2021 | ANNUAL REPORT

INTEGRITY
CARING
EXCELLENCE

Cullen/Frost Bankers, Inc.

OUR CORE VALUES

Everyone at Frost knows and lives by our core values of integrity, caring and excellence. Those values combined with our mission statement make up the Frost philosophy, which is the foundation of our culture and has guided our actions for more than 150 years. Whenever we interact with our customers, our employees or the people in our communities, we strive to make people's lives better.

THE ANNUAL MEETING OF SHAREHOLDERS

APRIL 27, 2022

FROST TOWER | 111 West Houston Street / San Antonio, TX | 11 a.m. in the Frost Conference Center

FINANCIAL HIGHLIGHTS

2021

DOLLARS IN THOUSANDS, EXCEPT PER-SHARE AMOUNTS

	2021	2020
NET INCOME AVAILABLE TO COMMON SHAREHOLDERS	$ 435,922	$ 323,621
PER COMMON SHARE DATA		
Earnings per Common Share – Basic	$ 6.79	$ 5.11
Earnings per Common Share – Diluted	6.76	5.10
Cash Dividends	2.94	2.85
Book Value	67.11	65.82
PERFORMANCE RATIOS		
Return on Average Assets	0.95 %	0.85 %
Return on Average Common Equity	10.35	8.11
Net Interest Margin	2.53	3.09
Dividend Payout Ratio on Common Shares	43.31	55.80
YEAR-END BALANCE SHEET DATA		
Loans	$ 16,336,397	$ 17,481,309
Securities	15,698,969	12,407,694
Earning Assets	48,062,588	39,648,402
Total Assets	50,878,490	42,391,317
Non-interest-bearing Demand Deposits	18,423,018	15,117,051
Interest-bearing Demand Deposits	24,272,678	19,898,710
Total Deposits	42,695,696	35,015,761
Long-term Debt and Other Borrowings	222,189	235,378
Shareholders' Equity	4,439,555	4,293,016

TO OUR SHAREHOLDERS:

WE CONTINUED TO INVEST TO DELIVER ABOVE-AVERAGE ORGANIC GROWTH THROUGH GREAT CUSTOMER EXPERIENCES THAT MAKE PEOPLES' LIVES BETTER.

Recovery and growth. In my mind that's the story of 2021. We experienced a strong recovery from 2020, a year that will ever be associated with COVID-19, and our earnings per share were up by 33%. But beyond that, and I think even more importantly, we began generating historically strong growth in our business as we continued to invest to deliver above-average organic growth through great customer experiences that make peoples' lives better.

RECOVERY

First the numbers. Regarding our improved performance, the 33% EPS increase was more than anything else the result of lower credit loss expenses (we used to call these loan loss provisions before accounting rules changed the term.) This expense went from $241 million in 2020 to just $63,000 in 2021 as some of the worst economic effects of the pandemic began to abate in our markets.

Commercial real estate (CRE) accounted for $116 million of the decline. Energy was close behind at $105 million. However, unlike CRE, where actual charge offs have been very modest to this point, energy loans experienced charge offs of 5% in 2020 as the industry struggled with dramatically lower prices when demand collapsed due to COVID-19.

We have been steadily reducing our exposure to energy loans. As we entered 2016 these loans were 15.3% of our portfolio. At year end 2021 they stood at 6.6%. We've got a little more to go before they reach "mid-single digits." We undertook this reduction because at such a high concentration of our loans, volatility of commodity prices in this industry created excessive volatility for our shareholders when oil prices declined. I don't believe our investors sign up for that kind of volatility when they own a company like ours. I know I don't. That said, energy loans will still be an important portfolio segment for us, just at a much lower level with reduced volatility and a focus on solid underwriting of great customer relationships.

In 2021 our performance was also aided by good noninterest revenue growth including trust and wealth management (up 15.3%) as well as steadily improving loan growth through the latter part of the year.

Also aiding our 2021 results was our continued outstanding execution getting PPP loans for businesses. I wrote extensively last year of the historic and heroic effort of our bankers. All told, we funded $4.7 billion in these loans, or about 10% of our asset base. To put that in perspective, pound for pound that's about nine times the level of our largest competitors. The next phase of the PPP loan program was to shepherd our customers through the PPP forgiveness process. Again, our bankers have gone above and beyond, with about 95% of loans forgiven to date. This compares with a current industry average of approximately 80% forgiven over the same time period.

Deposits continued their outstanding growth run, increasing 22% for 2021 and providing us with higher levels of investable funds. In fact, as of year-end we maintained 33% of our earning assets in short term liquidity (think a checking account at the Federal Reserve earning 15 basis points) waiting to take direct advantage of Fed rate hikes, or move into security purchases at higher yields. This increase in our liquidity was a purposeful strategy we began in August 2020 in order to enhance the optionality in our balance sheet against an improved economy and higher rates. This level of liquid investments, combined with our high percentage of floating-rate loans and high levels of low-cost checking account funding, combine to make us very "asset sensitive," meaning we make more money when interest rates rise and less money when interest rates decline.

That's an important factor in my optimism for the future as we sit on the cusp of several potential Fed rate hikes as they address developing inflation. Our latest modeling indicated each 25 basis point increase in the Fed Funds rate adds an annualized 20-25 cents per share to our company's earnings.

GROWTH

Our organic expansion into the Houston market that we announced in 2018 continues to see momentum building as the branches mature. We completed the last four of our 25 new branches in 2021. I've spoken at length in past letters about the rationale for this strategy to almost double our physical locations in that market. We continue to outperform our original pro forma goals for our three key program metrics and at year end we stood at:

- $623 million of deposits (113% of our goal)
- 13,375 new relationships (128% of our goal)
- $442 million of loans (178% of our goal)

From December 2020 to December 2021, loans grew 97% while deposits increased 167%.

As I've pointed out in previous letters, these locations are not retail transaction processing centers, although some of that will certainly occur there. Their profitability is 70% driven by middle-market commercial and small business with complementary business derived from consumer, private banking, wealth management and insurance. I think it's also important that the mix of business we're generating looks very similar to the overall company. For example, loans are 40% commercial and industrial (C&I), 40% commercial real estate, and 20% consumer. They're also focused on our core segment, with only three loans over $10 million. Deposits are two-thirds commercial and one-third consumer. I should also say as to whether these locations are a necessary element of our growth, 87% of our new Houston relationships came from within five miles of a Frost branch.

After the success we've shown executing this strategy in Houston, in 2021 we announced two follow-on strategies. One, we are adding an additional eight locations in Houston in attractive sub-markets over 18 months. We call this "Houston 2.0." It's important to note that these additional locations were not in second-tier markets. Our analysis shows them to be every bit as good as our first 25, but as we apply our lessons and experience from our initial expansion effort, they have the potential to perform even better.

Second, we announced almost 30 new locations in the Dallas market over the next 30 months. These Dallas locations will essentially triple our footprint in this dynamic market. Our success in both the Houston and Dallas

OUR SUCCESS IN BOTH THE HOUSTON AND DALLAS MARKETS IS IMPORTANT TO OUR LONG-TERM SUCCESS.

markets is important to our long-term success. The size of these markets can be hard to get your head around, but keep in mind that both Dallas and Houston each have about 50% more deposits than either the state of Arizona or the state of Colorado.

An important consideration when we decided to undertake an organic expansion strategy like the ones in Houston and Dallas was the fact we were witnessing organic customer growth in our business. We believed we could leverage this ability in new locations in great markets in Texas. That growth was not an accident. We had been steadily investing over time in our business and value proposition in order to lower customer barriers to entry and improve our client experience. We continued this effort in 2021.

FOR EXAMPLE:

- We introduced $100 overdraft grace in April, where customers with a modest $500 direct deposit were allowed to overdraw their account by $100 without a fee. In 2021 it helped 48,000 families breathe a little easier.

- We were one of the first banks to introduce Early Payday in the summer, which puts your direct deposit in your account as much as two days earlier. It's been a very popular feature and positively affects 67% of our consumer customers.

- We entered into an agreement with Cardtronics that helped us create the largest free ATM network in Texas. It also closed an ATM gap we had in the Dallas/Fort Worth market by adding 350 ATMs and delivering the largest free ATM network in that market on the eve of our Dallas expansion.

Here are just a few more examples of investments we've made over the last five years that we believe have helped us produce organic growth:

- Re-architected and redesigned digital banking

- Mobile account opening

- Mobile consumer real estate loan application

- Instant-issue debit cards

- Zelle P2P payment platform

- Apple and Android Pay

- Fraud alerts

- Increased our customer service staff for better response

- New products for affluent, emerging affluent and student customers

- Frost Connect (Bottomline Technologies) online treasury management services

- Wealth Connect (eMoney) financial planning system

These investments have helped drive outstanding customer satisfaction and exciting organic relationship growth.

FOR EXAMPLE:

- Our fourth quarter 2021 consumer customer satisfaction (CSAT) scores are 95% in our contact center, 97% in digital and 97% in branch. The branch scores are 98% in Houston at a time we've almost doubled our employee base while navigating through a pandemic.

- We won the J.D. Power award for highest retail banking customer satisfaction in Texas for the 12th year in a row.

- This has led to record growth in net new checking households in 2021 of 26,664, which is 210% of our previous full year record in 2019. Our growth in the overall total number of checking households was 7.4% and in Houston it was double that at 14%.

- Houston's net new checking household growth is helping propel our growth. Compared to 2018, before our first expansion branch opened, some months were as low as 50-60 net new checking households per month. In 2021, down months were 500-600. On a full year basis, post expansion net checking household growth is over four times higher than before our first new branch opened in Houston in late 2018.

- In 2021, 37% of our consumer checking accounts were opened digitally.

- Organic growth is an emerging strength. Consider that in the four years since 2017, our compound annual growth rate in net new checking households is 35%.

- The growth in our total number of commercial relationships increased 7% in 2021, in line with the overall growth in consumer.

- We earned 32 Greenwich awards for superior service, advice and performance to small business and middle-market banking clients — the highest amount received nationwide for the sixth consecutive year.

- The 2021 growth in our total number of community wealth advisory relationships was 28% as customers responded to our solutions-based, high service value proposition.

Looking forward, we continue to invest in our business to generate growth and enhance the customer experience. In order to stay competitive and provide for an adequate supply of our most important asset, our people, we recently raised our minimum wage to $20 per hour. This was a direct result of the tight labor market and our commitment to hire top quality talent to provide our customers with world class service.

LOOKING FORWARD, WE CONTINUE TO INVEST IN OUR BUSINESS TO GENERATE GROWTH AND ENHANCE THE CUSTOMER EXPERIENCE.

We also look forward to completing our effort to offer single-family mortgages later this year. This product will respond to customer demand, leverage our expanding branch network and offer a “Frost quality” customer experience. It also complements the four consumer real estate products we already provide — home equity, HELOC, home improvement and purchase money second loans, which together total $1.4 billion.

We’re using best-in-class technology which we will ultimately reverse engineer into our non-mortgage consumer real estate products for lower costs and improved customer experiences. We will avoid an “agency model” and a commissioned sales force, and we will portfolio and service all loans. It will be a branch-centric model that is not refinance-oriented but instead will focus primarily on providing excellent experiences to home buyers in our dynamic markets. It will grow to be a profitable, relational and meaningful asset class for us.

I am excited and optimistic about the future of our company and I want to thank our truly outstanding employees who sustain our great culture and make all this happen. I want to thank our board for its guidance and support and I particularly want to recognize the outstanding long-term contributions of two retiring directors, Karen Jennings and Ida Clement Steen. They will be missed.

Thanks also to you, our shareholders, for your consistent support of our great company.

SINCERELY,

PHILLIP D. GREEN

Chairman and Chief Executive Officer

THE BOARD OF DIRECTORS

OF CULLEN/FROST BANKERS, INC. AND FROST BANK

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Chairman and Chief Executive Officer
The Gambrinus Company

Chris M. Avery[4]
Chairman
James Avery Craftsman, Inc.

Anthony R. Chase
Chairman and Chief Executive Officer
ChaseSource L.P.
Professor of Law and Business
University of Houston Law Center

Cynthia J. Comparin[1]
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Animato Technologies Corp.

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President
Cassco Development Company

Patrick B. Frost
President
Frost Bank

Phillip D. Green[2]
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Cullen/Frost Bankers, Inc.

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NorthPark Management Company

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Former Senior Executive Vice President
Advertising and Corporate Communications
AT&T Inc.

Charles W. Matthews[3]
Former General Counsel
Exxon Mobil Corporation

Ida Clement Steen[6]
Investments

SENIOR OFFICERS

Phillip D. Green • Chairman and Chief Executive Officer, Cullen/Frost Bankers, Inc.

Annette Alonzo
Group Executive Vice President
Chief Human Resources Officer, Frost Bank

Robert A. Berman
Group Executive Vice President
Research and Strategy, Frost Bank

Paul H. Bracher
President
Cullen/Frost Bankers, Inc.
Group Executive Vice President
Chief Banking Officer, Frost Bank

Patrick B. Frost
President
Frost Bank
Group Executive Vice President
Frost Wealth Advisors
President
Frost Insurance

William L. Perotti
Group Executive Vice President
Chief Credit Officer, Frost Bank

Jerry Salinas
Group Executive Vice President
Chief Financial Officer, Cullen/Frost Bankers, Inc.

Carol J. Severyn
Group Executive Vice President
Chief Risk Officer, Frost Bank

Jimmy Stead
Group Executive Vice President
Chief Consumer Banking and Technology Officer
Frost Bank

Coolidge E. Rhodes, Jr.
Group Executive Vice President
General Counsel and Corporate Secretary
Cullen/Frost Bankers, Inc.

Candace Wolfshohl
Group Executive Vice President
Culture and People Development, Frost Bank

1. Chair, Audit Committee — 2. Chair, Executive Committee
3. Chair, Compensation & Benefits Committee & Corporate Governance & Nominating Committee
4. Chair, Technology Committee — 5. Chair, Risk Committee — 6. Term expires at the April 27, 2022 meeting and will not stand for reelection.

UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

☒ **Annual Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934**

For the fiscal year ended: **December 31, 2021**

Or

☐ **Transition Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934**

For the transition period from to

Commission file number: **001-13221**

CULLEN/FROST BANKERS, INC.

(Exact name of registrant as specified in its charter)

Texas	**74-1751768**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
111 W. Houston Street, San Antonio, Texas	**78205**
(Address of principal executive offices)	(Zip code)

(210) 220-4011
(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, $.01 Par Value	**CFR**	**New York Stock Exchange**
Depositary Shares, each representing a 1/40th interest in a share of 4.450% Non-Cumulative Perpetual Preferred Stock, Series B	**CFR.PrB**	**New York Stock Exchange**

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☒ No ☐

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company," in Rule 12b-2 of the Exchange Act.

Large accelerated filer	☒	Accelerated filer	☐
Non-accelerated filer	☐	Smaller reporting company	☐
		Emerging growth company	☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☒

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes ☐ No ☒

As of June 30, 2021, the last business day of the registrant’s most recently completed second fiscal quarter, the aggregate market value of the shares of common stock held by non-affiliates, based upon the closing price per share of the registrant’s common stock as reported on The New York Stock Exchange, Inc., was approximately $6.8 billion.

As of January 26, 2022, there were 64,023,571 shares of the registrant’s common stock, $.01 par value, outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the Proxy Statement for the 2022 Annual Meeting of Shareholders of Cullen/Frost Bankers, Inc. to be held on April 27, 2022 are incorporated by reference in this Form 10-K in response to Part III, Items 10, 11, 12, 13 and 14.

CULLEN/FROST BANKERS, INC.
ANNUAL REPORT ON FORM 10-K

TABLE OF CONTENTS

PART I

ITEM 1. BUSINESS

The disclosures set forth in this item are qualified by Item 1A. Risk Factors and the section captioned "Forward-Looking Statements and Factors that Could Affect Future Results" in Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations of this report and other cautionary statements set forth elsewhere in this report.

The Corporation

Cullen/Frost Bankers, Inc., a Texas business corporation incorporated in 1977, is a financial holding company and a bank holding company headquartered in San Antonio, Texas that provides, through its subsidiaries, a broad array of products and services throughout numerous Texas markets. The terms "Cullen/Frost," "the Corporation," "we," "us" and "our" mean Cullen/Frost Bankers, Inc. and its subsidiaries, when appropriate. We offer commercial and consumer banking services, as well as trust and investment management, insurance, brokerage, mutual funds, leasing, treasury management, capital markets advisory and item processing services. At December 31, 2021, Cullen/Frost had consolidated total assets of $50.9 billion and was one of the largest independent bank holding companies headquartered in the State of Texas.

Our philosophy is to grow and prosper, building long-term relationships based on top quality service, high ethical standards, and safe, sound assets. We operate as a locally-oriented, community-based financial services organization, augmented by experienced, centralized support in select critical areas. Our local market orientation is reflected in our regional management and regional advisory boards, which are comprised of local business persons, professionals and other community representatives that assist our regional management in responding to local banking needs. Despite this local market, community-based focus, we offer many of the products available at much larger money-center financial institutions.

We serve a wide variety of industries including, among others, energy, manufacturing, services, construction, retail, telecommunications, healthcare, military and transportation. Our customer base is similarly diverse. While our loan portfolio has a concentration of energy-related loans totaling approximately 6.6% of total loans (or 6.8% excluding Paycheck Protection Program loans) at December 31, 2021, we are not dependent upon any single industry or customer.

Our operating objectives include expansion, diversification within our markets, growth of our fee-based income, and growth internally and through acquisitions of financial institutions, branches and financial services businesses. We generally seek merger or acquisition partners that are culturally similar and have experienced management and possess either significant market presence or have potential for improved profitability through financial management, economies of scale and expanded services. From time to time, we evaluate merger and acquisition opportunities and conduct due diligence activities related to possible transactions with other financial institutions and financial services companies. As a result, merger or acquisition discussions and, in some cases, negotiations may take place and future mergers or acquisitions involving cash, debt or equity securities may occur. Acquisitions typically involve the payment of a premium over book and market values, and, therefore, some dilution of our tangible book value and net income per common share may occur in connection with any future transaction. Our ability to engage in certain merger or acquisition transactions, whether or not any regulatory approval is required, will be dependent upon our bank regulators' views at the time as to the capital levels, quality of management and our overall condition and their assessment of a variety of other factors. Certain merger or acquisition transactions, including those involving the acquisition of a depository institution or the assumption of the deposits of any depository institution, require formal approval from various bank regulatory authorities, which will be subject to a variety of factors and considerations.

Although Cullen/Frost is a corporate entity, legally separate and distinct from its affiliates, bank holding companies such as Cullen/Frost are required to act as a source of financial strength for their subsidiary banks. The principal source of Cullen/Frost's income is dividends from its subsidiaries. There are certain regulatory restrictions on the extent to which these subsidiaries can pay dividends or otherwise supply funds to Cullen/Frost. See the section captioned "Supervision and Regulation" elsewhere in this item for further discussion of these matters.

Cullen/Frost's executive offices are located at 111 W. Houston Street, San Antonio, Texas 78205, and its telephone number is (210) 220-4011.

Subsidiaries of Cullen/Frost

Frost Bank

Frost Bank, the principal operating subsidiary and sole banking subsidiary of Cullen/Frost, is a Texas-chartered bank primarily engaged in the business of commercial and consumer banking through approximately 157 financial centers across Texas in the Austin, Corpus Christi, Dallas, Fort Worth, Houston, Permian Basin, Rio Grande Valley and San Antonio regions. Frost Bank also operates approximately 1,650 automated-teller machines ("ATMs") throughout the State of Texas, the majority of which are operated in connection with branding and licensing agreements with various retailers throughout the State of Texas. Frost Bank was originally chartered as a national banking association in 1899, but its origin can be traced to a mercantile partnership organized in 1868. At December 31, 2021, Frost Bank had consolidated total assets of $51.0 billion and total deposits of $43.2 billion and was one of the largest commercial banks headquartered in the State of Texas.

Significant services offered by Frost Bank include:

- *Commercial Banking.* Frost Bank provides commercial banking services to corporations and other business clients. Loans are made for a wide variety of general corporate purposes, including financing for industrial and commercial properties and to a lesser extent, financing for interim construction related to industrial and commercial properties, financing for equipment, inventories and accounts receivable, and acquisition financing. We also originate commercial leases and offer treasury management services.
- *Consumer Services.* Frost Bank provides a full range of consumer banking services, including checking accounts, savings programs, ATMs, overdraft facilities, installment and real estate loans, home equity loans and lines of credit, drive-in and night deposit services, safe deposit facilities and brokerage services.
- *International Banking.* Frost Bank provides international banking services to customers residing in or dealing with businesses located in Mexico. These services consist of accepting deposits (generally only in U.S. dollars), making loans (generally only in U.S. dollars), issuing letters of credit, handling foreign collections, transmitting funds, and to a limited extent, dealing in foreign exchange.
- *Correspondent Banking.* Frost Bank acts as correspondent for approximately 171 financial institutions, which are primarily banks in Texas. These banks maintain deposits with Frost Bank, which offers them a full range of services including check clearing, transfer of funds, fixed income security services, and securities custody and clearance services.
- *Trust Services.* Frost Bank provides a wide range of trust, investment, agency and custodial services for individual and corporate clients. These services include the administration of estates and personal trusts, as well as the management of investment accounts for individuals, employee benefit plans and charitable foundations. At December 31, 2021, the estimated fair value of trust assets was $43.3 billion, including managed assets of $19.1 billion and custody assets of $24.2 billion.
- *Capital Markets - Fixed-Income Services*. Frost Bank's Capital Markets Division supports the transaction needs of fixed-income institutional investors. Services include sales and trading, new issue underwriting, money market trading, advisory services and securities safekeeping and clearance.
- *Global Trade Services.* Frost Bank's Global Trade Services Division supports international business activities including foreign exchange, international letters of credit and export-import financing, among other things.

Frost Insurance Agency, Inc.

Frost Insurance Agency, Inc. is a wholly-owned subsidiary of Frost Bank that provides insurance brokerage services to individuals and businesses covering corporate and personal property and casualty insurance products, as well as group health and life insurance products.

Frost Brokerage Services, Inc.

Frost Brokerage Services, Inc. ("FBS") is a wholly-owned subsidiary of Frost Bank that provides brokerage services and performs other transactions or operations related to the sale and purchase of securities of all types. FBS is registered as a fully disclosed introducing broker-dealer under the Securities Exchange Act of 1934 and, as such, does not hold any customer accounts.

Frost Investment Advisors, LLC

Frost Investment Advisors, LLC is a registered investment advisor and a wholly-owned subsidiary of Frost Bank that provides investment management services to Frost-managed mutual funds, institutions and individuals.

Frost Investment Services, LLC

Frost Investment Services, LLC is a registered investment advisor and a wholly-owned subsidiary of Frost Bank that provides investment management services to individuals.

Tri–Frost Corporation

Tri-Frost Corporation is a wholly-owned subsidiary of Frost Bank that primarily holds securities for investment purposes and the receipt of cash flows related to principal and interest on the securities until such time that the securities mature.

Cullen/Frost Capital Trust II

Cullen/Frost Capital Trust II ("Trust II") is a Delaware statutory business trust formed in 2004 for the purpose of issuing $120.0 million in trust preferred securities and lending the proceeds to Cullen/Frost. Cullen/Frost guarantees, on a limited basis, payments of distributions on the trust preferred securities and payments on redemption of the trust preferred securities. Trust II is a variable interest entity for which we are not the primary beneficiary. As such, the accounts of Trust II are not included in our consolidated financial statements. See our accounting policy related to consolidation in Note 1 - Summary of Significant Accounting Policies in the notes to consolidated financial statements included in Item 8. Financial Statements and Supplementary Data elsewhere in this report.

