesale funding includes federal funds purchased and securities sold under agreement to repurchase; Federal Home Loan Bank borrowings; brokered, municipal and state, and foreign deposits; and other borrowings. Listing services were not included in order to compare across periods. For the period 2018 to 2020, reciprocal deposits were included to permit comparison with 2007 brokered deposits, as many reciprocal deposits were no longer reported as brokered deposits.

[16] The analysis covers balance sheet levels between year-end 2001 and year-end 2007.

of wholesale funding in 2020 declined from a year earlier. The largest decline in 2020 occurred in borrowings from the FHLBs, which fell $226.5 billion (46.9 percent), and other borrowed funds (excluding FHLBs), which fell $116.5 billion (19.8 percent). Leading up to the Great Recession, FHLB borrowing was one of three major sources of wholesale funding, representing 6.21 percent of total assets at year-end 2007. Borrowings from FHLBs totaled $808.9 billion in 2007, and by 2020 totaled only $256 billion, or 1.17 percent of total assets.

Chart 6

Dependency on Wholesale Funding Declined in 2020



Source: FDIC.
Note: Wholesale funding includes federal funds purchased and securities sold under agreement to repurchase; Federal Home Loan Bank borrowings; brokered, municipal and state, and foreign deposits; and other borrowings. Listing services were not included. For period 2018 to 2021, reciprocal deposits were consolidated with brokered deposits. 2021 depicts third quarter data. All other years depict fourth quarter data.

Leading up to the Great Recession, dependency on wholesale funding increased among both noncommunity and community banks. Noncommunity banks reported growth similar to that of the industry, as the wholesale funding-to-total assets ratio increased to 29.19 percent at year-end 2007. Wholesale funding growth at community banks increased and reached 18.17 percent of assets at year-end 2007. However, after a steady decline from 2009 to 2012, community banks increased their reliance on wholesale funding, particularly in brokered deposits and FHLB borrowings, and wholesale funds reached 17.72 percent of assets at year-end 2017. As deposits grew, the dependency on these two items fell and the wholesale funding-to-total assets ratio steadily declined to 16.88 percent by year-end 2020.[17]

Sufficient liquidity levels provide buffers to effectively respond to unforeseen deposit account withdrawals and provide credit during the economic recovery. Strong liquidity levels, especially highly liquid assets such as cash, should position the banking industry to respond to potential deposit account withdrawals as the economic recovery progresses. Additionally, ample liquidity levels should allow banks to serve the credit needs of households and businesses as the recovery progresses.

Challenges of Abundant Liquidity in the Banking Industry

A large share of the deposits that flowed into banks during the pandemic were deployed in non-yielding and low-yielding assets which pushed down asset yields and caused the banking industry's NIM to decline to record low levels.[18] Earning assets in the banking industry grew at a record rate from 2019 to 2020. However, loan growth was relatively slow in 2020 and the main contributor to earning assets growth was short-term securities. This caused a decline in total interest income relative to pre-pandemic levels and reduced the industry's yield on earning assets. Total interest income declined 17.4 percent between 2019 and 2020 even though earning assets grew 17.8 percent during the year. As a result, the yield on earning assets declined 125 basis points to 2.92 percent as of fourth quarter 2020, the lowest level on

[17] Statutorily mandated regulatory changes finalized in 2019 caused many reciprocal deposits formerly reported as brokered to no longer be reported as brokered. This change reduced to some degree the reported dependency on brokered deposits.

[18] Record low dates back to first quarter 1984 when *Quarterly Banking Profile* data were first collected.