Although the accounts of Trust II are not included in our consolidated financial statements, the $120.0 million in trust preferred securities issued by Trust II are included in the regulatory capital of Cullen/Frost during the reported periods. See the section captioned "Supervision and Regulation - Capital Requirements" for a discussion of the regulatory capital treatment of our trust preferred securities.

Other Subsidiaries

Cullen/Frost has various other subsidiaries that are not significant to the consolidated entity.

Operating Segments

Our operations are managed along two reportable operating segments consisting of Banking and Frost Wealth Advisors. See the sections captioned "Results of Segment Operations" in Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations and Note 18 - Operating Segments in the notes to consolidated financial statements included in Item 8. Financial Statements and Supplementary Data elsewhere in this report.

Competition

There is significant competition among commercial banks in our market areas. In addition, we also compete with other providers of financial services, such as savings and loan associations, credit unions, consumer finance companies, securities firms, insurance companies, insurance agencies, commercial finance and leasing companies, full service brokerage firms, discount brokerage firms, and financial/wealth technology ("fintech/wealthtech") firms. Some of our competitors have greater resources and, as such, may have higher lending limits and may offer other services that are not provided by us. We generally compete on the basis of customer service and responsiveness to customer needs, available loan and deposit products, the rates of interest charged on loans, the rates of interest paid for funds, and the availability and pricing of trust, brokerage and insurance services. For further discussion, see the section captioned "We Operate In A Highly Competitive Industry and Market Area" in Item 1A. Risk Factors.

Supervision and Regulation

Cullen/Frost, Frost Bank and most of its non-banking subsidiaries are subject to extensive regulation under federal and state laws. The regulatory framework is intended primarily for the protection of depositors, federal deposit insurance funds and the banking system as a whole and not for the protection of shareholders and creditors.

Significant elements of the laws and regulations applicable to Cullen/Frost and its subsidiaries are described below. The description is qualified in its entirety by reference to the full text of the statutes, regulations and policies that are described. Also, such statutes, regulations and policies are continually under review by Congress and state legislatures and federal and state regulatory agencies. A change in statutes, regulations or regulatory policies applicable to Cullen/Frost and its subsidiaries could have a material effect on our business, financial condition or our results of operations.

Regulatory Agencies

Cullen/Frost is a legal entity separate and distinct from Frost Bank and its other subsidiaries. As a financial holding company and a bank holding company, Cullen/Frost is regulated under the Bank Holding Company Act of 1956, as amended ("BHC Act"), and it and its subsidiaries are subject to inspection, examination and supervision by the Federal Reserve Board. The BHC Act provides generally for "umbrella" regulation of financial holding companies such as Cullen/Frost by the Federal Reserve Board, and for functional regulation of banking activities by bank regulators, securities activities by securities regulators, and insurance activities by insurance regulators. Cullen/Frost is also under the jurisdiction of the Securities and Exchange Commission ("SEC") and is subject to the disclosure and regulatory requirements of the Securities Act of 1933, as amended, and the Securities Exchange Act of 1934, as amended, as administered by the SEC. Cullen/Frost's common stock is listed on the New York Stock Exchange ("NYSE") under the trading symbol "CFR" and our Depositary Shares, each representing a 1/40th interest in a share of our 4.450% Non-Cumulative Perpetual Preferred Stock, Series B, is listed on the NYSE under the trading symbol "CFR PrB." Accordingly, Cullen/Frost is also subject to the rules of the NYSE for listed companies.

Frost Bank is a Texas state chartered bank and a member of the Federal Reserve System. Accordingly, the Texas Department of Banking and the Federal Reserve Board are the primary regulators of Frost Bank. Deposits at Frost Bank are insured by the Federal Deposit Insurance Corporation ("FDIC") up to applicable limits.

All member banks of the Federal Reserve System, including Frost Bank, are required to hold stock in the Federal Reserve System's Reserve Banks in an amount equal to six percent of their capital stock and surplus (half paid to acquire the stock with the remainder held as a cash reserve). Member banks do not have any control over the Federal Reserve System as a result of owning the stock and the stock cannot be sold or traded. The annual dividend rate for member banks with total assets in excess of approximately $11.2 billion, including Frost Bank, is tied to 10-year U.S. Treasuries with the maximum dividend rate capped at six percent. The total amount of stock dividends that Frost Bank received from the Federal Reserve totaled $532 thousand in 2021, $313 thousand in 2020 and $688 thousand in 2019.

Most of our non-bank subsidiaries also are subject to regulation by the Federal Reserve Board and other federal and state agencies. Frost Brokerage Services, Inc. is regulated by the SEC, the Financial Industry Regulatory Authority ("FINRA") and state securities regulators. Frost Investment Advisors, LLC and Frost Investment Services, LLC are subject to the disclosure and regulatory requirements of the Investment Advisors Act of 1940, as administered by the SEC. Our insurance subsidiary is subject to regulation by applicable state insurance regulatory agencies. Other non-bank subsidiaries are subject to both federal and state laws and regulations. Frost Bank and its affiliates are also subject to supervision, regulation, examination and enforcement by the Consumer Financial Protection Bureau ("CFPB") with respect to consumer protection laws and regulations.

Bank Holding Company Activities

In general, the BHC Act limits the business of bank holding companies to banking, managing or controlling banks and other activities that the Federal Reserve Board has determined to be so closely related to banking as to be a proper incident thereto. In addition, bank holding companies that qualify and elect to be financial holding companies may engage in any activity, or acquire and retain the shares of a company engaged in any activity, that is either (i) financial in nature or incidental to such financial activity (as determined by the Federal Reserve Board in consultation with the Secretary of the Treasury) or (ii) complementary to a financial activity and does not pose a substantial risk to the safety and soundness of depository institutions or the financial system generally (as solely determined by the Federal Reserve Board), without prior approval of the Federal Reserve Board. Activities that are financial in nature include securities underwriting and dealing, insurance underwriting and making merchant banking investments.

To maintain financial holding company status, a financial holding company and all of its depository institution subsidiaries must be “well capitalized” and “well managed.” A depository institution subsidiary is considered to be “well capitalized” if it satisfies the requirements for this status discussed in the section captioned “Prompt Corrective Action,” elsewhere in this item. A depository institution subsidiary is considered “well managed” if it received a composite rating and management rating of at least “satisfactory” in its most recent examination. A financial holding company’s status will also depend upon it maintaining its status as “well capitalized” and “well managed” under applicable Federal Reserve Board regulations. If a financial holding company ceases to meet these capital and management requirements, the Federal Reserve Board’s regulations provide that the financial holding company must enter into an agreement with the Federal Reserve Board to comply with all applicable capital and management requirements. Until the financial holding company returns to compliance, the Federal Reserve Board may impose limitations or conditions on the conduct of its activities, and the company may not commence any of the broader financial activities permissible for financial holding companies or acquire a company engaged in such financial activities without prior approval of the Federal Reserve Board. If the company does not return to compliance within 180 days, the Federal Reserve Board may require divestiture of the holding company’s depository institutions. Bank holding companies and banks must also be both well capitalized and well managed in order to acquire banks located outside their home state.

In order for a financial holding company to commence any new activity permitted by the BHC Act or to acquire a company engaged in any new activity permitted by the BHC Act, each insured depository institution subsidiary of the financial holding company must have received a rating of at least “satisfactory” in its most recent examination under the Community Reinvestment Act. See the section captioned “Community Reinvestment Act” elsewhere in this item.

The Federal Reserve Board has the power to order any bank holding company or its subsidiaries to terminate any activity or to terminate its ownership or control of any subsidiary when the Federal Reserve Board has reasonable grounds to believe that continuation of such activity or such ownership or control constitutes a serious risk to the financial soundness, safety or stability of any bank subsidiary of the bank holding company.

The BHC Act, the Bank Merger Act, the Texas Banking Code and other federal and state statutes regulate acquisitions of commercial banks and their parent holding companies. The BHC Act requires the prior approval of the Federal Reserve Board for the direct or indirect acquisition by a bank holding company of more than 5.0% of the voting shares of a commercial bank or its parent holding company. Under the Bank Merger Act, the prior approval of the Federal Reserve Board or other appropriate bank regulatory authority is required for a member bank to merge with another bank or purchase substantially all of the assets or assume any deposits of another bank. In reviewing applications seeking approval of merger and acquisition transactions, the bank regulatory authorities will consider, among other things, the competitive effect and public benefits of the transactions, the applicant's managerial and financial resources, the capital position of the combined organization, the risks to the stability of the U.S. banking or financial system (e.g., systemic risk), the applicant’s performance record under the Community Reinvestment Act (see the section captioned “Community Reinvestment Act” elsewhere in this item) and its compliance with law, including fair lending, fair housing and other consumer protection laws, and the effectiveness of the subject organizations in combating money laundering activities.

Dividends and Stock Repurchases

The principal source of Cullen/Frost’s liquidity is dividends from Frost Bank. The prior approval of the Federal Reserve Board is required if the total of all dividends declared by a state-chartered member bank in any calendar year would exceed the sum of the bank’s net profits for that year and its retained net profits for the preceding two calendar years, less any required transfers to surplus or to fund the retirement of preferred stock. Federal law also prohibits a state-chartered, member bank from paying dividends that would be greater than the bank’s undivided profits. Frost Bank is also subject to limitations under Texas state law regarding the level of dividends that may be paid. Under the foregoing dividend restrictions, and while maintaining its “well capitalized” status, Frost Bank could pay aggregate dividends of approximately $494.1 million to Cullen/Frost, without obtaining affirmative governmental approvals, at December 31, 2021. This amount is not necessarily indicative of amounts that may be paid or available to be paid in future periods.

In addition, Cullen/Frost and Frost Bank are subject to other regulatory policies and requirements relating to the payment of dividends, including requirements to maintain adequate capital above regulatory minimums. The appropriate federal regulatory authority is authorized to determine under certain circumstances relating to the financial condition of a bank holding company or a bank that the payment of dividends would be an unsafe or unsound practice and to prohibit payment thereof. Additionally, it is Federal Reserve policy that bank holding companies generally should pay dividends on common stock only out of net income available to common shareholders over the past year and only if the prospective rate of earnings retention appears consistent with the organization's current and expected future capital needs, asset quality and overall financial condition. Federal Reserve policy also provides that a bank holding company should inform the Federal Reserve reasonably in advance of declaring or paying a dividend that exceeds earnings for the period for which the dividend is being paid or that could result in a material adverse change to the bank holding company's capital structure.

In July 2019, the federal bank regulators adopted final rules (the "Capital Simplifications Rules") that, among other things, eliminated the standalone prior approval requirement in the Basel III Capital Rules for any repurchase of common stock. In certain circumstances, Cullen/Frost's repurchases of its common stock may be subject to a prior approval or notice requirement under other regulations, policies or supervisory expectations of the Federal Reserve Board. Any redemption or repurchase of preferred stock or subordinated debt remains subject to the prior approval of the Federal Reserve Board.

Transactions with Affiliates

Transactions between Frost Bank and its subsidiaries, on the one hand, and Cullen/Frost or any other subsidiary, on the other hand, are regulated under federal banking law. The Federal Reserve Act imposes quantitative and qualitative requirements and collateral requirements on covered transactions by Frost Bank with, or for the benefit of, its affiliates, and generally requires those transactions to be on terms at least as favorable to Frost Bank as if the transaction were conducted with an unaffiliated third party. Covered transactions are defined by statute to include a loan or extension of credit, as well as a purchase of securities issued by an affiliate, a purchase of assets (unless otherwise exempted by the Federal Reserve Board) from the affiliate, certain derivative transactions that create a credit exposure to an affiliate, the acceptance of securities issued by the affiliate as collateral for a loan, and the issuance of a guarantee, acceptance or letter of credit on behalf of an affiliate. In general, any such transaction by Frost Bank or its subsidiaries must be limited to certain thresholds on an individual and aggregate basis and, for credit transactions with any affiliate, must be secured by designated amounts of specified collateral.

Federal law also limits a bank's authority to extend credit to its directors, executive officers and 10% stockholders, as well as to entities controlled by such persons. Among other things, extensions of credit to insiders are required to be made on terms that are substantially the same as, and follow credit underwriting procedures that are not less stringent than, those prevailing for comparable transactions with unaffiliated persons. Also, the terms of such extensions of credit may not involve more than the normal risk of non-repayment or present other unfavorable features and may not exceed certain limitations on the amount of credit extended to such persons individually and in the aggregate.

Source of Strength Doctrine

Federal Reserve Board policy and federal law require bank holding companies to act as a source of financial and managerial strength to their subsidiary banks. Under this requirement, Cullen/Frost is expected to commit resources to support Frost Bank, including at times when Cullen/Frost may not be in a financial position to provide such resources. Any capital loans by a bank holding company to any of its subsidiary banks are subordinate in right of payment to depositors and to certain other indebtedness of such subsidiary banks. In the event of a bank holding company's bankruptcy, any commitment by the bank holding company to a federal bank regulatory agency to maintain the capital of a subsidiary bank will be assumed by the bankruptcy trustee and entitled to priority of payment.

Capital Requirements

Cullen/Frost and Frost Bank are each required to comply with applicable capital adequacy standards adopted by the Federal Reserve Board (the "Basel III Capital Rules"). The Basel III Capital Rules require Cullen/Frost and Frost Bank to maintain the following:

- A minimum ratio of Common Equity Tier 1 ("CET1") to risk-weighted assets of at least 4.5%, plus a 2.5% "capital conservation buffer" that is composed entirely of CET1 capital (resulting in a minimum ratio of CET1 to risk-weighted assets of 7.0%);
- A minimum ratio of Tier 1 capital to risk-weighted assets of at least 6.0%, plus the capital conservation buffer (resulting in a minimum Tier 1 capital ratio of 8.5%);
- A minimum ratio of total capital (Tier 1 capital plus Tier 2 capital) to risk-weighted assets of at least 8.0%, plus the capital conservation buffer (resulting in a minimum total capital ratio of 10.5%); and
- A minimum leverage ratio of 4.0%, calculated as the ratio of Tier 1 capital to average consolidated assets as reported on consolidated financial statements (known as the "leverage ratio").

Banking institutions that fail to meet the effective minimum ratios once the capital conservation buffer is taken into account, as detailed above, will be subject to constraints on capital distributions, including dividends and share repurchases, and certain discretionary executive compensation. The severity of the constraints depends on the amount of the shortfall and the institution's "eligible retained income" (that is, the greater of (i) net income for the preceding four quarters, net of distributions and associated tax effects not reflected in net income and (ii) average net income over the preceding four quarters).

The Basel III Capital Rules and the Capital Simplification Rules also provide for a number of deductions from and adjustments to CET1. These include, for example, the requirement that certain deferred tax assets and significant investments in non-consolidated financial entities be deducted from CET1 to the extent that any one such category exceeds 25% of CET1. Prior to the adoption of the Capital Simplification Rules in July 2019, amounts were deducted from CET1 to the extent that any one such category exceeded 10% of CET1 or all such items, in the aggregate, exceeded 15% of CET1. The Capital Simplification Rules took effect for Cullen/Frost and Frost Bank as of January 1, 2020. These limitations did not impact our regulatory capital during any of the reported periods.

In addition, under the general risk-based capital rules, the effects of accumulated other comprehensive income items included in capital were excluded for the purposes of determining regulatory capital ratios. Under the Basel III Capital Rules, the effects of certain accumulated other comprehensive income items are not excluded; however, non-advanced approaches banking organizations, including Cullen/Frost and Frost Bank, were able to make a one-time permanent election to continue to exclude these items. Both Cullen/Frost and Frost Bank made this election in order to avoid significant variations in the level of capital depending upon the impact of interest rate fluctuations on the fair value of their available-for-sale securities portfolio. Under the Basel III Capital Rules, trust preferred securities no longer included in our Tier 1 capital may nonetheless be included as a component of Tier 2 capital on a permanent basis without phase-out.

In February 2019, the federal bank regulatory agencies issued a final rule (the "2019 CECL Rule") that revised certain capital regulations to account for changes to credit loss accounting under U.S. GAAP. The 2019 CECL Rule included a transition option that allows banking organizations to phase in, over a three-year period, the day-one adverse effects of adopting a new accounting standard related to the measurement of current expected credit losses ("CECL") on their regulatory capital ratios (three-year transition option). In March 2020, the federal bank regulatory agencies issued an interim final rule that maintains the three-year transition option of the 2019 CECL Rule and also provides banking organizations that were required under U.S. GAAP (as of January 2020) to implement CECL before the end of 2020 the option to delay for two years an estimate of the effect of CECL on regulatory capital, relative to the incurred loss methodology's effect on regulatory capital, followed by a three-year transition period (five-year transition option). We elected to adopt the five-year transition option. Accordingly, a CECL transitional amount totaling $61.6 million has been added back to CET1 as of December 31, 2021. The CECL transitional amount includes $29.3 million related to the cumulative effect of adopting CECL and $32.4 million related to the estimated incremental effect of CECL since adoption.

The Basel III Capital Rules prescribe a standardized approach for risk weightings that expanded the risk-weighting categories from the general risk-based capital rules to a much larger and more risk-sensitive number of categories, depending on the nature of the assets, generally ranging from 0% for U.S. government and agency securities, to 600% for certain equity exposures (and higher percentages for certain other types of interests), and resulting in higher risk weights for a variety of asset categories. Effective April 2020, the federal banking agencies adopted a rule revising the scope of commercial real estate mortgages subject to a 150% risk weight.

In December 2017, the Basel Committee published standards that it described as the finalization of the Basel III post-crisis regulatory reforms (the standards are commonly referred to as “Basel IV”). Among other things, these standards revise the Basel Committee's standardized approach for credit risk (including by recalibrating risk weights and introducing new capital requirements for certain “unconditionally cancellable commitments,” such as unused credit card lines of credit) and provides a new standardized approach for operational risk capital. Under the Basel framework, these standards will generally be effective on January 1, 2023, with an aggregate output floor phasing in through January 1, 2028. Under the current U.S. capital rules, operational risk capital requirements and a capital floor apply only to advanced approaches institutions, and not to Cullen/Frost or Frost Bank. The impact of Basel IV on us will depend on the manner in which it is implemented by the federal bank regulators.

Liquidity Requirements

The Basel III liquidity framework and regulations of the Federal Reserve require that certain banks and bank holding companies measure their liquidity against specific liquidity tests. One test, referred to as the liquidity coverage ratio (“LCR”), is designed to ensure that the banking entity maintains an adequate level of unencumbered high-quality liquid assets equal to the entity’s expected net cash outflow for a 30-day time horizon (or, if greater, 25% of its expected total cash outflow) under an acute liquidity stress scenario. The other test, referred to as the net stable funding ratio (“NSFR”), is designed to promote more medium- and long-term funding of the assets and activities of banking entities over a one-year time horizon. Rules applicable to certain large banking organizations have been implemented for LCR and for NSFR; however, based on our asset size, these rules do not currently apply to Cullen/Frost and Frost Bank.

Prompt Corrective Action

The Federal Deposit Insurance Act, as amended (“FDIA”), requires among other things, the federal banking agencies to take “prompt corrective action” in respect of depository institutions that do not meet minimum capital requirements. The FDIA includes the following five capital tiers: “well capitalized,” “adequately capitalized,” “undercapitalized,” “significantly undercapitalized” and “critically undercapitalized.”

A bank will be (i) “well capitalized” if the institution has a total risk-based capital ratio of 10.0% or greater, a CET1 capital ratio of 6.5% or greater, a Tier 1 risk-based capital ratio of 8.0% or greater, and a leverage ratio of 5.0% or greater, and is not subject to any order or written directive by any such regulatory authority to meet and maintain a specific capital level for any capital measure; (ii) “adequately capitalized” if the institution has a total risk-based capital ratio of 8.0% or greater, a CET1 capital ratio of 4.5% or greater, a Tier 1 risk-based capital ratio of 6.0% or greater, and a leverage ratio of 4.0% or greater and is not “well capitalized”; (iii) “undercapitalized” if the institution has a total risk-based capital ratio that is less than 8.0%, a CET1 capital ratio less than 4.5%, a Tier 1 risk-based capital ratio of less than 6.0% or a leverage ratio of less than 4.0%; (iv) “significantly undercapitalized” if the institution has a total risk-based capital ratio of less than 6.0%, a CET1 capital ratio less than 3.0%, a Tier 1 risk-based capital ratio of less than 4.0% or a leverage ratio of less than 3.0%; and (v) “critically undercapitalized” if the institution’s tangible equity is equal to or less than 2.0% of average quarterly tangible assets. An institution may be downgraded to, or deemed to be in, a capital category that is lower than indicated by its capital ratios if it is determined to be in an unsafe or unsound condition or if it receives an unsatisfactory examination rating with respect to certain matters. A bank’s capital category is determined solely for the purpose of applying prompt corrective action regulations, and the capital category may not constitute an accurate representation of the bank’s overall financial condition or prospects for other purposes.

The FDIA prohibits an insured depository institution from accepting brokered deposits or offering interest rates on any deposits significantly higher than the prevailing rate in the bank’s normal market area or nationally (depending upon where the deposits are solicited), unless it is well capitalized or is adequately capitalized and receives a waiver from the FDIC.

Additionally, the FDIA generally prohibits a depository institution from making any capital distributions (including payment of a dividend) or paying any management fee to its parent holding company if the depository institution would thereafter be “undercapitalized.” “Undercapitalized” institutions are subject to growth limitations and are required to submit a capital restoration plan. The agencies may not accept such a plan without determining, among other things, that the plan is based on realistic assumptions and is likely to succeed in restoring the depository institution’s capital. In addition, for a capital restoration plan to be acceptable, the depository institution’s parent holding company must guarantee that the institution will comply with such capital restoration plan. The bank holding company must also provide appropriate assurances of performance. The aggregate liability of the parent holding company is limited to the lesser of (i) an amount equal to 5.0% of the depository institution's total assets at the time it became undercapitalized and (ii) the amount which is necessary (or would have been necessary) to bring the institution into compliance with all capital standards applicable with respect to such institution as of the time it fails to comply with the plan. If a depository institution fails to submit an acceptable plan, it is treated as if it is "significantly undercapitalized."

"Significantly undercapitalized" depository institutions may be subject to a number of requirements and restrictions, including orders to sell sufficient voting stock to become "adequately capitalized," requirements to reduce total assets, and cessation of receipt of deposits from correspondent banks. "Critically undercapitalized" institutions are subject to the appointment of a receiver or conservator.

The appropriate federal banking agency may, under certain circumstances, reclassify a well capitalized insured depository institution as adequately capitalized. The FDIA provides that an institution may be reclassified if the appropriate federal banking agency determines (after notice and opportunity for hearing) that the institution is in an unsafe or unsound condition or deems the institution to be engaging in an unsafe or unsound practice. The appropriate agency is also permitted to require an adequately capitalized or undercapitalized institution to comply with the supervisory provisions as if the institution were in the next lower category (but not treat a significantly undercapitalized institution as critically undercapitalized) based on supervisory information other than the capital levels of the institution.

Cullen/Frost believes that, as of December 31, 2021, its bank subsidiary, Frost Bank, was "well capitalized" based on the aforementioned ratios. For further information regarding the capital ratios and leverage ratio of Cullen/Frost and Frost Bank see the discussion under the section captioned "Capital and Liquidity" included in Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations and Note 9 - Capital and Regulatory Matters in the notes to consolidated financial statements included in Item 8. Financial Statements and Supplementary Data, elsewhere in this report.

The prompt corrective action regulations do not apply to bank holding companies. However, the Federal Reserve Board is authorized to take appropriate action at the bank holding company level, based upon the undercapitalized status of the bank holding company's depository institution subsidiaries.

Safety and Soundness Standards

The FDIA requires the federal bank regulatory agencies to prescribe standards, by regulations or guidelines, relating to internal controls, information systems and internal audit systems, loan documentation, credit underwriting, interest rate risk exposure, asset growth, asset quality, earnings, stock valuation and compensation, fees and benefits, and such other operational and managerial standards as the agencies deem appropriate. Guidelines adopted by the federal bank regulatory agencies establish general standards relating to internal controls and information systems, internal audit systems, loan documentation, credit underwriting, interest rate exposure, asset growth and compensation, fees and benefits. In general, the guidelines require, among other things, appropriate systems and practices to identify and manage the risk and exposures specified in the guidelines. The guidelines prohibit excessive compensation as an unsafe and unsound practice and describe compensation as excessive when the amounts paid are unreasonable or disproportionate to the services performed by an executive officer, employee, director or principal stockholder. In addition, the agencies adopted regulations that authorize, but do not require, an agency to order an institution that has been given notice by an agency that it is not satisfying any of such safety and soundness standards to submit a compliance plan. If, after being so notified, an institution fails to submit an acceptable compliance plan or fails in any material respect to implement an acceptable compliance plan, the agency must issue an order directing action to correct the deficiency and may issue an order directing other actions of the types to which an undercapitalized institution is subject under the "prompt corrective action" provisions of the FDIA. See "Prompt Corrective Action" above. If an institution fails to comply with such an order, the agency may seek to enforce such order in judicial proceedings and to impose civil money penalties.

Deposit Insurance

Deposits at Frost Bank are insured up to applicable limits by the Deposit Insurance Fund ("DIF") of the FDIC and Frost Bank is subject to deposit insurance assessments to maintain the DIF. Deposit insurance assessments are based on average total assets minus average tangible equity. For larger institutions, such as Frost Bank, the FDIC uses a performance score and a loss-severity score that are used to calculate an initial assessment rate. In calculating these scores, the FDIC uses a bank's capital level and supervisory ratings and certain financial measures to assess an institution's ability to withstand asset-related stress and funding-related stress. The FDIC has the ability to make discretionary adjustments to the total score based upon significant risk factors that are not adequately captured in the calculations.

Under the FDIA, the FDIC may terminate deposit insurance upon a finding that the institution has engaged in unsafe and unsound practices, is in an unsafe or unsound condition to continue operations, or has violated any applicable law, regulation, rule, order or condition imposed by the FDIC. In addition, the FDIC is authorized to conduct examinations of and require reporting by FDIC-insured institutions.

Enhanced Prudential Standards

The Federal Reserve Board is required to monitor emerging risks to financial stability and enact enhanced supervision and prudential standards applicable to large bank holding companies and certain non-bank covered companies designated as systemically important by the Financial Stability Oversight Council. The Dodd-Frank Wall Street Reform and Consumer Protection Act (the "Dodd-Frank Act") mandates that certain regulatory requirements applicable to these systemically important financial institutions be more stringent than those applicable to other financial institutions. In 2019, the Federal Reserve Board adopted new rules impacting certain capital and liquidity requirements and other enhanced prudential standards. The final rules assign all domestic bank holding companies with $100 billion or more in total consolidated assets to one of four categories of tailored regulatory requirements. Cullen/Frost and Frost Bank are generally not impacted by these rules. The enhanced prudential standards rules, as amended in 2019, require publicly traded bank holding companies with $50 billion or more in total consolidated assets to establish risk committees. Prior to the amendment, the requirement to establish a risk committee was applicable to publicly traded bank holding companies with $10 billion or more in consolidated assets. Cullen/Frost has established and currently maintains a risk committee.

The Volcker Rule

The so-called Volcker Rule under the Dodd-Frank Act restricts banks and their affiliates from engaging in proprietary trading and investing in and sponsoring hedge funds and private equity funds. The Volcker Rule does not significantly impact the operations of Cullen/Frost and its subsidiaries as we do not have any engagement in the businesses prohibited by the Volcker Rule.

Depositor Preference

The FDIA provides that, in the event of the "liquidation or other resolution" of an insured depository institution, the claims of depositors of the institution, including the claims of the FDIC as subrogee of insured depositors, and certain claims for administrative expenses of the FDIC as a receiver, will have priority over other general unsecured claims against the institution. If an insured depository institution fails, insured and uninsured depositors, along with the FDIC, will have priority in payment ahead of unsecured, non-deposit creditors, including depositors whose deposits are payable only outside of the United States and the parent bank holding company, with respect to any extensions of credit they have made to such insured depository institution.

Interchange Fees

Under the Durbin Amendment to the Dodd-Frank Act, the Federal Reserve adopted rules establishing standards for assessing whether the interchange fees that may be charged with respect to certain electronic debit transactions are "reasonable and proportional" to the costs incurred by issuers for processing such transactions.

Interchange fees, or "swipe" fees, are charges that merchants pay to us and other card-issuing banks for processing electronic payment transactions. Federal Reserve Board rules applicable to financial institutions that have assets of $10 billion or more provide that the maximum permissible interchange fee for an electronic debit transaction is the sum of 21 cents per transaction and 5 basis points multiplied by the value of the transaction. An upward adjustment of no more than 1 cent to an issuer's debit card interchange fee is allowed if the card issuer develops and implements policies and procedures reasonably designed to achieve certain fraud-prevention standards. The Federal Reserve Board also has rules governing routing and exclusivity that require issuers to offer two unaffiliated networks for routing transactions on each debit or prepaid product.

Consumer Financial Protection

We are subject to a number of federal and state consumer protection laws that extensively govern our relationship with our customers. These laws include the Equal Credit Opportunity Act, the Fair Credit Reporting Act, the Truth in Lending Act, the Truth in Savings Act, the Electronic Fund Transfer Act, the Expedited Funds Availability Act, the Home Mortgage Disclosure Act, the Fair Housing Act, the Real Estate Settlement Procedures Act, the Fair Debt Collection Practices Act, the Service Members Civil Relief Act and these laws' respective state-law counterparts, as well as state usury laws and laws regarding unfair and deceptive acts and practices. These and other federal laws, among other things, require disclosures of the cost of credit and terms of deposit accounts, provide substantive consumer rights, prohibit discrimination in credit transactions, regulate the use of credit report information, provide financial privacy protections, prohibit unfair, deceptive and abusive practices, restrict our ability to raise interest rates and subject us to substantial regulatory oversight. Violations of applicable consumer protection laws can result in significant potential liability from litigation brought by customers, including actual damages, restitution and attorneys' fees. Federal bank regulators, state attorneys general and state and local consumer protection agencies may also seek to enforce consumer protection requirements and obtain these and other remedies, including regulatory sanctions, customer rescission rights, action by the state and local attorneys general in each jurisdiction in which we operate and civil money penalties. Failure to comply with consumer protection requirements may also result in our failure to obtain any required bank regulatory approval for merger or acquisition transactions we may wish to pursue or our prohibition from engaging in such transactions even if approval is not required.

The Consumer Financial Protection Bureau ("CFPB") is a federal agency responsible for implementing, examining and enforcing compliance with federal consumer protection laws. The CFPB has broad rulemaking authority for a wide range of consumer financial laws that apply to all banks, including, among other things, laws relating to fair lending and the authority to prohibit "unfair, deceptive or abusive" acts and practices. Abusive acts or practices are defined as those that materially interfere with a consumer's ability to understand a term or condition of a consumer financial product or service or take unreasonable advantage of a consumer's (i) lack of financial savvy, (ii) inability to protect himself in the selection or use of consumer financial products or services, or (iii) reasonable reliance on a covered entity to act in the consumer's interests. The CFPB can issue cease-and-desist orders against banks and other entities that violate consumer financial laws. The CFPB may also institute a civil action against an entity in violation of federal consumer financial law in order to impose a civil penalty or injunction. The CFPB has examination and enforcement authority over all banks with more than $10 billion in assets, as well as their affiliates. Banking regulators take into account compliance with consumer protection laws when considering approval of a proposed transaction.

Community Reinvestment Act

The Community Reinvestment Act of 1977 ("CRA") requires depository institutions to assist in meeting the credit needs of their market areas consistent with safe and sound banking practice. Under the CRA, each depository institution is required to help meet the credit needs of its market areas by, among other things, providing credit to low- and moderate-income individuals and communities. Depository institutions are periodically examined for compliance with the CRA and are assigned ratings. In order for a financial holding company to commence any new activity permitted by the BHC Act, or to acquire any company engaged in any new activity permitted by the BHC Act, each insured depository institution subsidiary of the financial holding company must have received a rating of at least "satisfactory" in its most recent examination under the CRA. Furthermore, banking regulators take into account CRA ratings when considering a request for an approval of a proposed transaction. Frost Bank received a rating of "satisfactory" in its most recent CRA examination.

In December 2019, the Federal Deposit Insurance Corporation ("FDIC") and the Office of the Comptroller of the Currency ("OCC") jointly proposed rules that would significantly change existing CRA regulations. The proposed rules are intended to increase bank activity in low- and moderate-income communities where there is significant need for credit, more responsible lending, greater access to banking services, and improvements to critical infrastructure. The proposals change four key areas: (i) clarifying what activities qualify for CRA credit; (ii) updating where activities count for CRA credit; (iii) providing a more transparent and objective method for measuring CRA performance; and (iv) revising CRA-related data collection, record keeping, and reporting. However, the Federal Reserve Board did not join in that proposed rulemaking. In June 2020, the OCC issued its final CRA rule, effective October 1, 2020, while the FDIC did not finalize any revisions to its CRA rule. In September 2020, the Federal Reserve Board issued an Advance Notice of Proposed Rulemaking ("ANPR") that invited public comment on an approach to modernize the regulations that implement the CRA by strengthening, clarifying, and tailoring them to reflect the current banking landscape and better meet the core purpose of the CRA.

The ANPR sought feedback on ways to evaluate how banks meet the needs of low- and moderate-income communities and address inequities in credit access. In December 2021, the OCC issued a final rule to rescind its June 2020 final rule in favor of working with other agencies to put forward a joint rule. We will continue to evaluate the impact of any changes to the regulations implementing the CRA and their impact to our financial condition, results of operations, and/or liquidity, which cannot be predicted at this time.

Financial Privacy

The federal banking regulators adopted rules that limit the ability of banks and other financial institutions to disclose non-public information about consumers to nonaffiliated third parties. These limitations require disclosure of privacy policies to consumers and, in some circumstances, allow consumers to prevent disclosure of certain personal information to a nonaffiliated third party. These regulations affect how consumer information is transmitted through diversified financial companies and conveyed to outside vendors.

Anti-Money Laundering and the USA Patriot Act

A major focus of governmental policy on financial institutions in recent years has been aimed at combating money laundering and terrorist financing. The USA PATRIOT Act of 2001, or the USA Patriot Act, substantially broadened the scope of United States anti-money laundering laws and regulations by imposing significant new compliance and due diligence obligations, creating new crimes and penalties and expanding the extra-territorial jurisdiction of the United States. Financial institutions are also prohibited from entering into specified financial transactions and account relationships and must use enhanced due diligence procedures in their dealings with certain types of high-risk customers and implement a written customer identification program. Financial institutions must take certain steps to assist government agencies in detecting and preventing money laundering and report certain types of suspicious transactions. Regulatory authorities routinely examine financial institutions for compliance with these obligations, and failure of a financial institution to maintain and implement adequate programs to combat money laundering and terrorist financing, or to comply with all of the relevant laws or regulations, could have serious financial, legal and reputational consequences for the institution, including causing applicable bank regulatory authorities not to approve merger or acquisition transactions when regulatory approval is required or to prohibit such transactions even if approval is not required. Regulatory authorities have imposed cease and desist orders and civil money penalties against institutions found to be violating these obligations.

The Anti-Money Laundering Act of 2020 ("AMLA"), which amends the Bank Secrecy Act of 1970 ("BSA"), was enacted in January 2021. The AMLA is intended to be a comprehensive reform and modernization to U.S. bank secrecy and anti-money laundering laws. Among other things, it codifies a risk-based approach to anti-money laundering compliance for financial institutions; requires the U.S. Department of the Treasury to promulgate priorities for anti-money laundering and countering the financing of terrorism policy; requires the development of standards for testing technology and internal processes for BSA compliance; expands enforcement- and investigation-related authority, including increasing available sanctions for certain BSA violations; and expands BSA whistleblower incentives and protections. Many of the statutory provisions in the AMLA will require additional rulemakings, reports and other measures, and the impact of the AMLA will depend on, among other things, rulemaking and implementation guidance. In June 2021, the Financial Crimes Enforcement Network, a bureau of the U.S. Department of the Treasury, issued the priorities for anti-money laundering and countering the financing of terrorism policy required under the AMLA. The priorities include: corruption, cybercrime, terrorist financing, fraud, transnational crime, drug trafficking, human trafficking and proliferation financing.

Office of Foreign Assets Control Regulation

The U.S. Treasury Department's Office of Foreign Assets Control, or OFAC, administers and enforces economic and trade sanctions against targeted foreign countries and regimes, under authority of various laws, including designated foreign countries, nationals and others. OFAC publishes lists of specially designated targets and countries. We are responsible for, among other things, blocking accounts of, and transactions with, such targets and countries, prohibiting unlicensed trade and financial transactions with them and reporting blocked transactions after their occurrence. Failure to comply with these sanctions could have serious financial, legal and reputational consequences, including causing applicable bank regulatory authorities not to approve merger or acquisition transactions when regulatory approval is required or to prohibit such transactions even if approval is not required.

Regulatory authorities have imposed cease and desist orders and civil money penalties against institutions found to be violating these obligations.

Incentive Compensation

The Federal Reserve Board reviews, as part of its regular, risk-focused examination process, the incentive compensation arrangements of banking organizations, such as Cullen/Frost, that are not “large, complex banking organizations.” These reviews are tailored to each organization based on the scope and complexity of the organization’s activities and the prevalence of incentive compensation arrangements. Deficiencies will be incorporated into the organization’s supervisory ratings, which can affect the organization’s ability to make acquisitions and take other actions. Enforcement actions may be taken against a banking organization if its incentive compensation arrangements, or related risk-management control or governance processes, pose a risk to the organization’s safety and soundness and the organization is not taking prompt and effective measures to correct the deficiencies.

In June 2010, the Federal Reserve Board, OCC and FDIC issued comprehensive final guidance on incentive compensation policies intended to ensure that the incentive compensation policies of banking organizations do not undermine the safety and soundness of such organizations by encouraging excessive risk-taking. The guidance, which covers all employees that have the ability to materially affect the risk profile of an organization, either individually or as part of a group, is based upon the key principles that a banking organization’s incentive compensation arrangements should (i) provide incentives that do not encourage risk-taking beyond the organization’s ability to effectively identify and manage risks, (ii) be compatible with effective internal controls and risk management, and (iii) be supported by strong corporate governance, including active and effective oversight by the organization’s board of directors.

In 2016, the U.S. financial regulators, including the Federal Reserve Board and the SEC, proposed revised rules on incentive-based payment arrangements at specified regulated entities having at least $1 billion in total assets (including Cullen/Frost and Frost Bank), but these proposed rules have not been finalized.

Cybersecurity

In February 2018, the SEC published interpretive guidance to assist public companies in preparing disclosures about cybersecurity risks and incidents. These SEC guidelines, and any other regulatory guidance, are in addition to notification and disclosure requirements under state and federal banking law and regulations.

The federal banking regulators regularly issue new guidance and standards, and update existing guidance and standards, regarding cybersecurity intended to enhance cyber risk management among financial institutions. Financial institutions are expected to comply with such guidance and standards and to accordingly develop appropriate security controls and risk management processes. If we fail to observe such regulatory guidance or standards, we could be subject to various regulatory sanctions, including financial penalties.

Recently, in November 2021, the federal banking agencies adopted a Final Rule, with compliance required by May 1, 2022, that requires banking organizations to notify their primary banking regulator within 36 hours of determining that a “computer-security incident” has materially disrupted or degraded, or is reasonably likely to materially disrupt or degrade, the banking organization’s ability to carry out banking operations or deliver banking products and services to a material portion of its customer base, its businesses and operations that would result in material loss, or its operations that would impact the stability of the United States.

State regulators have also been increasingly active in implementing privacy and cybersecurity standards and regulations. Recently, several states have adopted regulations requiring certain financial institutions to implement cybersecurity programs and many states, including Texas, have also recently implemented or modified their data breach notification, information security and data privacy requirements. We expect this trend of state-level activity in those areas to continue, and are continually monitoring developments in the states in which our customers are located.

Risks and exposures related to cybersecurity attacks, including litigation and enforcement risks, are expected to be elevated for the foreseeable future due to the rapidly evolving nature and sophistication of these threats, as well as due to the expanding use of Internet banking, mobile banking and other technology-based products and services by us and our customers.

See Item 1A. Risk Factors for a further discussion of risks related to cybersecurity.

Future Legislation and Regulation

Congress may enact legislation from time to time that affects the regulation of the financial services industry, and state legislatures may enact legislation from time to time affecting the regulation of financial institutions chartered by or operating in those states. Federal and state regulatory agencies also periodically propose and adopt changes to their regulations or change the manner in which existing regulations are applied. The substance or impact of pending or future legislation or regulation, or the application thereof, cannot be predicted, although any change could impact the regulatory structure under which we or our competitors operate and may significantly increase costs, impede the efficiency of internal business processes, require an increase in regulatory capital, require modifications to our business strategy, and limit our ability to pursue business opportunities in an efficient manner. It could also affect our competitors differently than us, including in a manner that would make them more competitive. A change in statutes, regulations or regulatory policies applicable to Cullen/Frost or any of its subsidiaries could have a material, adverse effect on our business, financial condition and results of operations.

Human Capital Resources

At December 31, 2021, we employed 4,553 full-time equivalent employees. At that date, the average tenure of all of our full-time employees was approximately 10.7 years while the average tenure of our executive officers was approximately 32.2 years. None of our employees are represented by collective bargaining agreements. We believe our employee relations to be good.

Oversight of our corporate culture is an important element of our board of director’s oversight of risk because our people are critical to the success of our corporate strategy. Our board sets the “tone at the top,” and holds senior management accountable for embodying, maintaining, and communicating our culture to employees. In that regard, our culture is designed to promote commitment to making people's lives better and to uphold that principle in everything we do. That commitment has been a central pillar in our approach to our employees, our planet and the communities we have proudly served for over 150 years. Our culture is designed to adhere to the timeless values of integrity, caring and excellence. In keeping with that culture, we expect our people to treat each other and our customers with the highest level of honesty and respect and go out of their way to do the right thing, and we strive to be a force for good in everyday life. We dedicate resources to promote a safe and inclusive workplace; attract, develop and retain talented, diverse employees; promote a culture of integrity, caring and excellence; and reward and recognize employees for both the results they deliver and, importantly, how they deliver them. We also seek to design careers that are fulfilling ones, with competitive compensation and benefits alongside a positive work-life balance. We also dedicate resources to fostering professional and personal growth with continuing education, on-the-job training and development programs. This devotion to our people has earned us a spot on Forbes magazine's Best Employers list.

Our employees are key to our success as an organization. We are committed to attracting, retaining and promoting top quality talent regardless of sex, sexual orientation, gender identity, race, color, national origin, age, religion and physical ability. We strive to identify and select the best candidates for all open positions based on qualifying factors for each job. We are dedicated to providing a workplace for our employees that is inclusive, supportive, and free of any form of discrimination or harassment; rewarding and recognizing our employees based on their individual results and performance as well as that of their department and the company overall; and recognizing and respecting all of the characteristics and differences that make each of our employees unique.

We believe employing a diverse workforce enhances our ability to serve our customers and our communities. By promoting and fostering a workforce that we believe is reflective of our customers and communities, we seek to better understand the financial needs of our prospects and customers and provide them with relevant financial service products. Understanding and supporting our community has always been a priority to us. We have established a voluntary, employee-led and staffed team that is committed to touching and improving the lives of people that live and work in our community. Additionally, we provide employees the opportunity to use paid time off to perform community service activities in their choice of ways. In 2021, this amounted to nearly 9,000 hours of community service performed by our employees. Our efforts are designed to enrich the lives of not only those that are in need but also the lives of our employees who participate in these meaningful and rewarding opportunities.

We believe embracing and understanding diversity has and will continue to make us a stronger company. We also believe that our diverse workforce is representative of our customers in the community and enables us to better serve our customers, enhancing our success as an organization. As we move forward, we will continue to embrace diversity and approach it in a manner consistent with our philosophy, by focusing on our employees, our customers, and our community.

Information About Our Executive Officers

The names, ages as of December 31, 2021, recent business experience and positions or offices held by each of the executive officers of Cullen/Frost are as follows:

Name and Position Held	Age	Recent Business Experience
Phillip D. Green Chairman of the Board, Chief Executive Officer and Director of Cullen/Frost	67	Officer of Frost Bank since 1980. Chairman of the Board and Chief Executive Officer of Cullen/Frost since April 2016.
Patrick B. Frost Director of Cullen/Frost, President of Frost Bank, Group Executive Vice President, Frost Wealth Advisors of Frost Bank and President of Frost Insurance	61	Officer of Frost Bank since 1985. President of Frost Bank since August 1993. Director of Cullen/Frost since May 1997. Group Executive Vice President, Frost Wealth Advisors of Frost Bank since April 2016. President of Frost Insurance since October 2014.
Jerry Salinas Group Executive Vice President, Chief Financial Officer of Cullen/Frost	63	Officer of Frost Bank since 1986. Group Executive Vice President, Chief Financial Officer of Cullen/Frost since January 2015.
Annette Alonzo Group Executive Vice President, Chief Human Resources Officer of Frost Bank	53	Officer of Frost Bank since 1993. Group Executive Vice President, Chief Human Resources Officer of Frost Bank since April 2016.
Robert A. Berman Group Executive Vice President, Research and Strategy of Frost Bank	59	Officer of Frost Bank since 1989. Group Executive Vice President, Research and Strategy of Frost Bank since May 2001.
Paul H. Bracher President of Cullen/Frost and Group Executive Vice President, Chief Banking Officer of Frost Bank	65	Officer of Frost Bank since 1982. Group Executive Vice President, Chief Banking Officer of Frost Bank since January 2015. President of Cullen/Frost since April 2016.
William L. Perotti Group Executive Vice President, Chief Credit Officer of Frost Bank	64	Officer of Frost Bank since 1982. Group Executive Vice President, Chief Credit Officer of Frost Bank from May 2001 to January 2015. Group Executive Vice President, Chief Risk Officer of Frost Bank from April 2005 to January 2019. Chief Credit Officer of Frost Bank since January 2019.
Coolidge E. Rhodes, Jr. Group Executive Vice President, General Counsel and Secretary of Cullen/Frost	46	Officer of Frost Bank since September 2021. Group Executive Vice President, General Counsel of Cullen/Frost since September 2021 and Secretary of Cullen/Frost since October 2021. Prior to joining Frost, Mr. Rhodes was most recently managing director and chief compliance officer at New Fortress Energy Inc. Mr. Rhodes also previously worked as a lawyer in private practice and as associate general counsel for a publicly traded oilfield services company.
Carol Severyn Group Executive Vice President, Chief Risk Officer of Frost Bank	57	Officer of Frost Bank since 1993. Executive Vice President and Auditor of Frost Bank from January 2004 to January 2019. Group Executive Vice President, Chief Risk Officer of Frost Bank since January 2019.
Jimmy Stead Group Executive Vice President, Chief Consumer Banking Officer of Frost Bank	46	Officer of Frost Bank since 2001. Group Executive Vice President, Chief Consumer Banking Officer of Frost Bank since January 2017.
Candace Wolfshohl Group Executive Vice President, Culture and People Development of Frost Bank	61	Officer of Frost Bank since 1989. Group Executive Vice President, Culture and People Development of Frost Bank since July 2015.