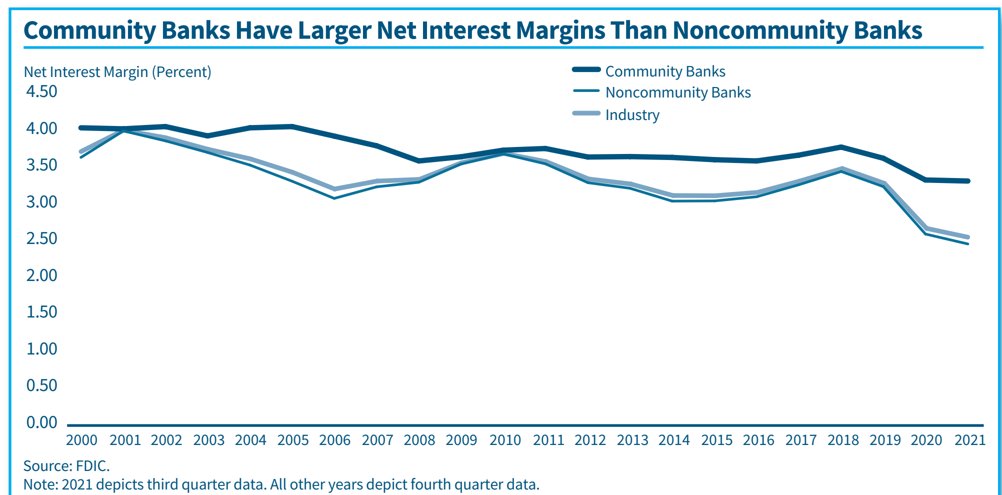
record at that time.[19] NIM compressed 61 basis points over the same period, to 2.68 percent, also the lowest on record at that time.[20]

In the future, banks with low levels of liquid assets may have to increase deposit rates to retain deposits as loan demand increases or interest rates rise, which may cause further NIM compression. On the other hand, institutions that have an abundance of liquid assets may feel less pressure to increase deposit rates to compete under the same circumstances.

NIM compressed to record lows for both noncommunity banks and community banks in 2020 and the first half of 2021. Total interest income declined disproportionately in 2020 between noncommunity and community banks, as noncommunity banks tend to hold more short-term assets and have operated with NIM lower than community banks (Chart 7). For noncommunity banks, total interest income declined 19.6 percent, while community banks' total interest income declined only 2.8 percent from 2019 to 2020. The yield on earning assets reached all-time lows of 2.81 percent for noncommunity banks and 3.78 percent for community banks. The cost of funding earning assets also fell to all-time lows of 0.22 percent for noncommunity banks and 0.45 percent for community banks, so the possibility for further downward movement is limited. Lower asset yields at noncommunity banks reflect differences in the asset composition, as previously discussed, as well as the maturity distribution of the assets compared with community banks. Assets maturing or repricing in more than three years are a smaller share of total assets for noncommunity banks than for community banks (Charts 8 and 9).[21] Since 2014, the largest loan category for noncommunity banks has been commercial and industrial loans, which tend to reprice in less than three years, while community banks tend to hold higher levels of long-term loans such as commercial real estate mortgages and 1–4 family mortgages.[22] Due to this difference in maturity distributions, in a declining interest-rate environment noncommunity bank loans and securities will tend to reprice downward faster than those of community banks, with resulting downward pressure on their NIMs. Conversely, noncommunity bank NIMs will tend to increase faster than those of community banks when rates rise, as seen in 2015 to 2018.

Chart 7

Community Banks Have Larger Net Interest Margins Than Noncommunity Banks



Source: FDIC.
Note: 2021 depicts third quarter data. All other years depict fourth quarter data.

[19] The yield on earning assets reached another record low of 2.68 percent in second quarter 2021, but increased 5 basis points from second quarter 2021 to third quarter 2021.

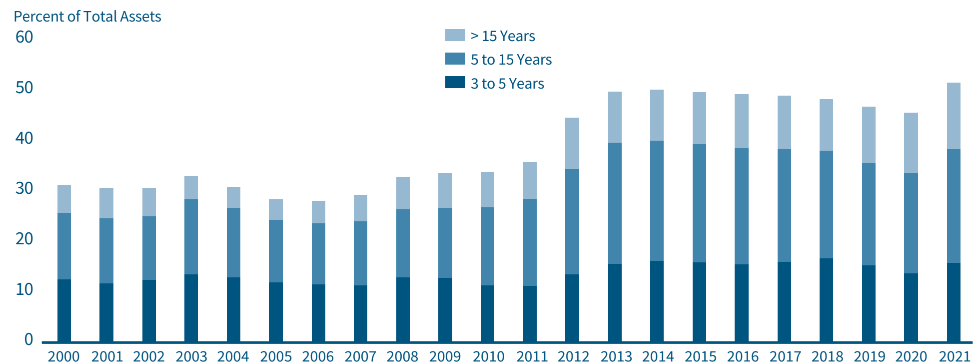
[20] NIM continued to decline and reached another record low of 2.50 percent in second quarter 2021, but increased 6 basis points from second quarter 2021 to third quarter 2021.