There are no arrangements or understandings between any executive officer of Cullen/Frost and any other person pursuant to which such executive officer was or is to be selected as an officer.

Available Information

Under the Securities Exchange Act of 1934, we are required to file annual, quarterly and current reports, proxy statements and other information with the Securities and Exchange Commission ("SEC"). The SEC maintains a website at http://www.sec.gov that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC. We file electronically with the SEC.

We make available, free of charge through our website, our reports on Forms 10-K, 10-Q and 8-K, and amendments to those reports, as soon as reasonably practicable after such reports are filed with or furnished to the SEC. Additionally, we have adopted and posted on our website a code of ethics that applies to our principal executive officer, principal financial officer and principal accounting officer. Our website also includes our corporate governance guidelines and the charters for our audit committee, our compensation and benefits committee, our risk committee, and our corporate governance and nominating committee. The address for our website is http://www.frostbank.com. We will provide a printed copy of any of the aforementioned documents to any requesting shareholder.

ITEM 1A. RISK FACTORS

An investment in our common stock is subject to risks inherent to our business. The material risks and uncertainties that management believes affect us are described below. Before making an investment decision, you should carefully consider the risks and uncertainties described below together with all of the other information included or incorporated by reference in this report. The risks and uncertainties described below are not the only ones facing us. Additional risks and uncertainties that management is not aware of or focused on or that management currently deems immaterial may also impair our business operations. This report is qualified in its entirety by these risk factors. If any of the following risks actually occur, our business, financial condition and results of operations could be materially and adversely affected. If this were to happen, the market price of our common stock could decline significantly, and you could lose all or part of your investment.

Risks Related To Our Business

<u>Interest Rate Risks</u>

We Are Subject To Interest Rate Risk

Our earnings and cash flows are largely dependent upon our net interest income. Net interest income is the difference between interest income earned on interest-earning assets such as loans and securities and interest expense paid on interest-bearing liabilities such as deposits and borrowed funds. Interest rates are highly sensitive to many factors that are beyond our control, including general economic conditions, inflationary trends, changes in government spending and debt issuances and policies of various governmental and regulatory agencies and, in particular, the Federal Open Market Committee. Changes in monetary policy, including changes in interest rates, could influence not only the interest we receive on loans and securities and the amount of interest we pay on deposits and borrowings, but such changes could also affect (i) our ability to originate loans and obtain deposits, (ii) the fair value of our financial assets and liabilities, and (iii) the average duration of our mortgage-backed securities portfolio. If the interest rates paid on deposits and other borrowings increase at a faster rate than the interest rates received on loans and other investments, our net interest income, and therefore earnings, could be adversely affected. Earnings could also be adversely affected if the interest rates received on loans and other investments fall more quickly than the interest rates paid on deposits and other borrowings. Some foreign central banks have moved to a negative interest rate environment, which has exerted downward pressure on the profitability of banks in those regions and this interest rate trend could extend to the United States. Any substantial, unexpected, or prolonged change in market interest rates could have a material adverse effect on our business, financial condition and results of operations. See Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations under the section captioned "Net Interest Income" and Item 7A. Quantitative and Qualitative Disclosures About Market Risk elsewhere in this report for further discussion related to interest rate sensitivity and our management of interest rate risk.

We May Be Adversely Impacted By The Transition From LIBOR As A Reference Rate

The United Kingdom's Financial Conduct Authority and the administrator of LIBOR have announced that the publication of the most commonly used U.S. dollar London Interbank Offered Rate ("LIBOR") settings will cease to be published or cease to be representative after June 30, 2023. The publication of all other LIBOR settings ceased to be published as of December 31, 2021. Given consumer protection, litigation, and reputation risks, the bank regulatory agencies have indicated that entering into new contracts that use LIBOR as a reference rate after December 31, 2021, would create safety and soundness risks and that they will examine bank practices accordingly. Therefore, the agencies encouraged banks to cease entering into new contracts that use LIBOR as a reference rate as soon as practicable and in any event by December 31, 2021. We discontinued originating LIBOR-based loans effective December 31, 2021 and will negotiate loans using our preferred replacement index, AMERIBOR, a benchmark developed by the American Financial Exchange; the Secured Overnight Financing Rate ("SOFR"); or BSBY, a benchmark developed by Bloomberg Index Services.

As of December 31, 2021, approximately $3.9 billion of our outstanding loans, and, in addition, certain derivative contracts, borrowings and other financial instruments have attributes that are either directly or indirectly dependent on LIBOR. The transition from LIBOR has resulted in and could continue to result in added costs and employee efforts and could present additional risk. We are subject to litigation and reputational risks if we are unable to renegotiate and amend existing contracts with counterparties that are dependent on LIBOR, including contracts that do not have fallback language. The timing and manner in which each customer's contract transitions to AMERIBOR, SOFR or BSBY will vary on a case-by-case basis. There continues to be substantial uncertainty as to the ultimate effects of the LIBOR transition, including with respect to the acceptance and use of AMERIBOR, SOFR, BSBY and other benchmark rates. Since AMERIBOR, SOFR and BSBY rates are calculated differently, payments under contracts referencing new rates will differ from those referencing LIBOR, which may lead to increased volatility as compared to LIBOR. The transition has impacted our market risk profiles and required changes to our risk and pricing models, valuation tools, product design and hedging strategies. Furthermore, failure to adequately manage this transition process with our customers could adversely impact our reputation. Although we are currently unable to assess what the ultimate impact of the transition from LIBOR will be, failure to adequately manage the transition could have a material adverse effect on our business, financial condition and results of operations.

Credit and Lending Risks

We Are Subject To Lending Risk and Lending Concentration Risk

There are inherent risks associated with our lending activities. These risks include, among other things, the impact of changes in interest rates and changes in the economic conditions in the markets where we operate as well as those across the State of Texas and the United States. Increases in interest rates and/or weakening economic conditions could adversely impact the ability of borrowers to repay outstanding loans or the value of the collateral securing these loans.

As of December 31, 2021, approximately 85.8% of our loan portfolio consisted of commercial and industrial, energy, construction and commercial real estate mortgage loans. These types of loans are generally viewed as having more risk of default and are typically larger than residential real estate loans or consumer loans. Because our loan portfolio contains a significant number of commercial and industrial, energy, construction and commercial real estate loans with relatively large balances, the deterioration of one or a few of these loans could cause a significant increase in non-performing loans. Increases in non-performing loans have resulted in a net loss of earnings from particular loans, an increase in credit loss expense and an increase in loan charge-offs, and these and future instances could have a material adverse effect on our business, financial condition and results of operations. Certain of our credit exposures are concentrated in industries that may be more susceptible to the long-term risks of climate change, natural disasters or global pandemics. To the extent that these risks may have a negative impact on the financial condition of borrowers, it could also have a material adverse effect on our business, financial condition and results of operations. See the section captioned "Loans" in Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations elsewhere in this report for further discussion related to commercial and industrial, energy, construction and commercial real estate loans.

Our Allowance For Credit Losses May Be Insufficient

We maintain allowances for credit losses on loans, securities and off-balance sheet credit exposures. In the case of loans and securities, allowances for credit losses are contra-asset valuation accounts that are deducted from the amortized cost basis of these assets to present the net amount expected to be collected. In the case of off-balance-sheet credit exposures, the allowance for credit losses is a liability account reported as a component of accrued interest payable and other liabilities in our consolidated balance sheets. The amount of each allowance account represents management's best estimate of current expected credit losses on these financial instruments considering available information, from internal and external sources, relevant to assessing exposure to credit loss over the contractual term of the instrument. Relevant available information includes historical credit loss experience, current conditions and reasonable and supportable forecasts. As a result, the determination of the appropriate level of allowance for credit losses inherently involves a high degree of subjectivity and requires us to make significant estimates related to current and expected future credit risks and trends, all of which may undergo material changes. Continuing deterioration in economic conditions affecting borrowers and securities issuers; new information regarding existing loans, credit commitments and securities holdings; the continuation of the COVID-19 pandemic or other global pandemics; natural disasters and risks related to climate change; and identification of additional problem loans, ratings down-grades and other factors, both within and outside of our control, may require an increase in the allowances for credit losses on loans, securities and off-balance sheet credit exposures. In addition, bank regulatory agencies periodically review our allowance for credit losses and may require an increase in credit loss expense or the recognition of further loan charge-offs, based on judgments different than those of management. Furthermore, if any charge-offs related to loans, securities or off-balance sheet credit exposures in future periods exceed our allowances for credit losses on loans, securities or off-balance sheet credit exposures, we will need to recognize additional credit loss expense to increase the applicable allowance. Any increase in the allowance for credit losses on loans, securities and/or off-balance sheet credit exposures will result in a decrease in net income and, possibly, capital, and may have a material adverse effect on our business, financial condition and results of operations. See the section captioned “Allowance for Credit Losses” in Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations elsewhere in this report for further discussion related to our process for determining the appropriate level of the allowance for credit losses.

We Are Subject to Risk Arising From Conditions In The Commercial Real Estate Market

As of December 31, 2021, commercial real estate mortgage loans comprised approximately 35.9% of our loan portfolio. Commercial real estate mortgage loans generally involve a greater degree of credit risk than residential real estate mortgage loans because they typically have larger balances and are more affected by adverse conditions in the economy. Because payments on loans secured by commercial real estate often depend upon the successful operation and management of the properties and the businesses which operate from within them, repayment of such loans may be affected by factors outside the borrower’s control, such as adverse conditions in the real estate market or the economy or changes in government regulations. In recent years, commercial real estate markets have been experiencing substantial growth, and increased competitive pressures have contributed significantly to historically low capitalization rates and rising property values. Furthermore, commercial real estate markets have been particularly impacted by the economic disruption resulting from the COVID-19 pandemic. The COVID-19 pandemic has also been a catalyst for the evolution of various remote work options which could impact the long-term performance of some types of office properties within our commercial real estate portfolio. Accordingly, the federal banking regulatory agencies have expressed concerns about weaknesses in the current commercial real estate market. Failures in our risk management policies, procedures and controls could adversely affect our ability to manage this portfolio going forward and could result in an increased rate of delinquencies in, and increased losses from, this portfolio, which, accordingly, could have a material adverse effect on our business, financial condition and results of operations.

We Are Subject To Volatility Risk In Crude Oil Prices

As of December 31, 2021, we had $1.1 billion of energy loans which comprised approximately 6.6% (or 6.8% excluding Paycheck Protection Program loans) of our loan portfolio at that date. Furthermore, energy production and related industries represent a large part of the economies in some of our primary markets. Actions by members of the Organization of Petroleum Exporting Countries (“OPEC”) can impact global crude oil production levels and lead to significant volatility in global oil supplies and market oil prices. In recent years, decreased market oil prices compressed margins for many U.S. and Texas-based oil producers, particularly those that utilize higher-cost production technologies such as hydraulic fracking and horizontal drilling, as well as oilfield service providers, energy equipment manufacturers and transportation suppliers, among others. In March of 2020, disagreements between members of OPEC signaled that production levels would rise and, when coupled with the uncertainties of the COVID-19 pandemic, led to a significant decline in market oil prices. Oil prices have since recovered from those lows. The price per barrel of crude oil was approximately $75 at December 31, 2021 up from $48 at December 31, 2020. We have experienced increased losses within our energy portfolio in recent years which were impacted by oil price volatility, relative to our historical experience. Continued oil price volatility could have further negative impacts on the U.S. economy, in particular, the economies of energy-dominant states such as Texas, and our borrowers and customers.

We Are Subject To Environmental Liability Risk Associated With Lending Activities

A significant portion of our loan portfolio is secured by real property. During the ordinary course of business, we foreclose on and take title to properties securing certain loans. In doing so, there is a risk that hazardous or toxic substances could be found on these properties. If hazardous or toxic substances are found, we may be liable for remediation costs, as well as for personal injury and property damage. Environmental laws may require us to incur substantial expenses and may materially reduce the affected property's value or limit our ability to use or ability to sell the affected property. Environmental reviews of real property before initiating foreclosure actions may not be sufficient to detect all potential environmental hazards. The remediation costs and any other financial liabilities associated with an environmental hazard could have a material adverse effect on our business, financial condition and results of operations.

Liquidity Risk

We Are Subject To Liquidity Risk

We require liquidity to meet our deposit and debt obligations as they come due. Our access to funding sources in amounts adequate to finance our activities or on terms that are acceptable to us could be impaired by factors that affect us specifically or the financial services industry or economy generally. Factors that could reduce our access to liquidity sources include a downturn in the Texas economy, difficult credit markets or adverse regulatory actions against us. Our access to deposits may also be affected by the liquidity needs of our depositors. In particular, a substantial majority of our liabilities are demand, savings, interest checking and money market deposits, which are payable on demand or upon several days' notice, while by comparison, a substantial portion of our assets are loans, which cannot be called or sold in the same time frame. We may not be able to replace maturing deposits and advances as necessary in the future, especially if a large number of our depositors sought to withdraw their accounts, regardless of the reason. Our access to deposits may be negatively impacted by, among other factors, continued periods of low interest rates and increased competition for deposits, including from new financial technology competitors. A failure to maintain adequate liquidity could have a material adverse effect on our business, financial condition and results of operations.

Operational Risks

Our Accounting Estimates and Risk Management Processes Rely On Analytical and Forecasting Models

The processes we use to estimate our expected credit losses and to measure the fair value of financial instruments, as well as the processes used to estimate the effects of changing interest rates and other market measures on our financial condition and results of operations, depends upon the use of analytical and forecasting models. These models reflect assumptions that may not be accurate, particularly in times of market stress or other unforeseen circumstances. Even if these assumptions are adequate, the models may prove to be inadequate or inaccurate because of other flaws in their design or their implementation, including flaws caused by failures in controls, data management, human error or from the reliance on technology. If the models we use for interest rate risk and asset-liability management are inadequate, we may incur increased or unexpected losses upon changes in market interest rates or other market measures. If the models we use for estimating our expected credit losses are inadequate, the allowance for credit losses may not be sufficient to support future charge-offs. If the models we use to measure the fair value of financial instruments are inadequate, the fair value of such financial instruments may fluctuate unexpectedly or may not accurately reflect what we could realize upon sale or settlement of such financial instruments. Any such failure in our analytical or forecasting models could have a material adverse effect on our business, financial condition and results of operations.

The Value Of Our Goodwill and Other Intangible Assets May Decline In The Future

As of December 31, 2021, we had $655.8 million of goodwill and other intangible assets. A significant decline in our expected future cash flows, a significant adverse change in the business climate, slower growth rates or a significant and sustained decline in the price of Cullen/Frost's common stock may necessitate taking charges in the future related to the impairment of our goodwill and other intangible assets which could have a material adverse effect on our business, financial condition and results of operations.

We Are Subject To Risk Arising From Failure Or Circumvention Of Our Controls and Procedures

Our internal controls, disclosure controls and procedures, and corporate governance procedures are based in part on certain assumptions and can provide only reasonable, not absolute, assurances that the objectives of the controls and procedures are met. Any failure or circumvention of our controls and procedures; failure to comply with regulations related to controls and procedures; or failure to comply with our corporate governance procedures could have a material adverse effect on our reputation, business, financial condition and results of operations, including subjecting us to litigation, regulatory fines, penalties or other sanctions. Furthermore, notwithstanding the proliferation of technology and technology-based risk and control systems, our businesses ultimately rely on people as our greatest resource, and, from time-to-time, they make mistakes or engage in violations of applicable policies, laws, rules or procedures that are not always caught immediately by our technological processes or by our controls and other procedures, which are intended to prevent and detect such errors or violations. Human errors, malfeasance and other misconduct, including the intentional misuse of client information in connection with insider trading or for other purposes, even if promptly discovered and remediated, can result in reputational damage or legal risk and have a material adverse effect on our business, financial condition and results of operations.

New Lines Of Business, Products Or Services and Technological Advancements May Subject Us To Additional Risks

From time to time, we implement new lines of business or offer new products and services within existing lines of business. There are substantial risks and uncertainties associated with these efforts, particularly in instances where the markets are not fully developed. In developing and marketing new lines of business and/or new products and services we invest significant time and resources. Initial timetables for the introduction and development of new lines of business and/or new products or services may not be achieved and price and profitability targets may not prove feasible. External factors, such as compliance with regulations, competitive alternatives, and shifting market preferences, may also impact the successful implementation of a new line of business or a new product or service.

The financial services industry is continually undergoing rapid technological change with frequent introductions of new technology-driven products and services. Our future success depends, in part, upon our ability to address the needs of our customers by using technology to provide products and services that will satisfy customer demands, as well as to create additional efficiencies in our operations. Many of our competitors have substantially greater resources to invest in technological improvements. We may not be able to effectively implement new technology driven products and services or be successful in marketing these products and services to our customers. In addition, our implementation of certain new technologies, such as those related to artificial intelligence, automation and algorithms, in our business processes may have unintended consequences due to their limitations or our failure to use them effectively. In addition, cloud technologies are also critical to the operation of our systems, and our reliance on cloud technologies is growing. Failure to successfully keep pace with technological change affecting the financial services industry could have a material adverse effect on our business, financial condition and results of operations.

Furthermore, any new line of business, new product or service and/or new technology could have a significant impact on the effectiveness of our system of internal controls. Failure to successfully manage these risks in the development and implementation of new lines of business, new products or services and/or new technologies could have a material adverse effect on our business, financial condition and results of operations.

Our Reputation and Our Business Are Subject to Negative Publicity Risk

Reputation risk, or the risk to our earnings and capital from negative public opinion, is inherent in our business. Negative public opinion could adversely affect our ability to keep and attract customers and expose us to adverse legal and regulatory consequences. Negative public opinion could result from our actual or alleged conduct in any number of activities, including (i) lending practices, (ii) branching strategy, (iii) product and service offerings, (iv) corporate governance, (v) regulatory compliance, (vi) mergers and acquisitions, (vii) disclosure, (viii) sharing or inadequate protection of customer information, (ix) successful or attempted cyber attacks against us, our customers or our third-party partners or vendors and (x) failure to discharge any publicly announced commitments to employees or environmental, social and governance initiatives or to respond adequately to social and sustainability concerns from the viewpoint of our stakeholders from actions taken by government regulators and community organizations in response to our conduct. Negative public opinion could also result from adverse news or publicity that impairs the reputation of the financial services industry generally or from the actions of our employees, customers, affiliates or third parties with whom we do business. In addition, our reputation or prospects may be significantly damaged by adverse publicity or negative information regarding us, whether or not true, that may be posted on social media, non-mainstream news services or other parts of the internet, and this risk is magnified by the speed and pervasiveness with which information is disseminated through those channels. Because we conduct most of our business under the "Frost" brand, negative public opinion about one business could affect our other businesses.

Our Business, Financial Condition and Results Of Operations Are Subject To Risk From Changes in Customer Behavior

Individual, economic, political, industry-specific conditions and other factors outside of our control, such as fuel prices, energy costs, real estate values, inflation, taxes or other factors that affect customer income levels, could alter anticipated customer behavior, including borrowing, repayment, investment and deposit practices. Such a change in these practices could materially adversely affect our ability to anticipate business needs and meet regulatory requirements. Further, difficult economic conditions may negatively affect consumer confidence levels. A decrease in consumer confidence levels would likely aggravate the adverse effects of these difficult market conditions on us, our customers and others in the financial institutions industry.

Cullen/Frost Relies On Dividends From Its Subsidiaries For Most Of Its Revenue

Cullen/Frost is a separate and distinct legal entity from its subsidiaries. It receives substantially all of its revenue from dividends from its subsidiaries. These dividends are the principal source of funds to pay dividends on Cullen/Frost's common stock and preferred stock and interest and principal on Cullen/Frost's debt. Various federal and state laws and regulations limit the amount of dividends that Frost Bank and certain non-bank subsidiaries may pay to Cullen/Frost. Also, Cullen/Frost's right to participate in a distribution of assets upon a subsidiary's liquidation or reorganization is subject to the prior claims of the subsidiary's creditors and depositors. In the event Frost Bank is unable to pay dividends to Cullen/Frost, Cullen/Frost may not be able to service debt, pay obligations or pay dividends on our common stock or our preferred stock. The inability to receive dividends from Frost Bank could have a material adverse effect on our business, financial condition and results of operations. See the section captioned "Supervision and Regulation" in Item 1. Business and Note 9 - Capital and Regulatory Matters in the notes to consolidated financial statements included in Item 8. Financial Statements and Supplementary Data elsewhere in this report.

Our Information Systems May Experience Failure, Interruption Or Breach In Security

In the ordinary course of business, we rely on electronic communications and information systems to conduct our operations and to store sensitive data. Any failure, interruption or breach in security of these systems could result in significant disruption to our operations. Information security breaches and cybersecurity-related incidents include, but are not limited to, attempts to access information, including customer and company information, malicious code, computer viruses and denial of service attacks that could result in unauthorized access, theft, misuse, loss, release or destruction of data (including confidential customer information), account takeovers, unavailability of service or other events. These types of threats may derive from human error, fraud or malice on the part of external or internal parties, or may result from accidental technological failure. Our technologies, systems, networks and software have been and continue to be subject to cybersecurity threats and attacks, which range from uncoordinated individual attempts to sophisticated and targeted measures directed at us. Any failures related to upgrades and maintenance of our technology and information systems could further increase our information and system security risk. Our increased use of cloud and other technologies, such as remote work technologies, also increases our risk of being subject to a cyber attack. The risk of a security breach or disruption, particularly through cyber attack or cyber intrusion, has increased as the number, intensity and sophistication of attempted attacks and intrusions from around the world have increased.

Our customers, employees and third parties that we do business with have been, and will continue to be, targeted by parties using fraudulent e-mails and other communications in attempts to misappropriate passwords, bank account information or other personal information or to introduce viruses or other malware programs to our information systems, the information systems of our merchants or third-party service providers and/or our customers' personal devices, which are beyond our security control systems. Though we endeavor to mitigate these threats through product improvements, use of encryption and authentication technology and customer and employee education, such cyber attacks against us, our merchants, our third-party service providers and our customers remain a serious issue and have been successful in the past.

Although we make significant efforts to maintain the security and integrity of our information systems and have implemented various measures to manage the risks of a security breach or disruption, there can be no assurance that our security efforts and measures will be effective or that attempted security breaches or disruptions would not be successful or damaging. Even well protected information, networks, systems and facilities remain potentially vulnerable to attempted security breaches or disruptions because the techniques used in such attempts are constantly evolving and generally are not recognized until launched against a target, and in some cases are designed not to be detected and, in fact, may not be detected. Accordingly, we may be unable to anticipate these techniques or to implement adequate security barriers or other preventative measures, and thus it is virtually impossible for us to entirely mitigate this risk. Furthermore, in the event of a cyber attack, we may be delayed in identifying or responding to the attack, which could increase the negative impact of the cyber attack on our business, financial condition and results of operations. While we maintain specific "cyber" insurance coverage, which would apply in the event of various breach scenarios, the amount of coverage may not be adequate in any particular case. Furthermore, because cyber threat scenarios are inherently difficult to predict and can take many forms, some breaches may not be covered under our cyber insurance coverage. A security breach or other significant disruption of our information systems or those related to our customers, merchants or our third-party vendors, including as a result of cyber attacks, could (i) disrupt the proper functioning of our networks and systems and therefore our operations and/or those of our customers; (ii) result in the unauthorized access to, and destruction, loss, theft, misappropriation or release of confidential, sensitive or otherwise valuable information of ours or our customers; (iii) result in a violation of applicable privacy, data breach and other laws, subjecting us to additional regulatory scrutiny and exposing us to civil litigation, enforcement actions, governmental fines and possible financial liability; (iv) require significant management attention and resources to remedy the damages that result; or (v) harm our reputation or cause a decrease in the number of customers that choose to do business with us. The occurrence of any of the foregoing could have a material adverse effect on our business, financial condition and results of operations.

Our Operations Rely On Certain External Vendors

We rely on certain external vendors to provide products and services necessary to maintain our day-to-day operations. These third-party vendors are sources of operational and informational security risk to us, including risks associated with operational errors, information system failures, interruptions or breaches and unauthorized disclosures of sensitive or confidential client or customer information. If these vendors encounter any of these issues, or if we have difficulty communicating with them, we could be exposed to disruption of operations, loss of service or connectivity to customers, reputational damage, and litigation risk that could have a material adverse effect on our business and, in turn, our financial condition and results of operations.

In addition, our operations are exposed to risk that these vendors will not perform in accordance with the contracted arrangements under service level agreements. Although we have selected these external vendors carefully, we do not control their actions. The failure of an external vendor to perform in accordance with the contracted arrangements under service level agreements, because of changes in the vendor's organizational structure, financial condition, support for existing products and services or strategic focus or for any other reason, could be disruptive to our operations, which could have a material adverse effect on our business and, in turn, our financial condition and results of operations. Replacing these external vendors could also entail significant delay and expense.

We Are Subject To Litigation Risk Pertaining To Fiduciary Responsibility

From time to time, customers make claims and take legal action pertaining to our performance of our fiduciary responsibilities. Whether customer claims and legal action related to our performance of our fiduciary responsibilities are founded or unfounded, if such claims and legal actions are not resolved in a manner favorable to us they may result in significant financial liability and/or adversely affect the market perception of us and our products and services as well as impact customer demand for those products and services. Any financial liability or reputational damage could have a material adverse effect on our business, financial condition and results of operations.

We Are Subject To Litigation Risk Pertaining To Intellectual Property

Banking and other financial services companies, including us, rely on technology companies to provide information technology products and services necessary to support day-to-day operations. Technology companies frequently enter into litigation based on allegations of patent infringement or other violations of intellectual property rights. In addition, patent holding companies seek to monetize patents they have purchased or otherwise obtained. Competitors of our vendors, or other individuals or companies, have from time to time claimed to hold intellectual property sold to us by our vendors or in use by us and we are, and may in the future be, named as defendants in various related legal claims. Such claims may increase in the future as the financial services sector becomes more reliant on information technology vendors. The plaintiffs in these actions frequently seek injunctions and substantial damages and may also seek to enter into licensing agreements with us to obtain ongoing fees.

Regardless of the scope or validity of such patents or other intellectual property rights, or the merits of any claims by potential or actual litigants, we may have to engage in protracted litigation. Such litigation is often expensive, time-consuming, disruptive to our operations and distracting to management. If we are found to infringe upon one or more patents or other intellectual property rights, we may be required to pay substantial damages or royalties to a third-party. In certain cases, we have and in the future may consider entering into licensing agreements for disputed intellectual property, although no assurance can be given that such licenses can be obtained on acceptable terms or that litigation will not occur. These licenses may also significantly increase our operating expenses. If legal matters related to intellectual property claims were resolved against us or settled, we could be required to make payments in amounts that could have a material adverse effect on our business, financial condition and results of operations.

Financial Services Companies Depend On The Accuracy and Completeness Of Information About Customers and Counterparties

In deciding whether to extend credit or enter into other transactions, we rely on information furnished by or on behalf of customers and counterparties, including financial statements, credit reports and other financial information. We also rely on representations of those customers, counterparties or other third parties, such as independent auditors, as to the accuracy and completeness of that information. Reliance on inaccurate or misleading financial statements, credit reports or other financial information could have a material adverse impact on our business, financial condition and results of operations.

External and Market-Related Risks

Our Profitability Depends Significantly On Economic Conditions In The State Of Texas

Our success depends substantially on the general economic conditions of the State of Texas and the specific local markets in which we operate. Unlike larger national or other regional banks that are more geographically diversified, we provide banking and financial services primarily to customers across Texas through financial centers in the Austin, Corpus Christi, Dallas, Fort Worth, Houston, Permian Basin, Rio Grande Valley and San Antonio regions. The local economic conditions in these areas have a significant impact on the demand for our products and services as well as the ability of our customers to repay loans, the value of the collateral securing loans and the stability of our deposit funding sources. Moreover, all of the securities in our municipal bond portfolio were issued by political subdivisions or agencies within the State of Texas. A significant decline in general economic conditions in Texas, whether caused by recession, inflation, unemployment, changes or prolonged stagnation in oil prices, changes in securities markets, acts of terrorism, pandemics, natural disasters, climate change, outbreak of hostilities or other international or domestic occurrences or other factors could impact these local economic conditions and, in turn, have a material adverse effect on our business, financial condition and results of operations.

We Are Subject to Risk Arising From The Soundness Of Other Financial Institutions and Counterparties

Financial services institutions are interrelated as a result of trading, clearing, counterparty, or other relationships. We have exposure to many different industries and counterparties, and routinely execute transactions with counterparties in the financial services industry, including commercial banks, brokers and dealers, investment banks, and other institutional clients. Many of these transactions expose us to credit risk in the event of a default by a counterparty or client. In addition, our credit risk may be exacerbated when the collateral held by us cannot be realized upon or is liquidated at prices not sufficient to recover the full amount of the credit or derivative exposure due to us. Increased interconnectivity amongst financial institutions also increases the risk of cyber attacks and information system failures for financial institutions. Any such losses could have a material adverse effect on our business, financial condition and results of operations.

We Operate In A Highly Competitive Industry and Market Area

We face substantial competition in all areas of our operations from a variety of different competitors, many of which are larger and may have more financial resources than us. Such competitors primarily include national, regional, and community banks within the various markets where we operate. Recent regulation has reduced the regulatory burden of large bank holding companies, and raised the asset thresholds at which more onerous requirements apply, which could cause certain large bank holding companies with less than $250 billion in total consolidated assets, which were previously subject to more stringent enhanced prudential standards, to become more competitive or to pursue expansion more aggressively.

We also face competition from many other types of financial institutions, including, without limitation, savings and loans, credit unions, finance companies, brokerage firms, insurance companies and other financial intermediaries. The financial services industry could become even more competitive as a result of legislative, regulatory and technological changes and continued consolidation.

Also, technology and other changes have lowered barriers to entry and made it possible for non-banks to offer products and services traditionally provided by banks. In particular, the activity of fintechs/wealthtechs has grown significantly over recent years and is expected to continue to grow. Some fintechs/wealthtechs are not subject to the same regulation as we are, which may allow them to be more competitive. Fintechs/wealthtechs have and may continue to offer bank or bank-like products and a number of such organizations have applied for bank or industrial loan charters while others have partnered with existing banks to allow them to offer deposit products to their customers. Increased competition from fintechs/wealthechs and the growth of digital banking may also lead to pricing pressures as competitors offer more low-fee and no-fee products.

Additionally, consumers can maintain funds that would have historically been held as bank deposits in brokerage accounts or mutual funds. Consumers can also complete transactions such as paying bills and/or transferring funds directly without the assistance of banks. The process of eliminating banks as intermediaries, known as "disintermediation," could result in the loss of fee income, as well as the loss of customer deposits and the related income generated from those deposits. Further, many of our competitors have fewer regulatory constraints and may have lower cost structures than us. Additionally, due to their size, many competitors may be able to achieve economies of scale and, as a result, may offer a broader range of products and services as well as better pricing for those products and services than we can. Our ability to compete successfully depends on a number of factors, including, among other things, (i) the ability to develop, maintain and build long-term customer relationships based on top quality service, high ethical standards and safe, sound assets; (ii) the ability to expand within our marketplace and with our market position; (iii) the scope, relevance and pricing of products and services offered to meet customer needs and demands; (iv) the rate at which we introduce new products and services relative to our competitors; (v) customer satisfaction with our level of service; and (vi) industry and general economic trends. Failure to perform in any of these areas could significantly weaken our competitive position, which could adversely affect our growth and profitability, which, in turn, could have a material adverse effect on our business, financial condition and results of operations.

<u>Compliance and Regulatory Risks</u>

We Are Subject To Extensive Government Regulation and Supervision and Related Enforcement Powers and Other Legal Remedies

We, primarily through Cullen/Frost, Frost Bank and certain non-bank subsidiaries, are subject to extensive federal and state regulation and supervision, which vests a significant amount of discretion in the various regulatory authorities. Banking regulations are primarily intended to protect depositors' funds, federal deposit insurance funds and the banking system as a whole, not security holders. These regulations and supervisory guidance affect our lending practices, capital structure, investment practices, dividend policy and growth, among other things. Congress and federal regulatory agencies continually review banking laws, regulations and policies for possible changes. Changes to statutes, regulations or regulatory policies or supervisory guidance, including changes in interpretation or implementation of statutes, regulations, policies or supervisory guidance, could affect us in substantial and unpredictable ways. Such changes could subject us to additional costs, limit the types of financial services and products we may offer, limit our ability to return capital to shareholders or conduct certain activities, and/or increase the ability of non-banks to offer competing financial services and products, among other things. Failure to comply with laws, regulations, policies or supervisory guidance could result in enforcement and other legal actions by Federal or state authorities, including criminal and civil penalties, the loss of FDIC insurance, the revocation of a banking charter, enforcement actions or sanctions by regulatory agencies, significant fines and civil money penalties and/or reputational damage. In this regard, government authorities, including the bank regulatory agencies, are pursuing aggressive enforcement actions with respect to compliance and other legal matters involving financial activities, which heightens the risks associated with actual and perceived compliance failures. Directives issued to enforce such actions may be confidential and thus, in some instances, we are not permitted to publicly disclose these actions. Any of the foregoing could have a material adverse effect on our business, financial condition and results of operations. See the sections captioned "Supervision and Regulation" included in Item 1. Business and Note 9 - Capital and Regulatory Matters in the notes to consolidated financial statements included in Item 8. Financial Statements and Supplementary Data elsewhere in this report.

The Repeal Of Federal Prohibitions On Payment Of Interest On Demand Deposits Could Increase Our Interest Expense

All federal prohibitions on the ability of financial institutions to pay interest on demand deposit accounts were repealed as part of the Dodd-Frank Act beginning on July 21, 2011. As a result, some financial institutions offer interest on demand deposits to compete for customers. We do not yet know what interest rates other institutions may offer as market interest rates increase. Our interest expense will increase and our net interest margin will decrease if we begin offering interest on demand deposits to attract additional customers or maintain current customers, which could have a material adverse effect on our business, financial condition and results of operations.

We Are Subject To Government Regulation and Oversight Relating to Data and Privacy Protection

Our business requires the collection and retention of large volumes of customer data, including personally identifiable information in various information systems that we maintain and in those maintained by third parties with whom we contract to provide data services. We also maintain important internal company data such as personally identifiable information about our employees and information relating to our operations. The integrity and protection of that customer and company data is important to us. Our collection of such customer and company data is subject to extensive regulation and oversight.

We are subject to laws and regulations relating to the privacy of the information of our customers, employees and others, and any failure to comply with these laws and regulations could expose us to liability and/or reputational damage. As new privacy-related laws and regulations are implemented, the time and resources needed for us to comply with such laws and regulations, as well as our potential liability for non-compliance and reporting obligations in the case of data breaches, may significantly increase.

Risks Related to Acquisition Activity

Potential Acquisitions May Disrupt Our Business and Dilute Stockholder Value

We generally seek merger or acquisition partners that are culturally similar and have experienced management and possess either significant market presence or have potential for improved profitability through financial management, economies of scale or expanded services. Acquiring other banks, businesses, or branches involves various risks commonly associated with acquisitions, including, among other things, (i) potential exposure to unknown or contingent liabilities of the target company; (ii) exposure to potential asset quality issues of the target company; (iii) potential disruption to our business; (iv) potential diversion of our management's time and attention; (v) the possible loss of key employees and customers of the target company; (vi) difficulty in estimating the value of the target company; and (vii) potential changes in banking or tax laws or regulations that may affect the target company.

Acquisitions typically involve the payment of a premium over book and market values, and, therefore, some dilution of our tangible book value and net income per common share may occur in connection with any future transaction. Acquisitions may also result in potential dilution to existing stockholders of our earnings per share if we issue common stock in connection with the acquisition. Furthermore, failure to realize the expected revenue increases, cost savings, increases in geographic or product presence, and/or other projected benefits from an acquisition could have a material adverse effect on our business, financial condition and results of operations.

Acquisitions May Be Delayed, Impeded, Or Prohibited Due To Regulatory Issues

Acquisitions by financial institutions, including us, are subject to approval by a variety of federal and state regulatory agencies (collectively, "regulatory approvals"). The process for obtaining these required regulatory approvals has become substantially more difficult since the global financial crisis, and our ability to engage in certain merger or acquisition transactions depends on the bank regulators' views at the time as to our capital levels, quality of management, and overall condition, in addition to their assessment of a variety of other factors, including our compliance with law. Regulatory approvals could be delayed, impeded, restrictively conditioned or denied due to existing or new regulatory issues we have, or may have, with regulatory agencies, including, without limitation, issues related to Bank Secrecy Act compliance, Community Reinvestment Act issues, fair lending laws, fair housing laws, consumer protection laws, unfair, deceptive, or abusive acts or practices regulations and other laws and regulations. We may fail to pursue, evaluate or complete strategic and competitively significant acquisition opportunities as a result of our inability, or perceived or anticipated inability, to obtain regulatory approvals in a timely manner, under reasonable conditions or at all. Difficulties associated with potential acquisitions that may result from these factors could have a material adverse effect on our business, financial condition and results of operations.

Risks Associated With Our Common Stock

The Trading Volume In Our Common Stock Is Less Than That Of Other Larger Financial Services Companies

Although our common stock is listed for trading on the New York Stock Exchange ("NYSE"), the trading volume in our common stock is less than that of other, larger financial services companies. A public trading market having the desired characteristics of depth, liquidity and orderliness depends on the presence in the marketplace of willing buyers and sellers of our common stock at any given time. This presence depends on the individual decisions of investors and general economic and market conditions over which we have no control. Given the lower trading volume of our common stock, significant sales of our common stock, or the expectation of these sales, could cause our stock price to fall.

Cullen/Frost May Not Continue To Pay Dividends On Its Common Stock In The Future

Holders of Cullen/Frost common stock are only entitled to receive such dividends as its board of directors may declare out of funds legally available for such payments. Although Cullen/Frost has historically declared cash dividends on its common stock, it is not required to do so and may reduce or eliminate its common stock dividend in the future. This could adversely affect the market price of Cullen/Frost's common stock. Also, Cullen/Frost is a bank holding company, and its ability to declare and pay dividends is dependent on certain federal regulatory considerations, including the guidelines of the Federal Reserve Board regarding capital adequacy and dividends.

As more fully discussed in Note 9 - Capital and Regulatory Matters in the notes to consolidated financial statements included in Item 8. Financial Statements and Supplementary Data elsewhere in this report, our ability to declare or pay dividends on our common stock may also be subject to certain restrictions in the event that we elect to defer the payment of interest on our junior subordinated deferrable interest debentures or do not declare and pay dividends on our Series B Preferred Stock.

An Investment In Our Common Stock Is Not An Insured Deposit

Our common stock is not a bank deposit and, therefore, is not insured against loss by the Federal Deposit Insurance Corporation ("FDIC"), any other deposit insurance fund or by any other public or private entity. Investment in our common stock is inherently risky for the reasons described in this "Risk Factors" section and elsewhere in this report and is subject to the same market forces that affect the price of common stock in any company. As a result, if you acquire our common stock, you could lose some or all of your investment.

Certain Banking Laws May Have An Anti-Takeover Effect

Provisions of federal banking laws, including regulatory approval requirements, could make it more difficult for a third party to acquire us, even if doing so would be perceived to be beneficial to our shareholders. These provisions effectively inhibit a non-negotiated merger or other business combination, which, in turn, could adversely affect the market price of our common stock.

Risks Related to the COVID-19 Pandemic

Our Business, Financial Condition, Liquidity and Results of Operations Have Been, and Will Likely Continue to be, Adversely Affected by the COVID-19 Pandemic.

The COVID-19 pandemic has created economic and financial disruptions that have adversely affected, and are likely to continue to adversely affect, our business, financial condition, liquidity and results of operations. The extent to which the COVID-19 pandemic will continue to negatively affect our business, financial condition, liquidity and results of operations will depend on future developments, which are highly uncertain and cannot be predicted and many of which are outside of our control, including the scope and duration of the pandemic, the emergence of new variants, the effectiveness of our Business Continuity and Health Emergency Response plans, the direct and indirect impact of the pandemic on our employees, customers, clients, counterparties and service providers, as well as other market participants, and actions taken, or that may yet be taken, or inaction, by governmental authorities and other third parties in response to the pandemic. Should the pandemic continue for a more extended period or worsen, we may face additional circumstances such as significant draws on credit lines should customers seek to increase liquidity. Furthermore, should the pandemic continue, we may experience increased rates of employee illness or unavailability, and may experience challenges recruiting new employees.

Any disruption to our ability to deliver financial products or services to, or interact with, our clients and customers could result in losses or increased operational costs, regulatory fines, penalties and other sanctions, or harm our reputation. We are also subject to litigation and reputational risk arising from our response to the COVID-19 pandemic. The length of the pandemic and the efficacy of the measures being put in place to address it are unknown as efforts to combat the virus have been complicated by viral variants and uneven access to, and acceptance and effectiveness of, vaccines globally. To the extent the pandemic adversely affects our business, financial condition, liquidity or results of operations, it may also have the effect of heightening many of the other risks described in this report. See the section captioned “COVID-19 Effects, Actions and Recent Developments” in Part II. Financial Information, Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations elsewhere in this report for further discussion.

General Risk Factors

We are Subject To Risk From Fluctuating Conditions In The Financial Markets and Economic and Political Conditions Generally

Our success depends, to a certain extent, upon local, national and global economic and political conditions, as well as governmental monetary policies. Our financial performance generally, and in particular the ability of borrowers to pay interest on and repay principal of outstanding loans and the value of collateral securing those loans, as well as demand for loans and other products and services we offer, is highly dependent upon the business environment in the markets where we operate, in the State of Texas and in the United States as a whole. A favorable business environment is generally characterized by, among other factors, economic growth, efficient capital markets, low inflation, low unemployment, high business and investor confidence, and strong business earnings. Unfavorable or uncertain economic and market conditions can be caused by a decline in economic growth both in the U.S. and internationally; declines in business activity or investor or business confidence; limitations on the availability of or increases in the cost of credit and capital; increases in inflation or interest rates; high unemployment; oil price volatility; natural disasters; trade policies and tariffs; or a combination of these or other factors. While recent economic conditions in the State of Texas, the United States and worldwide have seen improving trends since the onset of the COVID-19 pandemic, there can be no assurance that this improvement will continue. Evolving responses from federal and state governments and other regulators, and our customers or our third-party partners or vendors, to new challenges such as climate change have impacted and could continue to impact the economic and political conditions under which we operate. Economic and inflationary pressure on consumers and uncertainty regarding continuing economic improvement could result in changes in consumer and business spending, borrowing and savings habits. Such conditions could have a material adverse effect on the credit quality of our loans and our business, financial condition and results of operations.

Changes In The Federal, State Or Local Tax Laws May Negatively Impact Our Financial Performance and We Are Subject To Examinations and Challenges By Tax Authorities

We are subject to federal and applicable state tax laws and regulations. Changes in these tax laws and regulations, some of which may be retroactive to previous periods, could increase our effective tax rates and, as a result, could negatively affect our current and future financial performance. Furthermore, tax laws and regulations are often complex and require interpretation. In the normal course of business, we are routinely subject to examinations and challenges from federal and applicable state tax authorities regarding the amount of taxes due in connection with investments we have made and the businesses in which we have engaged. Recently, federal and state taxing authorities have become increasingly aggressive in challenging tax positions taken by financial institutions. These tax positions may relate to tax compliance, sales and use, franchise, gross receipts, payroll, property and income tax issues, including tax base, apportionment and tax credit planning. The challenges made by tax authorities may result in adjustments to the timing or amount of taxable income or deductions or the allocation of income among tax jurisdictions. If any such challenges are made and are not resolved in our favor, they could have a material adverse effect on our business, financial condition and results of operations.

We May Need To Raise Additional Capital In The Future, and Such Capital May Not Be Available When Needed Or At All

We may need to raise additional capital in the future to provide us with sufficient capital resources and liquidity to meet our commitments and business needs, particularly if our asset quality or earnings were to deteriorate significantly. Our ability to raise additional capital, if needed, will depend on, among other things, conditions in the capital markets at that time, which are outside of our control, and our financial condition. Economic conditions and the loss of confidence in financial institutions may increase our cost of funding and limit access to certain customary sources of capital, including inter-bank borrowings, repurchase agreements and borrowings from the discount window of the Federal Reserve.

We cannot assure that such capital will be available on acceptable terms or at all. Any occurrence that may limit our access to the capital markets, such as a decline in the confidence of debt purchasers, depositors of Frost Bank or counterparties participating in the capital markets, or a downgrade of Cullen/Frost's or Frost Bank's debt ratings, may adversely affect our capital costs and our ability to raise capital and, in turn, our liquidity. Moreover, if we need to raise capital in the future, we may have to do so when many other financial institutions are also seeking to raise capital and would have to compete with those institutions for investors. An inability to raise additional capital on acceptable terms when needed could have a materially adverse effect on our business, financial condition and results of operations.

Our Stock Price Can Be Volatile

Stock price volatility may make it more difficult for you to resell your common stock when you want and at prices you find attractive. Our stock price can fluctuate significantly in response to a variety of factors including, among other things, (i) actual or anticipated variations in quarterly results of operations; (ii) recommendations by securities analysts; (iii) operating and stock price performance of other companies that investors deem comparable to us; (iv) news reports relating to trends, concerns and other issues in the financial services industry; (v) perceptions in the marketplace regarding us and/or our competitors; (vi) new technology used, or services offered, by competitors; (vii) the issuance by us of additional securities, including common stock and securities that are convertible into or exchangeable for, or that represent the right to receive, common stock; (viii) sales of a large block of shares of our common stock or similar securities in the market after an equity offering, or the perception that such sales could occur; (ix) significant acquisitions or business combinations, strategic partnerships, joint ventures or capital commitments by or involving us or our competitors; (x) failure to integrate acquisitions or realize anticipated benefits from acquisitions; (xi) changes in government regulations; and (xii) geopolitical conditions such as acts or threats of terrorism or military conflicts.

General market fluctuations, including real or anticipated changes in the strength of the Texas economy; industry factors and general economic and political conditions and events, such as economic slowdowns or recessions; and interest rate changes, oil price volatility or credit loss trends could also cause our stock price to decrease regardless of operating results.

Changes In Accounting Standards Could Materially Impact Our Financial Statements

From time to time accounting standards setters change the financial accounting and reporting standards that govern the preparation of our financial statements. These changes can be difficult to predict and can materially impact how we record and report our financial condition and results of operations. In some cases, we could be required to apply a new or revised standard retroactively, resulting in changes to previously reported financial results or a cumulative charge to retained earnings. See Note 20 - Accounting Standards Updates in the notes to consolidated financial statements included in Item 8. Financial Statements and Supplementary Data elsewhere in this report for further information regarding pending accounting standards updates.

We May Not Be Able To Attract and Retain Skilled People

Our success depends, in large part, on our ability to attract and retain key people. Competition for the best people in many activities engaged in by us is intense including with respect to compensation and emerging workplace practices, accommodations and remote work options, and we may not be able to hire people or to retain them. We do not currently have employment agreements or non-competition agreements with any of our senior officers. The unexpected loss of services of key personnel could have a material adverse impact on our business, financial condition and results of operations because of their customer relationships, skills, knowledge of our market, years of industry experience and the difficulty of promptly finding qualified replacement personnel. In addition, the scope and content of U.S. banking regulators' policies on incentive compensation, as well as changes to these policies, could adversely affect our ability to hire, retain and motivate our key employees.