[21] FDIC, "Remarks by FDIC Chairman Jelena McWilliams and Division of Insurance and Research Director Diane Ellis on the First Quarter 2020 Quarterly Banking Profile," press release, June 16, 2020, fdic.gov/news/speeches/2020/spjun1620.html.

[22] The various loan compositions are calculated as a percentage of total loans and leases.

Chart 8

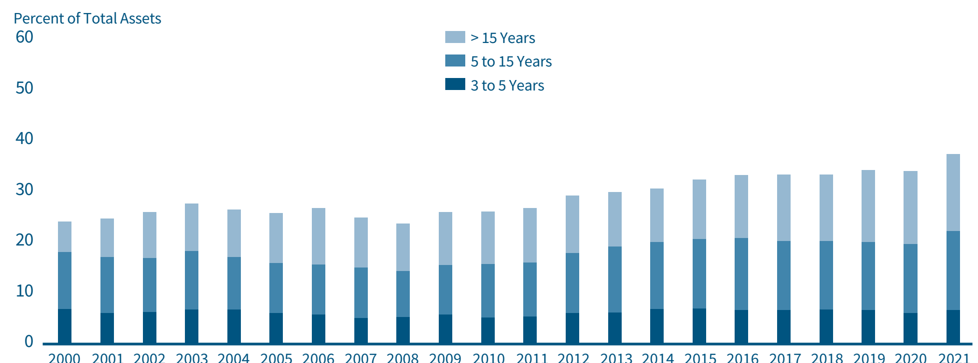
Loans and Securities Maturing in More Than Three Years Remain Around 50 Percent of Total Assets for Community Banks



Source: FDIC.
Note: 2021 depicts third quarter data. All other years depict fourth quarter data.

Chart 9

Loans and Securities Maturing in More Than Three Years Reached a 20-Year High but Remain Below 40 Percent of Total Assets for Noncommunity Banks



Source: FDIC.
Note: 2021 depicts third quarter data. All other years depict fourth quarter data.

Record deposit growth reduced capital ratios for the banking industry. Net income in fourth quarter 2020 increased from a year ago, mainly from lower provision expenses for credit losses and higher noninterest income. These higher earnings helped grow equity capital over the year. Despite an increase in equity capital (up 5.4 percent from 2019), the equity-to-total assets ratio declined because deposit growth resulted in total assets increasing at a rate more than three times greater than equity (17.4 percent). The decline in capital ratios as a result of the growth in assets caused banks to adjust their balance sheets in order to maintain adequate capital ratio requirements. The aggregate equity-to-total assets ratio for the U.S. banking industry was 11.32 percent in 2019 and declined 116 basis points to 10.16 by year-end 2020, a year-end level not seen since 2008. Banks' aggregate leverage ratio also declined by 85 basis points from 2019 to 8.81 percent in 2020.[23] Risk-based capital ratios, however, improved due to the higher level of low or zero-risk weighted assets. The total risk-based capital ratio rose 84 basis points from 2019 to 15.46 percent in 2020.

[23] Excluding PPP loans from industry's total assets at year-end 2020, the equity-to-total assets ratio would have been 10.36 percent.

Looking Ahead

Elevated levels of liquidity, especially in cash and securities, create many benefits and challenges for banks. It can be beneficial for banks to have abundant liquidity to decrease reliance on wholesale funds, to provide credit for households and businesses, and to provide a buffer in case depositors withdraw funds. However, abundant liquidity levels combined with weak loan demand may cause lower earnings and lower overall asset yields resulting in NIM compression and lower capital levels. In the low interest rate environment, banks have been adding longer-term assets to their balance sheets in order to maintain or increase NIM. However, as interest rates begin to normalize, a higher share of longer-term assets may result in a longer-lasting negative effect on earnings pressure. Coming out of the pandemic, as loan demand is restored and deposits are presumably withdrawn, monitoring both the level and the composition of liquidity in the banking industry will remain important.

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