Severe Weather, Natural Disasters, Acts Of War Or Terrorism and Other Adverse External Events Could Significantly Impact Our Business and Our Customers

Severe weather, natural disasters, acts of war or terrorism and other adverse external events could have a significant impact on our ability to conduct business. In addition, such events could affect the stability of our deposit base, impair the ability of borrowers to repay outstanding loans, impair the value of collateral securing loans, cause significant property damage, result in loss of revenue and/or cause us to incur additional expenses. Furthermore, the occurrence of any such event in the future could have a material adverse effect on our business, which, in turn, could have a material adverse effect on our financial condition and results of operations.

Climate Change Could Have a Material Negative Impact on Us and Our Customers

Our business, as well as the operations and activities of our customers, could be negatively impacted by climate change. Climate change presents both immediate and long-term risks to us and our customers and these risks are expected to increase over time. Climate changes presents multi-faceted risks, including (i) operational risk from the physical effects of climate events on our facilities and other assets as well as those of our customers; (ii) credit risk from borrowers with significant exposure to climate risk; and (iii) reputational risk from stakeholder concerns about our practices related to climate change, our carbon footprint and our business relationships with customers who operate in carbon-intensive industries. Our business, reputation and ability to attract and retain employees may also be harmed if our response to climate changed is perceived to be ineffective or insufficient.

Climate change exposes us to physical risk as its effects may lead to more frequent and more extreme weather events, such as prolonged droughts or flooding, tornados, hurricanes, wildfires and extreme seasonal weather; and longer-term shifts, such as increasing average temperatures, ozone depletion and rising sea levels. Such events and long-term shifts may damage, destroy or otherwise impact the value or productivity of our properties and other assets; reduce the availability of insurance; and/or disrupt our operations and other activities through prolonged outages. Such events and long-term shifts may also have a significant impact on our customers, which could amplify credit risk by diminishing borrowers’ repayment capacity or collateral values, and other businesses and counterparties with whom we transact, which could have a broader impact on the economy, supply chains and distribution networks.

Climate change also exposes us to transition risks associated with the transition to a less carbon-dependent economy. Transition risks may result from changes in policies; laws and regulations; technologies; and/or market preferences to address climate change. Such changes could materially, negatively impact our business, results of operations, financial condition and/or our reputation, in addition to having a similar impact on our customers. We have customers who operate in carbon-intensive industries like oil and gas that are exposed to climate risks, such as those risks related to the transition to a less carbon-dependent economy, as well as customers who operate in low-carbon industries that may be subject to risks associated with new technologies. Federal and state banking regulators and supervisory authorities, investors and other stakeholders have increasingly viewed financial institutions as important in helping to address the risks related to climate change both directly and with respect to their customers, which may result in financial institutions coming under increased pressure regarding the disclosure and management of their climate risks and related lending and investment activities. Given that climate change could impose systemic risks upon the financial sector, either via disruptions in economic activity resulting from the physical impacts of climate change or changes in policies as the economy transitions to a less carbon-intensive environment, we face regulatory risk of increasing focus on our resilience to climate-related risks, including in the context of stress testing for various climate stress scenarios. Ongoing legislative or regulatory uncertainties and changes regarding climate risk management and practices may result in higher regulatory, compliance, credit and reputational risks and costs.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None

ITEM 2. PROPERTIES

Our headquarters is located in downtown San Antonio, Texas. These facilities, which we lease, house our executive and primary administrative offices, as well as the principal banking headquarters of Frost Bank. We also own or lease other facilities within our primary market areas in the regions of Austin, Corpus Christi, Dallas, Fort Worth, Houston, Permian Basin, Rio Grande Valley and San Antonio. We consider our properties to be suitable and adequate for our present needs.

ITEM 3. LEGAL PROCEEDINGS

We are subject to various claims and legal actions that have arisen in the course of conducting business. Management does not expect the ultimate disposition of these matters to have a material adverse effect on our business, financial condition and results of operations.

ITEM 4. MINE SAFETY DISCLOSURES

None

PART II

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Market for Our Common Stock

Our common stock is traded on the New York Stock Exchange, Inc. ("NYSE") under the symbol "CFR". As of December 31, 2021, there were 63,986,236 shares of our common stock outstanding held by 1,046 holders of record. The closing price per share of common stock on December 31, 2021, the last trading day of our fiscal year, was $126.07.

Stock-Based Compensation Plans

Information regarding stock-based compensation awards outstanding and available for future grants as of December 31, 2021, segregated between stock-based compensation plans approved by shareholders and stock-based compensation plans not approved by shareholders, is presented in the table below. Additional information regarding stock-based compensation plans is presented in Note 11 - Employee Benefit Plans in the notes to consolidated financial statements included in Item 8. Financial Statements and Supplementary Data elsewhere in this report.

Plan Category	Number of Shares to be Issued Upon Exercise of Outstanding Awards	Weighted-Average Exercise Price of Outstanding Awards	Number of Shares Available for Future Grants
Plans approved by shareholders	1,585,779 (1)	$ 69.02 (2)	777,687
Plans not approved by shareholders	—	—	—
Total	1,585,779	69.02	777,687

(1) Includes 877,681 shares related to stock options, 449,337 shares related to non-vested stock units, 56,301 shares related to director deferred stock units and 202,460 shares related to performance stock units (assuming attainment of the maximum payout rate as set forth by the performance criteria).

(2) Excludes outstanding stock units which are exercised for no consideration.

Stock Repurchase Plans

From time to time, our board of directors has authorized stock repurchase plans. In general, stock repurchase plans allow us to proactively manage our capital position and return excess capital to shareholders. Shares purchased under such plans also provide us with shares of common stock necessary to satisfy obligations related to stock compensation awards. On January 26, 2022, our board of directors authorized a $100.0 million stock repurchase plan, allowing us to repurchase shares of our common stock over a one-year period from time to time at various prices in the open market or through private transactions. Under prior stock repurchase plans, we repurchased, 177,834 shares at a total cost of $13.7 million during 2020 and 699,031 shares at a total cost of $67.2 million during 2019. No shares were repurchased under a stock repurchase plan during 2021.

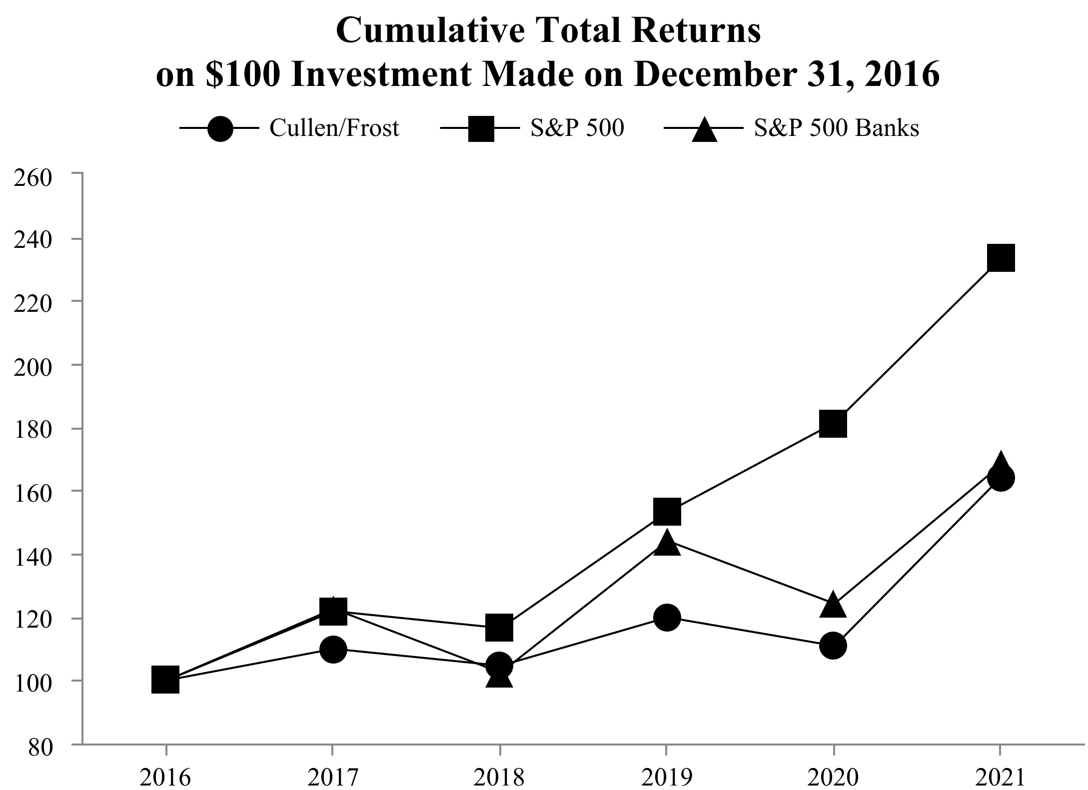
The following table provides information with respect to purchases made by or on behalf of us or any "affiliated purchaser" (as defined in Rule 10b-18(a)(3) under the Securities Exchange Act of 1934), of our common stock during the fourth quarter of 2021.

Period	Total Number of Shares Purchased	Average Price Paid Per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans	Maximum Number (or Approximate Dollar Value) of Shares That May Yet Be Purchased Under the Plans at the End of the Period
October 1, 2021 to October 31, 2021	19,214 (1)	$ 131.31	—	$ 100,000
November 1, 2021 to November 30, 2021	—	—	—	100,000
December 1, 2021 to December 31, 2021	—	—	—	100,000
Total	19,214		—	

(1) Repurchases made in connection with the vesting of certain share awards.

Performance Graph

The performance graph below compares the cumulative total shareholder return on Cullen/Frost Common Stock with the cumulative total return on the equity securities of companies included in the Standard & Poor's 500 Stock Index and the Standard and Poor's 500 Bank Index, measured at the last trading day of each year shown. The graph assumes an investment of $100 on December 31, 2016 and reinvestment of dividends on the date of payment without commissions. The performance graph represents past performance and should not be considered to be an indication of future performance.



	2016	2017	2018	2019	2020	2021
Cullen/Frost	$ 100.00	$ 109.92	$ 104.60	$ 119.87	$ 110.85	$ 164.27
S&P 500	100.00	121.83	116.49	153.17	181.35	233.41
S&P 500 Banks	100.00	122.55	102.41	144.02	124.21	168.24

ITEM 6. [RESERVED]

ITEM 7. MANAGEMENT’S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

Forward-Looking Statements and Factors that Could Affect Future Results

Certain statements contained in this Annual Report on Form 10-K that are not statements of historical fact constitute forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995 (the “Act”), including statements regarding the potential effects of the ongoing COVID-19 pandemic on our business, financial condition, liquidity and results of operations, notwithstanding that such statements are not specifically identified as such. In addition, certain statements may be contained in our future filings with the SEC, in press releases, and in oral and written statements made by us or with our approval that are not statements of historical fact and constitute forward-looking statements within the meaning of the Act. Examples of forward-looking statements include, but are not limited to: (i) projections of revenues, expenses, income or loss, earnings or loss per share, the payment or nonpayment of dividends, capital structure and other financial items; (ii) statements of plans, objectives and expectations of Cullen/Frost or its management or Board of Directors, including those relating to products, services or operations; (iii) statements of future economic performance; and (iv) statements of assumptions underlying such statements. Words such as “believes”, “anticipates”, “expects”, “intends”, “targeted”, “continue”, “remain”, “will”, “should”, “may” and other similar expressions are intended to identify forward-looking statements but are not the exclusive means of identifying such statements.

Forward-looking statements involve risks and uncertainties that may cause actual results to differ materially from those in such statements. Factors that could cause actual results to differ from those discussed in the forward-looking statements include, but are not limited to:

- Local, regional, national and international economic conditions and the impact they may have on us and our customers and our assessment of that impact.
- Volatility and disruption in national and international financial and commodity markets.
- Government intervention in the U.S. financial system.
- Changes in the mix of loan geographies, sectors and types or the level of non-performing assets and charge-offs.
- Changes in estimates of future reserve requirements based upon the periodic review thereof under relevant regulatory and accounting requirements.
- The effects of and changes in trade and monetary and fiscal policies and laws, including the interest rate policies of the Federal Reserve Board.
- Inflation, interest rate, securities market and monetary fluctuations.
- The effect of changes in laws and regulations (including laws and regulations concerning taxes, banking, securities and insurance) and their application with which we and our subsidiaries must comply.
- The soundness of other financial institutions.
- Political instability.
- Impairment of our goodwill or other intangible assets.
- Acts of God or of war or terrorism.
- The potential impact of climate change.
- The timely development and acceptance of new products and services and perceived overall value of these products and services by users.
- Changes in consumer spending, borrowings and savings habits.
- Changes in the financial performance and/or condition of our borrowers.
- Technological changes.
- The cost and effects of cyber incidents or other failures, interruptions or security breaches of our systems or those of our customers or third-party providers.
- Acquisitions and integration of acquired businesses.
- Our ability to increase market share and control expenses.
- Our ability to attract and retain qualified employees.
- Changes in the competitive environment in our markets and among banking organizations and other financial service providers.
- The effect of changes in accounting policies and practices, as may be adopted by the regulatory agencies, as well as the Public Company Accounting Oversight Board, the Financial Accounting Standards Board and other accounting standard setters.
- Changes in the reliability of our vendors, internal control systems or information systems.

- Changes in our liquidity position.
- Changes in our organization, compensation and benefit plans.
- The impact of the ongoing COVID-19 pandemic and any other pandemic, epidemic or health-related crisis.
- The costs and effects of legal and regulatory developments, the resolution of legal proceedings or regulatory or other governmental inquiries, the results of regulatory examinations or reviews and the ability to obtain required regulatory approvals.
- Greater than expected costs or difficulties related to the integration of new products and lines of business.
- Our success at managing the risks involved in the foregoing items.

Further, statements about the potential effects of the ongoing COVID-19 pandemic on our business, financial condition, liquidity and results of operations may constitute forward-looking statements and are subject to the risk that the actual effects may differ, possibly materially, from what is reflected in those forward-looking statements due to factors and future developments that are uncertain, unpredictable and in many cases beyond our control, including the scope and duration of the pandemic, actions taken by governmental authorities in response to the pandemic, and the direct and indirect impact of the pandemic on our customers, clients, third parties and us.

Forward-looking statements speak only as of the date on which such statements are made. We do not undertake any obligation to update any forward-looking statement to reflect events or circumstances after the date on which such statement is made, or to reflect the occurrence of unanticipated events.

COVID-19 Effects, Actions and Recent Developments

Overview. During 2020 and to a lesser extent in 2021, our business has been, and continues to be, impacted by the ongoing outbreak of COVID-19. In March 2020, COVID-19 was declared a pandemic by the World Health Organization and a national emergency by the President of the United States. Efforts to limit the spread of COVID-19 have included quarantines/shelter-in-place orders, the closure or limiting capacity of businesses, travel restrictions, supply chain limitations and prohibitions on public gatherings, among other things, throughout many parts of the United States and, in particular, the markets in which we operate. As the current pandemic is ongoing and dynamic in nature, there are many uncertainties related to COVID-19 including, among other things, its severity; the duration of the outbreak; the impact to our customers, employees and vendors; the impact to the financial services and banking industry; and the impact to the economy as a whole as well as the effect of actions taken, or that may yet be taken, or inaction by governmental authorities to contain the outbreak or to mitigate its impact (both economic and health-related). COVID-19 has negatively affected, and is expected to continue to negatively affect, our business, financial position and operating results. In light of the uncertainties and continuing developments discussed herein, the ultimate adverse impact of COVID-19 cannot be reliably estimated at this time, but it has been and is expected to continue to be material. The longer-term potential impact on our business could depend to a large extent on future developments and actions taken by authorities and other entities to contain COVID-19 and its economic impact. Furthermore, the sustainability of the economic recovery observed in 2021 remains unclear and significant volatility could continue for a prolonged period as the potential exists for additional variants of COVID-19, including the recent Omicron variant, to impede the global economic recovery and exacerbate geographic differences in the spread of, and response to, COVID-19.

Impact on our Operations. In 2020, the State of Texas and many other jurisdictions declared health emergencies. The resulting closures and/or limited operations of non-essential businesses and related economic disruption impacted our operations as well as the operations of our customers. Financial services were identified as a Critical Infrastructure Sector by the Department of Homeland Security. Accordingly, our business remained open and we implemented our Business Continuity and Health Emergency Response plans to address the issues arising as a result of COVID-19 and to facilitate the continued delivery of essential services while maintaining a high level of safety for our customers as well as our employees. Nonetheless, as the COVID-19 pandemic continues to be on-going, there continues to be uncertainties related to its magnitude, duration and persistent effects. This is particularly the case with the emergence, contagiousness and threat of new and different strains of the virus as well as the availability, acceptance and effectiveness of vaccines. As such, the COVID-19 pandemic could still, among other things, greatly affect our routine and essential operations due to staff absenteeism, particularly among key personnel; result in limited access to or closures of our branch facilities and other physical offices; exacerbate operational, technical or security-related risks arising from a remote workforce; and result in adverse government or regulatory agency orders. Additionally, we are experiencing an increasingly competitive labor market due to an on-going labor shortage which has impacted and could continue to impact our ability to staff open positions and/or retain existing employees and has resulted in and could continue to result in an increase in our staffing costs. The business and operations of our third-party service providers, many of whom perform critical services for our business, could also be significantly impacted by many of these same issues, which in turn could impact us. As a result, we continue to be unable to fully assess or predict the extent of the effects of COVID-19 on our operations as the ultimate impact will depend on factors that are currently unknown and/or beyond our control.

Impact on our Financial Position and Results of Operations. Our financial position and results of operations are particularly susceptible to the ability of our loan customers to meet loan obligations, the availability of our workforce, the availability of our vendors and the decline in the value of assets held by us. While its effects continue to be on-going, during 2020 and to a lesser extent in 2021, the COVID-19 pandemic resulted in a significant decrease in commercial activity throughout the State of Texas as well as nationally. This decrease in commercial activity caused and, in light of new and different strains of the virus, may yet further cause our customers (including affected businesses and individuals), vendors and counterparties to be unable to meet existing payment or other obligations to us. The national public health crisis arising from the COVID-19 pandemic (and public expectations about it), combined with other factors, including, but not limited to, inflation, labor shortages, supply chain disruption and further oil price volatility, could, despite improvements in 2021, again destabilize the financial markets and geographies in which we operate. The resulting economic pressure on consumers and uncertainty regarding the sustainability of any economic improvements could further impact the creditworthiness of potential and current borrowers. Borrower loan defaults that adversely affect our earnings correlate with deteriorating economic conditions, which, in turn, are likely to impact our borrowers' creditworthiness and our ability to make loans. See further information related to the risk exposure of our loan portfolio under the sections captioned “Loans” and “Allowance for Credit Losses” elsewhere in this discussion.

In addition, the economic pressures and uncertainties arising from the COVID-19 pandemic have resulted in and may continue to result in specific changes in consumer and business spending and borrowing and saving habits, affecting the demand for loans and other products and services we offer. Consumers affected by COVID-19 may continue to demonstrate changed behavior even after the crisis is over. For example, consumers may decrease discretionary spending on a permanent or long-term basis and certain industries may take longer to recover (particularly those that rely on travel or large gatherings) as consumers may be hesitant to return to full social interaction. We lend to customers operating in such industries including energy, hotels/lodging, restaurants, entertainment and commercial real estate, among others, that have been significantly impacted by COVID-19 and we are continuing to monitor these customers closely. Additionally, the temporary closures of bank branches in 2020 and the safety precautions implemented at re-opened branches could result in consumers becoming more comfortable with technology and devaluing face-to-face interaction. Our business is relationship driven and such changes could necessitate changes to our business practices to accommodate changing consumer behaviors.

Legislative and Regulatory Actions. Actions taken by the federal government and the Federal Reserve and other bank regulatory agencies to mitigate the economic effects of COVID-19 have impacted our financial position and results of operations. These actions are further discussed below.

During 2020, in an effort to provide monetary stimulus to counteract the economic disruption caused by COVID-19, the Federal Reserve:

- Expanded reverse repo operations, adding liquidity to the banking system.
- Restarted quantitative easing.
- Lowered the interest rate at the discount window by 1.5% to 0.25%.
- Reduced reserve requirement ratios to zero percent.
- Encouraged banks to use their capital and liquidity buffers to lend.
- Introduced and expanded several new temporary programs to help preserve market liquidity.

In 2020, the U.S. government enacted certain fiscal stimulus measures in several phases to counteract the economic disruption caused by the COVID-19. The Phase 1 legislation, the Coronavirus Preparedness and Response Supplemental Appropriations Act, was enacted on March 6, 2020 and, among other things, authorized funding for research and development of vaccines and allocated money to state and local governments to aid containment and response measures. The Phase 2 legislation, the Families First Coronavirus Response Act, was enacted on March 18, 2020 and provided for paid sick/medical leave, established no-cost coverage for coronavirus testing, expanded unemployment benefits, expanded food assistance, and provided additional funding to states for the ongoing economic consequences of the pandemic, among other provisions. The Phase 3 legislation, the Coronavirus Aid, Relief, and Economic Security Act (the “CARES Act”), was enacted on March 27, 2020. Among other provisions, the CARES Act (i) authorized the Secretary of the Treasury to make loans, loan guarantees and other investments, up to $500 billion, for assistance to eligible businesses, States and municipalities with limited, targeted relief for passenger air carriers, cargo air carriers, and businesses critical to maintaining national security, (ii) created a $349 billion loan program called the Paycheck Protection Program (the "PPP") for loans to small businesses for, among other things, payroll, group health care benefit costs and qualifying mortgage, rent and utility payments, (iii) provided certain credits against the 2020 personal income tax for eligible individuals and their dependents, (iv) expanded eligibility for unemployment insurance and provides eligible recipients with an additional $600 per week on top of the unemployment amount determined by each State and (v) expanded tele-health services in Medicare. The Phase 3.5 legislation, the Paycheck Protection Program and Healthcare Enhancement Act of 2020 (the "PPPHE Act"), was enacted on April 24, 2020. Among other things, the PPPHE Act provided an additional $310 billion of funding for the PPP. The Paycheck Protection Program Flexibility Act of 2020" (the "PPPF Act") was enacted in June 2020 to modify certain provisions of the PPP including, among other things, establishing a minimum maturity of five years for all loans made after the enactment of the PPPF Act and permitted an extension of the maturity of existing loans to five years if the borrower and lender agree.

In December 2020, the Bipartisan-Bicameral Omnibus COVID Relief Deal, included as a component of appropriations legislation, was enacted to provide economic stimulus to individuals and businesses in further response to the economic distress caused by the COVID-19 pandemic. Among other things, the legislation (i) authorized payments of $600 for individuals making up to $75,000 per year, (ii) extended the timeframe for enhanced unemployment benefits and (iii) authorized approximately $325 billion for small business relief, including approximately $284 billion for a second round of PPP loans and a new simplified forgiveness procedure for PPP loans of $150,000 or less.

During the first quarter of 2021, President Biden signed a number of executive orders relating to stimulus and relief measures. These orders included, among other things, (i) an extension, through March 31, 2021, of the moratorium on evictions and foreclosures, (ii) an extension, through September 30, 2021, of the deferral of federal student loan payments and interest and (iii) an extension, through June 30, 2021, of certain mortgage forbearance programs and guidelines.

On March 11 2021, the American Rescue Plan Act of 2021 (the "ARP Act") was enacted, implementing a $1.9 trillion package of stimulus and relief proposals. Among other things, the ARP Act provided (i) additional funding for the PPP program and an expansion of the program for the benefit of certain nonprofits, (ii) funding for the Small Business Administration ("SBA") to make targeted grants for restaurants and similar establishments, (iii) direct cash payments of up to $1,400 to individuals, subject to income provisions, (iv) an increase in the maximum annual Child Tax Credit, subject to income limitation provisions, (v) $300 a week in expanded unemployment insurance lasting through September 6, 2021 and made $10,200 in unemployment benefits tax free for households, subject to income limitation provisions, (vi) tax relief making any student loan forgiveness incurred between December 31, 2020, and January 1, 2026 non-taxable income, and (vii) funding to support state and local governments; K-12 schools and higher education; the Centers for Disease Control; public transit; rental assistance; child care; and airline industry workers.

On March 27, 2021, the COVID-19 Bankruptcy Relief Extension Act of 2021 was enacted, extending the bankruptcy relief provisions enacted in the CARES Act of 2020 bill until March 27, 2022. These provisions provide financially distressed small businesses and individuals greater access to bankruptcy relief. We are continuing to monitor the potential development of additional legislation and further actions taken by the U.S. government.

The above mentioned significant fiscal stimulus and monetary policy actions of the U.S. government and Federal Reserve have been contributing factors to an inflationary surge during most of 2021. As a result, in December 2021, the Federal Reserve released projections related to the target range for the federal funds rate that imply, while there can be no such assurance that any increases in the federal funds rate will occur, three 25 basis point increases in the federal funds rate in 2022, followed by three in 2023 and two in 2024 as further discussed in the section captioned "Net Interest Income" elsewhere in this discussion.

Banks and bank holding companies have been particularly impacted by the COVID-19 pandemic as a result of disruption and volatility in the global capital markets. We are closely monitoring the potential for new laws and regulations impacting lending and funding practices as well as capital and liquidity standards. Such changes could require us to maintain significantly more capital, with common equity as a more predominant component, or manage the composition of our assets and liabilities to comply with formulaic liquidity requirements.

Application of Critical Accounting Policies and Accounting Estimates

We follow accounting and reporting policies that conform, in all material respects, to accounting principles generally accepted in the United States and to general practices within the financial services industry. The preparation of financial statements in conformity with accounting principles generally accepted in the United States requires management to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. While we base estimates on historical experience, current information and other factors deemed to be relevant, actual results could differ from those estimates.

We consider accounting estimates to be critical to reported financial results if (i) the accounting estimate requires management to make assumptions about matters that are highly uncertain and (ii) different estimates that management reasonably could have used for the accounting estimate in the current period, or changes in the accounting estimate that are reasonably likely to occur from period to period, could have a material impact on our financial statements.

Accounting policies related to the allowance for credit losses on financial instruments including loans and off-balance-sheet credit exposures are considered to be critical as these policies involve considerable subjective judgment and estimation by management. As discussed in Note 1 - Summary of Significant Accounting Policies, our policies related to allowances for credit losses changed on January 1, 2020 in connection with the adoption of a new accounting standard update as codified in Accounting Standards Codification ("ASC") Topic 326 ("ASC 326") Financial Instruments - Credit Losses. In the case of loans, the allowance for credit losses is a contra-asset valuation account, calculated in accordance with ASC 326, that is deducted from the amortized cost basis of loans to present the net amount expected to be collected.

In the case of off-balance-sheet credit exposures, the allowance for credit losses is a liability account, calculated in accordance with ASC 326, reported as a component of accrued interest payable and other liabilities in our consolidated balance sheets. The amount of each allowance account represents management's best estimate of current expected credit losses on these financial instruments considering available information, from internal and external sources, relevant to assessing exposure to credit loss over the contractual term of the instrument. Relevant available information includes historical credit loss experience, current conditions and reasonable and supportable forecasts. While historical credit loss experience provides the basis for the estimation of expected credit losses, adjustments to historical loss information may be made for differences in current portfolio-specific risk characteristics, environmental conditions or other relevant factors. While management utilizes its best judgment and information available, the ultimate adequacy of our allowance accounts is dependent upon a variety of factors beyond our control, including the performance of our portfolios, the economy, changes in interest rates and the view of the regulatory authorities toward classification of assets. See the section captioned "Allowance for Credit Losses" elsewhere in this discussion as well as Note 1 - Summary of Significant Accounting Policies and Note 3 - Loans in the notes to consolidated financial statements included in Item 8. Financial Statements and Supplementary Data elsewhere in this report for further details of the risk factors considered by management in estimating the necessary level of the allowance for credit losses.

Overview

The following discussion and analysis presents the more significant factors that affected our financial condition as of December 31, 2021 and 2020 and results of operations for each of the years then ended. Refer to Management's Discussion and Analysis of Financial Condition and Results of Operations included in our Annual Report on Form 10-K filed with the SEC on February 5, 2021 (the "2020 Form 10-K") for a discussion and analysis of the more significant factors that affected periods prior to 2020.

Certain reclassifications have been made to make prior periods comparable. This discussion and analysis should be read in conjunction with our consolidated financial statements, notes thereto and other financial information appearing elsewhere in this report. From time to time, we have acquired various small businesses through our insurance subsidiary. None of these acquisitions had a significant impact on our financial statements. We account for acquisitions using the acquisition method, and as such, the results of operations of acquired companies are included from the date of acquisition.

Taxable-equivalent adjustments are the result of increasing income from tax-free loans and investments by an amount equal to the taxes that would be paid if the income were fully taxable, thus making tax-exempt yields comparable to taxable asset yields. Taxable equivalent adjustments were based upon a 21% income tax rate.

Dollar amounts in tables are stated in thousands, except for per share amounts.

Results of Operations

Net income available to common shareholders totaled $435.9 million, or $6.76 diluted per common share, in 2021 compared to $323.6 million, or $5.10 diluted per common share, in 2020 and $435.5 million, or $6.84 diluted per common share, in 2019.

Selected income statement data, returns on average assets and average equity and dividends per share for the comparable periods were as follows:

	2021	2020	2019
Taxable-equivalent net interest income	$ 1,077,315	$ 1,070,937	$ 1,100,586
Taxable-equivalent adjustment	92,448	94,936	96,581
Net interest income	984,867	976,001	1,004,005
Credit loss expense	63	241,230	33,759
Non-interest income	386,728	465,454	363,902
Non-interest expense	881,994	848,904	834,679
Income before income taxes	489,538	351,321	499,469
Income tax expense	46,459	20,170	55,870
Net income	443,079	331,151	443,599
Preferred stock dividends	7,157	2,016	8,063
Redemption of preferred stock	—	5,514	—
Net income available to common shareholders	$ 435,922	$ 323,621	$ 435,536
Earnings per common share - basic	$ 6.79	$ 5.11	$ 6.89
Earnings per common share - diluted	6.76	5.10	6.84
Dividends per common share	2.94	2.85	2.80
Return on average assets	0.95 %	0.85 %	1.36 %
Return on average common equity	10.35	8.11	12.24
Average shareholders' equity to average assets	9.48	10.64	11.54

Net income available to common shareholders increased $112.3 million for 2021 compared to 2020. The increase was primarily the result of a $241.2 million decrease in credit loss expense and an $8.9 million increase in net interest income partly offset by a $78.7 million decrease in non-interest income, a $33.1 million increase in non-interest expense and a $26.3 million increase in income tax expense. Credit loss expense during 2020 was impacted by both our adoption of a new credit loss accounting standard and the adverse events impacting our loan portfolio, including those arising from the COVID-19 pandemic and the significant volatility in oil prices. Non-interest income during 2020 was impacted by a $109.0 million net gain on securities transactions during the first quarter. Net income available to common shareholders during 2020 was also impacted by the reclassification of $5.5 million of issuance costs associated with our Series A preferred stock to retained earnings upon redemption of the Series A preferred stock.

Details of the changes in the various components of net income are further discussed below.

Net Interest Income

Net interest income is the difference between interest income on earning assets, such as loans and securities, and interest expense on liabilities, such as deposits and borrowings, which are used to fund those assets. Net interest income is our largest source of revenue, representing 71.8% of total revenue during 2021. Net interest margin is the ratio of taxable-equivalent net interest income to average earning assets for the period. The level of interest rates and the volume and mix of earning assets and interest-bearing liabilities impact net interest income and net interest margin.

The Federal Reserve influences the general market rates of interest, including the deposit and loan rates offered by many financial institutions. Our loan portfolio is significantly affected by changes in the prime interest rate. The prime rate began 2019 at 5.50% and decreased 50 basis points during the third quarter of 2019 (25 basis points in each of August and September) and 25 basis points in October 2019 to end the year at 4.75%. During 2020, the prime rate decreased 150 basis points in March to 3.25% where it remained through December 31, 2021. Our loan portfolio is also significantly impacted, by changes in the London Interbank Offered Rate ("LIBOR"). At December 31, 2021, the one-month and three-month U.S. dollar LIBOR rates were 0.10% and 0.21%, respectively, while at December 31, 2020, the one-month and three-month U.S. dollar LIBOR rates were 0.14% and 0.24% respectively, and at December 31, 2019, the one-month and three-month U.S. dollar LIBOR rates were 1.76% and 1.90% respectively. We discontinued originating LIBOR-based loans effective December 31, 2021 and will negotiate loans using our preferred replacement index, the American Interbank Offered Rate ("AMERIBOR"), a benchmark developed by the American Financial Exchange, the Secured Overnight Financing Rate ("SOFR") or ("BSBY"), a benchmark developed by Bloomberg Index Services. For our currently outstanding LIBOR-based loans, the timing and manner in which each customer's contract transitions to AMERIBOR, SOFR or BSBY will vary on a case-by-case basis. We expect to complete all transitions by the first quarter of 2023.

The target range for the federal funds rate, which is the cost of immediately available overnight funds, began 2019 at 2.25% to 2.50% and decreased 50 basis points during the third quarter of 2019 (25 basis points in each of August and September) and 25 basis points in October 2019 to end the year at 1.50% to 1.75%. During 2020, the target range for the federal funds rate decreased 150 basis points in March to zero to 0.25% where it remained through December 31, 2021. The decrease in the target range for the federal funds rate in March 2020 was largely an emergency measure by the Federal Reserve aimed at blunting the economic impact of COVID-19. In December 2021, the Federal Reserve released projections whereby the midpoint of the projected appropriate target range for the federal funds rate would rise to 0.9% by the end of 2022, to 1.6% by the end of 2023 and to 2.1% by the end of 2024. While there can be no such assurance that any increases in the federal funds rate will occur, these projections imply three 25 basis point increases in the federal funds rate in 2022, followed by three in 2023 and two in 2024.

We are primarily funded by core deposits, with non-interest-bearing demand deposits historically being a significant source of funds. This lower-cost funding base is expected to have a positive impact on our net interest income and net interest margin in a rising interest rate environment. See Item 7A. Quantitative and Qualitative Disclosures About Market Risk elsewhere in this report for information about our sensitivity to interest rates. Further analysis of the components of our net interest margin is presented below.

The following table presents an analysis of net interest income and net interest spread for the periods indicated, including average outstanding balances for each major category of interest-earning assets and interest-bearing liabilities, the interest earned or paid on such amounts, and the average rate earned or paid on such assets or liabilities, respectively. The table also sets forth the net interest margin on average total interest-earning assets for the same periods. For these computations: (i) average balances are presented on a daily average basis, (ii) information is shown on a taxable-equivalent basis assuming a 21% tax rate, (iii) average loans include loans on non-accrual status, and (iv) average securities include unrealized gains and losses on securities available for sale, while yields are based on average amortized cost.

	2021			2020			2019		
	Average Balance	**Interest Income/ Expense**	**Yield /Cost**	**Average Balance**	**Interest Income/ Expense**	**Yield /Cost**	**Average Balance**	**Interest Income/ Expense**	**Yield /Cost**
Assets:									
Interest-bearing deposits	$ 13,530,312	$ 17,878	0.13 %	$ 5,302,616	$ 12,893	0.24 %	$ 1,616,896	$ 35,590	2.20 %
Federal funds sold	14,836	31	0.21	78,817	723	0.92	233,716	5,260	2.25
Resell agreements	6,611	16	0.24	20,923	172	0.82	11,897	264	2.22
Securities:									
Taxable	4,606,562	89,550	1.97	4,234,318	93,569	2.27	5,048,552	117,082	2.33
Tax-exempt	8,268,416	314,600	4.06	8,447,036	323,928	4.08	8,248,812	325,058	4.06
Total securities	12,874,978	404,150	3.29	12,681,354	417,497	3.46	13,297,364	442,140	3.40
Loans, net of unearned discount	16,769,631	679,142	4.05	17,164,453	684,686	3.99	14,440,549	747,112	5.17
Total earning assets and average rate earned	43,196,368	1,101,217	2.58	35,248,163	1,115,971	3.22	29,600,422	1,230,366	4.20
Cash and due from banks	564,564			527,875			503,929		
Allowance for credit losses	(258,668)			(232,596)			(135,928)		
Premises and equipment, net	1,038,034			1,043,789			876,442		
Accrued interest receivable and other assets	1,442,682			1,373,969			1,240,986		
Total assets	$ 45,982,980			$ 37,961,200			$ 32,085,851		
Liabilities:									
Non-interest-bearing demand deposits	16,670,807			13,563,696			10,358,416		
Interest-bearing deposits:									
Savings and interest checking	10,682,149	1,365	0.01	8,283,665	2,467	0.03	7,243,016	10,574	0.15
Money market deposit accounts	9,990,626	9,462	0.09	8,457,263	15,417	0.18	7,806,175	72,626	0.93
Time accounts	1,129,041	3,693	0.33	1,133,648	14,134	1.25	1,005,670	16,542	1.64
Total interest-bearing deposits	21,801,816	14,520	0.07	17,874,576	32,018	0.18	16,054,861	99,742	0.62
Total deposits	38,472,623		0.04	31,438,272		0.10	26,413,277		0.38
Federal funds purchased	32,177	32	0.10	33,135	100	0.30	16,732	347	2.07
Repurchase agreements	2,115,276	2,209	0.10	1,436,833	4,382	0.30	1,266,649	19,328	1.53
Junior subordinated deferrable interest debentures	133,744	2,484	1.86	136,330	3,560	2.61	136,272	5,706	4.19
Subordinated notes	99,105	4,657	4.70	98,948	4,656	4.71	98,792	4,657	4.71
Federal Home Loan Bank advances	—	—	—	109,290	318	0.29	—	—	—
Total interest-bearing liabilities and average rate paid	24,182,118	23,902	0.10	19,689,112	45,034	0.23	17,573,306	129,780	0.74
Accrued interest payable and other liabilities	771,392			669,755			452,090		
Total liabilities	41,624,317			33,922,563			28,383,812		
Shareholders' equity	4,358,663			4,038,637			3,702,039		
Total liabilities and shareholders' equity	$ 45,982,980			$ 37,961,200			$ 32,085,851		
Net interest income		$1,077,315			$1,070,937			$1,100,586	
Net interest spread			2.48 %			2.99 %			3.46 %
Net interest income to total average earning assets			2.53 %			3.09 %			3.75 %

The following table presents the changes in taxable-equivalent net interest income and identifies the changes due to differences in the average volume of earning assets and interest-bearing liabilities and the changes due to changes in the average interest rate on those assets and liabilities. The changes in net interest income due to changes in both average volume and average interest rate have been allocated to the average volume change or the average interest rate change in proportion to the absolute amounts of the change in each. The comparisons between years includes an additional change factor that shows the effect of the difference in the number of days (due to leap year in 2020) in each period for assets and liabilities that accrue interest based upon the actual number of days in the period, as further discussed below.

	2021 vs. 2020				2020 vs. 2019			
	Increase (Decrease) Due to Change in				Increase (Decrease) Due to Change in			
	Rate	Volume	Days	Total	Rate	Volume	Days	Total
Interest-bearing deposits	$ (7,856)	$ 12,876	$ (35)	$ 4,985	$ (51,971)	$ 29,239	$ 35	$ (22,697)
Federal funds sold	(336)	(354)	(2)	(692)	(2,140)	(2,399)	2	(4,537)
Resell agreements	(79)	(77)	—	(156)	(223)	131	—	(92)
Securities:								
Taxable	(13,040)	9,021	—	(4,019)	(2,951)	(20,562)	—	(23,513)
Tax-exempt	(1,618)	(7,710)	—	(9,328)	1,486	(2,616)	—	(1,130)
Loans, net of unearned discounts	11,000	(14,673)	(1,871)	(5,544)	(189,507)	125,210	1,871	(62,426)
Total earning assets	(11,929)	(917)	(1,908)	(14,754)	(245,306)	129,003	1,908	(114,395)
Savings and interest checking	(1,767)	672	(7)	(1,102)	(9,444)	1,330	7	(8,107)
Money market deposit accounts	(8,389)	2,476	(42)	(5,955)	(62,866)	5,615	42	(57,209)
Time accounts	(10,344)	(58)	(39)	(10,441)	(4,352)	1,905	39	(2,408)
Federal funds purchased	(65)	(3)	—	(68)	(432)	185	—	(247)
Repurchase agreements	(3,646)	1,485	(12)	(2,173)	(17,265)	2,307	12	(14,946)
Junior subordinated deferrable interest debentures	(1,010)	(66)	—	(1,076)	(2,148)	2	—	(2,146)
Subordinated notes	(8)	9	—	1	—	(1)	—	(1)
Federal Home Loan Bank advances	—	(318)	—	(318)	—	318		318
Total interest-bearing liabilities	(25,229)	4,197	(100)	(21,132)	(96,507)	11,661	100	(84,746)
Net change	$ 13,300	$ (5,114)	$ (1,808)	$ 6,378	$ (148,799)	$ 117,342	$ 1,808	$ (29,649)

Taxable-equivalent net interest income for 2021 increased $6.4 million, or 0.6%, compared to 2020. Taxable-equivalent net interest income for 2021 included 365 days compared to 366 days for 2020 as a result of the leap year. The additional day added approximately $1.8 million to taxable-equivalent net interest income during 2020. Excluding the impact of the additional day results in an effective increase in taxable-equivalent net interest income of approximately $8.2 million during 2021. The taxable-equivalent net interest margin decreased 56 basis points from 3.09% during 2020 to 2.53% during 2021.

The increase in taxable-equivalent net interest income during 2021 was primarily related to decreases in the average costs of interest-bearing deposit liabilities and other borrowed funds combined with increases in the average volumes of interest-bearing deposits (primarily amounts held by us in an interest-bearing account at the Federal Reserve) and taxable securities and an increase in the average taxable-equivalent yield on loans. The positive impact of these items was partly offset by decreases in the average volumes of loans and tax-exempt securities and increases in the average volumes of interest-bearing deposit liabilities and repurchase agreements combined with decreases in the average yields on taxable and tax-exempt securities and interest-bearing deposits (primarily amounts held by us in an interest-bearing account at the Federal Reserve). The decrease in taxable-equivalent net interest margin during 2021 was primarily related to an increase in the relative proportion of average interest-bearing deposits (primarily amounts held by us in an interest-bearing account at the Federal Reserve) to average total interest-earning assets combined with the aforementioned decreases in market interest rates. Interest-bearing deposits made up approximately 31.3% of average interest-earning assets during 2021 compared to approximately 15.0% in 2020.

The average volume of interest-earning assets for 2021 increased $7.9 billion, or 22.5%, compared to 2020. The increase in the average volume of interest-earning assets during 2021 included a $8.2 billion increase in average interest-bearing deposits (primarily amounts held by us in an interest-bearing account at the Federal Reserve) and a $372.2 million increase in average taxable securities partly offset by a $394.8 million decrease in average loans (of which approximately $306.7 million related to PPP loans, as further discussed below), a $178.6 million decrease in average tax-exempt securities, a $64.0 million decrease in average federal funds sold and a $14.3 million decrease in average resell agreements.

The average yield on interest-earning assets decreased 64 basis points from 3.22% during 2020 to 2.58% during 2021 while the average rate paid on interest-bearing liabilities decreased 13 basis points from 0.23% in 2020 to 0.10% in 2021. The average taxable-equivalent yields on interest-earning assets and the average rate paid on interest-bearing liabilities were primarily impacted by the aforementioned changes in market interest rates and changes in the volume and relative mix of interest-earning assets and interest-bearing liabilities.

The average taxable-equivalent yield on loans increased 6 basis points from 3.99% during 2020 to 4.05% during 2021. The average taxable-equivalent yield on loans during 2021 was positively impacted by higher average yields on PPP loans but negatively impacted by lower average market interest rates compared to 2020. The average volume of loans decreased $394.8 million, or 2.3%, in 2021 compared to 2020. The decrease in average loans was primarily due to an increase in the average volume of PPP loans forgiven by the SBA during 2021 compared to 2020. Loans made up approximately 38.8% of average interest-earning assets during 2021 compared to 48.7% during 2020.

In April 2020, we began originating loans to qualified small businesses under the PPP administered by the SBA under the provisions of the CARES Act. In 2020, we funded $3.3 billion of PPP loans of which approximately $3.2 billion were funded during the second quarter of 2020. As of December 31, 2021, approximately $3.2 billion of these 2020 originated PPP loans have been forgiven by the SBA or repaid by the customer. During 2021, we funded an additional $1.4 billion of PPP loans, most of which was during the first quarter. As of December 31, 2021, approximately $1.0 billion of these 2021 originated PPP loans have been forgiven by the SBA or repaid by the customer. During 2021 and 2020, we recognized $97.3 million and $59.5 million, respectively, in PPP loan related deferred processing fees (net of amortization of related deferred origination costs) as a yield adjustment and this amount is included in interest income on loans. As a result of the inclusion of these net fees in interest income, the average yields on PPP loans were 6.26% and 3.78% during 2021 and 2020, respectively, compared to the stated interest rate of 1.0% on these loans. The increase in the average yield on PPP Loans was impacted by a decrease in the average expected lives of the PPP loans funded in 2021 compared to 2020. Furthermore, the average fee percentage for 2021 originations was higher due to a smaller average loan size relative to 2020. In return for processing and booking a PPP loan, the SBA paid lenders a processing fee tiered by the size of the loan (5% for loans of not more than $350 thousand; 3% for loans of more than $350 thousand and less than $2 million; and 1% for loans of at least $2 million). For PPP loans funded through December 31, 2021, we expect to recognize additional PPP loan related deferred processing fees (net of deferred origination costs) totaling approximately $2.8 million as a yield adjustment over the remaining expected lives of these loans. We expect to recognize all of this amount in 2022.

The average taxable-equivalent yield on securities was 3.29% during 2021, decreasing 17 basis points compared to 3.46% during 2020 and was negatively impacted by a decrease in the relative proportion of higher-yielding tax-exempt securities to total securities. The average yield on taxable securities was 1.97% during 2021 compared to 2.27% during 2020, decreasing 30 basis points, while the average yield on tax exempt securities was 4.06% during 2021 compared to 4.08% during 2020, decreasing 2 basis points. Tax exempt securities made up approximately 64.2% of total average securities during 2021, compared to 66.6% during 2020. The average volume of total securities increased $193.6 million, or 1.5%, during 2021 compared to 2020. Securities made up approximately 29.8% of average interest-earning assets in 2021 compared to 36.0% in 2020. The decrease was primarily related to an increase in the relative proportion of interest-earning assets invested in interest-bearing deposits (primarily amounts held by us in an interest-bearing account at the Federal Reserve).

Average interest-bearing deposits (primarily amounts held by us in an interest-bearing account at the Federal Reserve), during 2021 increased $8.2 billion, or 155.2%, compared to 2020. Interest-bearing deposits made up approximately 31.3% of average interest-earning assets during 2021 compared to approximately 15.0% in 2020. The increase in the average volume of interest-bearing deposits (primarily amounts held by us in an interest-bearing account at the Federal Reserve) during 2021 was primarily due to an increase in the average volume of customer deposits and, to a lesser extent, repurchase agreements. The average yield on interest-bearing deposits was 0.13% during 2021 and 0.24% during 2020. The average yields on interest-bearing deposits during 2021 and 2020 were negatively impacted by a decrease in the interest rate paid on excess reserves held at the Federal Reserve to 0.10% during March 2020, although this rate ultimately increased 5 basis points to 0.15% in June 2021.

Average federal funds sold and resell agreements during 2021 decreased $64.0 million, or 81.2%, and $14.3 million, or 68.4%, respectively compared to 2020. Federal funds sold and resell agreements were not a significant component of interest-earning assets during the comparable periods. The average yields on federal funds sold and resell agreements were 0.21% and 0.24%, respectively, during 2021 compared to 0.92% and 0.82%, respectively, during 2020. The average yields on federal funds sold and resell agreements were negatively impacted by lower average market interest rates during 2021 compared to 2020.

The average rate paid on interest-bearing liabilities was 0.10% during 2021, decreasing 13 basis points from 0.23% during 2020. Average deposits increased $7.0 billion, or 22.4%, in 2021 compared to 2020. Average interest-bearing deposits increased $3.9 billion in 2021 compared to 2020, while average non-interest-bearing deposits increased $3.1 billion in 2021 compared to 2020. The ratio of average interest-bearing deposits to total average deposits was 56.7% in 2021 compared to 56.9% in 2020. The average cost of deposits is primarily impacted by changes in market interest rates as well as changes in the volume and relative mix of interest-bearing deposits. The average rate paid on interest-bearing deposits and total deposits was 0.07% and 0.04% in 2021 compared to 0.18% and 0.10% in 2020. The average cost of deposits during 2021 and 2020 was impacted by decreases in the interest rates we pay on most of our interest-bearing deposit products as a result of the aforementioned decreases in market interest rates.

In April 2020, we borrowed an aggregate $1.3 billion from the Federal Home Loan Bank ("FHLB") to provide additional liquidity in light of economic uncertainty and our significant PPP lending volume. These advances were subsequently paid-off in May 2020 as we determined additional liquidity resources were not necessary.

Our taxable-equivalent net interest spread, which represents the difference between the average rate earned on earning assets and the average rate paid on interest-bearing liabilities, was 2.48% in 2021 compared to 2.99% in 2020. The net interest spread, as well as the net interest margin, will be impacted by future changes in short-term and long-term interest rate levels, as well as the impact from the competitive environment. A discussion of the effects of changing interest rates on net interest income is set forth in Item 7A. Quantitative and Qualitative Disclosures About Market Risk elsewhere in this report.

Our hedging policies permit the use of various derivative financial instruments, including interest rate swaps, swaptions, caps and floors, to manage exposure to changes in interest rates. Details of our derivatives and hedging activities are set forth in Note 15 - Derivative Financial Instruments in the accompanying notes to consolidated financial statements elsewhere in this report. Information regarding the impact of fluctuations in interest rates on our derivative financial instruments is set forth in Item 7A. Quantitative and Qualitative Disclosures About Market Risk elsewhere in this report.

Credit Loss Expense

Credit loss expense is determined by management as the amount to be added to the allowance for credit loss accounts for various types of financial instruments including loans, securities and off-balance-sheet credit exposure after net charge-offs have been deducted to bring the allowance to a level which, in management's best estimate, is necessary to absorb expected credit losses over the lives of the respective financial instruments.

The components of credit loss expense were as follows.

	2021	2020	2019
Credit loss expense related to:			
Loans	$ (6,097)	$ 237,010	$ 33,759
Off-balance-sheet credit exposures	6,162	4,275	—
Securities held to maturity	(2)	(55)	—
Total	$ 63	$ 241,230	$ 33,759

Credit loss expense in 2019 was calculated under the prior incurred loss accounting methodology. Furthermore, credit loss expense related to off-balance-sheet credit exposures was reported as a component of other non-interest expense prior to 2020. Such amounts have been reclassified to credit loss expense to make prior periods comparable to the current presentation. See the section captioned "Allowance for Credit Losses" elsewhere in this discussion for further analysis of credit loss expense related to loans and off-balance-sheet credit exposures.

Non-Interest Income

Total non-interest income for 2021 decreased $78.7 million, or 16.9%, compared to 2020. Excluding $69 thousand and $109.0 million in net gains on securities transactions during 2021 and 2020, respectively, total non-interest income increased $30.2 million, or 8.5%, during 2021. Changes in the various components of non-interest income are discussed in more detail below.

Trust and Investment Management Fees. Trust and investment management fee income for 2021 increased $19.7 million, or 15.3%, compared to 2020. Investment management fees are the most significant component of trust and investment management fees, making up approximately 82.3% and 83.6% of total trust and investment management fees in 2021 and 2020, respectively. The increase in trust and investment management fees during 2021 was primarily due to increases in investment management fees (up $14.6 million, or 13.5%), oil and gas fees (up $3.1 million), estate fees (up $1.5 million) and custody fees (up $580 thousand). Investment management fees and other custodial account fees are generally based on the market value of assets within an account and are thus impacted by volatility in the equity and bond markets. The increases in investment management fees and custody fees during 2021 were primarily related to higher average equity valuations as well as increases in the number of accounts. Oil and gas fees during 2021 were impacted by increases in oil and gas prices. The increase in estate fees was primarily related to an increase in the aggregate value of estates settled.

At December 31, 2021, trust assets, including both managed assets and custody assets, were primarily composed of equity securities (46.9% of trust assets), fixed income securities (31.1% of trust assets), alternative investments (6.6% of assets) and cash equivalents (9.9% of trust assets). The estimated fair value of trust assets was $43.3 billion (including managed assets of $19.1 billion and custody assets of $24.2 billion) at December 31, 2021 compared to $38.6 billion (including managed assets of $16.9 billion and custody assets of $21.7 billion) at December 31, 2020.

Service Charges on Deposit Accounts. Service charges on deposit accounts for 2021 increased $2.4 million, or 3.0%, compared to 2020. The increase was primarily related to an increase in commercial service charges (up $3.7 million) partly offset by a decrease in overdraft charges on consumer accounts (down $1.8 million). Commercial service charges during 2021 were impacted by an increase in the volume of billable services relative to 2020. Overdraft/insufficient funds charges totaled $30.7 million ($23.9 million consumer and $6.8 million commercial) during 2021 compared to $32.3 million ($25.8 million consumer and $6.5 million commercial) during 2020. The decreases in consumer overdraft/insufficient funds charges during 2021 was primarily related to a decrease in the volume of fee assessed overdrafts relative to 2020. Furthermore, in April 2021, we implemented a new overdraft grace feature for certain consumer demand deposit accounts whereby no fees will be assessed on overdrafts of $100 or less, subject to certain qualifying conditions such as a minimum direct deposit. This new feature reduced overdraft charges on consumer accounts by approximately $3.2 million during 2021. The impact on future quarters will depend on future overdraft volumes.

Insurance Commissions and Fees. Insurance commissions and fees for 2021 increased $1.2 million, or 2.5%, compared to 2020. The increase was related to increases in contingent income (up $829 thousand) and commission income (up $406 thousand). Contingent income totaled $4.5 million in 2021 and $3.7 million in 2020. Contingent income primarily consists of amounts received from various property and casualty insurance carriers related to the loss performance of insurance policies previously placed. These performance related contingent payments are seasonal in nature and are mostly received during the first quarter of each year. This performance related contingent income totaled $3.2 million in 2021 and $2.5 million in 2020. The increase in performance related contingent income during 2021 was related to growth within the portfolio combined with improvement in the loss performance of insurance policies previously placed. During the first quarter of 2021, a severe weather event in Texas resulted in a significant increase in property and casualty claims and losses. This deterioration in loss performance is expected to impact the determination of performance related contingent payments we receive in 2022; however, such impact is not determinable at this time. Contingent income also includes amounts received from various benefit plan insurance companies related to the volume of business generated and/or the subsequent retention of such business. This benefit plan related contingent income totaled $1.3 million in 2021 and $1.2 million in 2020.

The increase in commission income was primarily related to increases in commercial lines property and casualty commissions and life insurance commissions partly offset by a decrease in benefit plan commissions. The increase in commercial lines property and casualty commissions were related to increased market rates while the increase in life insurance commissions and decrease in benefit plan commissions were related to fluctuations in business volumes.

Interchange and Card Transaction Fees. Interchange fees, or "swipe" fees, are charges that merchants pay to us and other card-issuing banks for processing electronic payment transactions. Interchange and card transaction fees consist of income from check card usage, point of sale income from PIN-based debit card transactions and ATM service fees. Interchange and card transaction fees are reported net of related network costs.

Net revenues from interchange and card transaction fees for 2021 increased $4.0 million, or 29.6%, compared to 2020 primarily due to increased transaction volumes as well as the impact of new card products partly offset by an increase in network costs. Transaction volumes during 2020 were impacted by the onset of the COVID-19 pandemic. A comparison of gross and net interchange and card transaction fees for the reported periods is presented in the table below.

	2021	2020	2019
Income from debit card transactions	$ 29,122	$ 23,763	$ 23,665
ATM service fees	3,298	3,342	4,131
Gross interchange and debit card transaction fees	32,420	27,105	27,796
Network costs	14,959	13,635	12,923
Net interchange and debit card transaction fees	$ 17,461	$ 13,470	$ 14,873

Federal Reserve rules applicable to financial institutions that have assets of $10 billion or more provide that the maximum permissible interchange fee for an electronic debit transaction is the sum of 21 cents per transaction and 5 basis points multiplied by the value of the transaction. An upward adjustment of no more than 1 cent to an issuer's debit card interchange fee is allowed if the card issuer develops and implements policies and procedures reasonably designed to achieve certain fraud-prevention standards. The Federal Reserve also has rules governing routing and exclusivity that require issuers to offer two unaffiliated networks for routing transactions on each debit or prepaid product.

Other Charges, Commissions and Fees. Other charges, commissions and fees for 2021 increased $2.0 million, or 5.8%, compared to 2020. The increase was primarily related to increases in income from the sale of mutual funds (up $3.0 million), merchant services rebates (up $978 thousand), funds transfer service charges (up $761 thousand) and income from the sale of annuities (up $571 thousand). These items were partly offset by a decrease in income from the placement of money market accounts (down $1.7 million), which was impacted by lower average market rates, and a decrease in fees on unused commitments (down $1.7 million), among other things.

Net Gain/Loss on Securities Transactions. During 2021, we sold certain available-for-sale securities with amortized costs totaling $2.0 billion and realized a net gain of $69 thousand. These sales were primarily related to securities purchased during 2021 and subsequently sold in connection with our tax planning strategies related to the Texas franchise tax. The gross proceeds from the sales of these securities outside of Texas are included in total revenues/receipts from all sources reported for Texas franchise tax purposes, which results in a reduction in the overall percentage of revenues/receipts apportioned to Texas and subjected to taxation under the Texas franchise tax.

During 2020, we sold certain available-for-sale securities with amortized costs totaling $1.0 billion and realized a net gain of $109.0 million. These sales included $483.1 million of residential mortgage-backed securities on which we realized a net gain of $1.9 million. The proceeds from these sales were reinvested into other residential mortgage-backed securities that had lower pre-payment rates. The sales also included $519.1 million of 30-year U.S Treasury securities on which we realized a net gain of $107.1 million. These U.S. Treasury securities were purchased during the fourth quarter of 2019 to hedge, in effect, against falling interest rates. Prior to their sale, these securities had significant unrealized holding gains as a result of decreases in market interest rates during the first quarter of 2020. We elected to sell these securities to provide liquidity and realize the gains.

Other Non-Interest Income. Other non-interest income for 2021 increased $816 thousand, or 1.7%, compared to 2020. The increase in other non-interest income during 2021 was primarily related to an increase in gains on the sale/exchange of assets (up $11.0 million) and increases in income from customer derivative and foreign exchange transactions (up $2.9 million and $1.2 million, respectively). These items were partly offset by decreases in sundry and other miscellaneous income (down $4.6 million), public finance underwriting fees (down $2.9 million) and earnings on the cash surrender value of life insurance (down $1.3 million). Additionally, other non-interest income during 2020 included approximately $6.0 million in gains realized on the sale of certain non-hedge related, short-term put options on U.S. Treasury securities with an aggregate notional amount of $500 million. The put options were not exercised and expired in March 2020.

Gains on the sale/exchange of assets in 2021 included $9.7 million related to an exchange of a branch facility and $1.8 million related to the sale of certain parking lots in downtown San Antonio while gains on the sale/exchange of assets in 2020 included $758 thousand related to the sale of a branch facility. The increases in income from customer derivative and trading activities and income from customer foreign currency transactions were primarily related to increases in business volumes. Sundry and other miscellaneous income during 2021 included $3.4 million in card related incentives/rebates and $519 thousand in recoveries of prior write-offs, among other things, while sundry and other miscellaneous income during 2020 included $5.3 million in card related incentives/rebates, $2.8 million in recoveries of prior write-offs and $512 thousand related to settlements, among other things. The decrease in public finance underwriting fees was primarily due to a decrease in business volume. The decrease in earnings on the cash surrender value of life insurance was due to lower yields on the investments within the bank-owned life insurance portfolio.

Non-Interest Expense

Total non-interest expense for 2021 increased $33.1 million, or 3.9%, compared to 2020. Changes in the various components of non-interest expense are discussed below.

Salaries and Wages. Salaries and wages increased $8.2 million, or 2.1%, in 2021 compared to 2020. The increase was primarily related to an increase in incentive compensation and, to a lesser extent, a decrease in salary costs deferred in connection with loan originations and an increase in commissions. The impact of these items was partly offset by a decrease in salaries, due to a decrease in the number of employees, and a decrease in stock-based compensation. Salaries and wages for 2020 also included $5.2 million related to severance costs.

Employee Benefits. Employee benefits expense for 2021 increased $6.4 million, or 8.4%, compared to 2020. The increase was primarily related to an increase in certain discretionary benefit plan expenses and, to a lesser extent, increases in medical benefits expense and payroll taxes partly offset by decreases in expenses related to our defined benefit retirement and restoration plans, among other things.

Our defined benefit retirement and restoration plans were frozen in 2001 which has helped to reduce the volatility in retirement plan expense. We nonetheless still have funding obligations related to these plans and could recognize additional expense related to these plans in future years, which would be dependent on the return earned on plan assets, the level of interest rates and employee turnover. See Note 12 - Defined Benefit Plans for additional information related to our net periodic pension benefit/cost.

Net Occupancy. Net occupancy expense for 2021 increased $4.4 million, or 4.3%, compared to 2020. The increase was primarily related to increases in depreciation on leasehold improvements (up $1.9 million), repairs and maintenance/service contracts expense (up $1.8 million) and building depreciation (up $675 thousand), among other things, partly offset by a decrease in lease expense (down $581 thousand), among other things. The increases in the aforementioned components of net occupancy expense during the comparable periods were impacted, in part, by our expansion within the Houston market area.

Technology, Furniture and Equipment. Technology, furniture and equipment expense for 2021 increased $7.5 million, or 7.1%, compared to 2020. The increase was primarily related to increases in cloud services expense (up $5.9 million) and depreciation of furniture and equipment (up $2.5 million) partly offset by a decrease in software maintenance (down $1.1 million).

Deposit Insurance. Deposit insurance expense totaled $12.2 million in 2021 compared to $10.5 million in 2020. The increase was primarily related to an increase in total assets partly offset by a decrease in the assessment rate.

Other Non-Interest Expense. Other non-interest expense for 2021 increased $5.1 million, or 3.1%, compared to 2020. The increase included increases in donations expense (up $8.0 million); sundry and other miscellaneous expenses (up $6.4 million); and fraud losses (up $1.9 million), among other things. Donations expense during 2021 was impacted by $8.8 million in contributions to the Frost Charitable Foundation. Sundry and other miscellaneous expense in 2021 included $4.7 million related to the write-off of certain assets while sundry and other miscellaneous expense in 2020 included $958 thousand related to the closure of certain branch locations in our Houston market area and $454 thousand related to the write-off of certain other assets. The aforementioned items were partly offset by decreases in outside computer service expense (down $4.3 million); professional services expense (down $2.5 million); travel, meals and entertainment expense (down $2.2 million); amortization of deferred costs associated with loan commitments (down $1.1 million); and losses on the sale/write-down of foreclosed and other assets (down $1.1 million); among other things.

Results of Segment Operations

We are managed under a matrix organizational structure whereby our two primary operating segments, Banking and Frost Wealth Advisors, overlap a regional reporting structure. A third operating segment, Non-Banks, is for the most part the parent holding company, as well as certain other insignificant non-bank subsidiaries of the parent that, for the most part, have little or no activity. A description of each business and the methodologies used to measure financial performance is described in Note 18 - Operating Segments in the accompanying notes to consolidated financial statements elsewhere in this report. Net income (loss) by operating segment is presented below:

Banking

Net income for 2021 increased $92.8 million, or 28.8%, compared to 2020. The increase was primarily the result of a $241.2 million decrease in credit loss expense, an $8.4 million increase in net interest income partly offset by a $100.5 million decrease in non-interest income, a $35.2 million increase in non-interest expense and a $21.1 million increase in income tax expense.

Net interest income for 2021 increased $8.4 million, or 0.9%, compared to 2020. The increase was primarily related to decreases in the average costs of interest-bearing deposit liabilities and other borrowed funds combined with increases in the average volumes of interest-bearing deposits (primarily amounts held by us in an interest-bearing account at the Federal Reserve) and taxable securities and an increase in the average taxable-equivalent yield on loans. The positive impact of these items was partly offset by decreases in the average volumes of loans and tax-exempt securities and increases in the average volumes of interest-bearing deposit liabilities and repurchase agreements combined with decreases in the average yields on taxable and tax-exempt securities and interest-bearing deposits (primarily amounts held by us in an interest-bearing account at the Federal Reserve). Net interest income during 2020 was also positively impacted by the additional day as a result of the leap year. See the analysis of net interest income included in the section captioned “Net Interest Income” elsewhere in this discussion.

Credit loss expense for 2021 totaled $54 thousand compared to $241.2 million in 2020. Credit loss expense in 2020 was impacted by our adoption of a new credit loss accounting standard and the expected credit losses resulting from a deterioration in forecasted economic conditions and the current and uncertain future impacts associated with the COVID-19 pandemic and recent volatility in oil prices. See the sections captioned “Credit Loss Expense” and “Allowance for Credit Losses” elsewhere in this discussion for further analysis of credit loss expense related to loans and off-balance-sheet commitments.

Non-interest income for 2021 decreased $100.5 million, or 31.3%, compared to 2020. Excluding $69 thousand and $109.0 million in net gains on securities transactions in 2021 and 2020, respectively, total non-interest income for the Banking segment increased $8.4 million, or 4.0%, during 2021. This increase was primarily related to increases in interchange and card transaction fees, service charges on deposit accounts and insurance commissions and fees. The increase in interchange and card transaction fees was due to increased transaction volumes as well as the impact of new card products partly offset by increases in network costs. The increase in service charges on deposit accounts was primarily related to an increase in commercial service charges partly offset by a decrease in overdraft charges on consumer accounts. The increase in insurance commissions and fees was the result of increases in contingent income and commission income, which is further discussed below in relation to Frost Insurance Agency. See the analysis of these categories of non-interest income included in the section captioned “Non-Interest Income” included elsewhere in this discussion.

Non-interest expense for 2021 increased $35.2 million, or 4.9%, compared to 2020. The increase was primarily due to increases in salaries and wages; other non-interest expense; employee benefit expense; technology, furniture and equipment expense; net occupancy expense and deposit insurance expense. The increase in salaries and wages was primarily related to an increase in incentive compensation and, to a lesser extent, a decrease in salary costs deferred in connection with loan originations and an increase in commissions. The impact of these items was partly offset by a decrease in salaries, due to a decrease in the number of employees, and a decrease in stock-based compensation. The increase in other non-interest expense was primarily due to increases in donations; sundry and other miscellaneous expenses; and fraud losses, among other things, partly offset by decreases in outside computer service expense; professional services expense; travel, meals and entertainment expense; amortization of deferred costs associated with loan commitments; and losses on the sale/write-down of foreclosed and other assets; among other things. The increase in employee benefits expense was primarily related to an increase in certain discretionary benefit plan expenses and, to a lesser extent, increases in medical benefits expense and payroll taxes partly offset by decreases in expenses related to our defined benefit retirement and restoration plans, among other things. The increase in technology, furniture and equipment expense was primarily related to increases in cloud services expense and depreciation of furniture and equipment partly offset by a decrease in software maintenance. The increase in net occupancy expense was primarily related to increases in depreciation on leasehold improvements, repairs and maintenance/service contracts expense and building depreciation, among other things, partly offset by a decrease in lease expense, among other things. The increase in deposit insurance expense was primarily related to an increase in total assets partly offset by a decrease in the assessment rate. See the analysis of these categories of non-interest expense included in the section captioned “Non-Interest Expense” included elsewhere in this discussion.

Income tax expense for 2021 increased $21.1 million, or 103.9%, compared to 2020. See the section captioned “Income Taxes” elsewhere in this discussion.

Frost Insurance Agency, which is included in the Banking operating segment, had gross commission revenues of $52.5 million during 2021 compared to $51.1 million during 2020. The increase in gross commission revenues was the result of increases in contingent income and commission income. The increase in contingent income was related to growth within the portfolio combined with improvement in the loss performance of insurance policies previously placed. The increase in commission income was primarily related to increases in commercial lines property and casualty commissions, related to increased market rates, and an increase in life insurance commissions, related to fluctuations in business volumes, partly offset by a decrease in benefit plan commissions, related to fluctuations in business volumes. See the analysis of insurance commissions and fees included in the section captioned “Non-Interest Income” included elsewhere in this discussion.

Frost Wealth Advisors

Net income for 2021 increased $17.5 million, or 90.9%, compared to 2020. The increase was primarily due to a $22.2 million increase in non-interest income and a $658 thousand decrease in non-interest expense partly offset by a $4.7 million increase in income tax expense and a $647 thousand decrease in net interest income.

Net interest income for 2021 decreased $647 thousand, or 23.3%, compared to 2020. This decrease was primarily due to a decrease in the average funds transfer price allocated to the funds provided by Frost Wealth Advisors. The decrease in the average funds transfer price was primarily due to a decrease in market interest rates. See the analysis of net interest income included in the section captioned “Net Interest Income” included elsewhere in this discussion.

Non-interest income for 2021 increased $22.2 million, or 15.3%, compared to 2020. The increase was primarily related to an increase in trust and investment management fees and, to a lesser extent, an increase in other charges, commissions and fees. Trust and investment management fee income is the most significant income component for Frost Wealth Advisors. Investment management fees are the most significant component of trust and investment management fees, making up approximately 82.3% and 83.6% of total trust and investment management fees for 2021 and 2020, respectively. The increase in trust and investment management fees was primarily due to increases in investment management fees, oil and gas fees, estate fees and custody fees. The increases in investment management fees and custody fees were primarily related to higher average equity valuations as well as increases in the number of accounts. Oil and gas fees during 2021 were impacted by an increases in oil and gas prices. The increase in estate fees was primarily related to an increase in the aggregate value of estates settled. The increase in other charges, commissions and fees was primarily related to increases in income from the sale of mutual funds and income from the sale of annuities partly offset by a decrease in income from the placement of money market accounts, which was impacted by lower average market rates. See the analysis of trust and investment management fees and other charges, commissions and fees included in the section captioned “Non-Interest Income” included elsewhere in this discussion.

Non-interest expense for 2021 decreased $658 thousand, or 0.5%, compared to 2020. The decrease was primarily due to decreases in other non-interest expense and net occupancy expense partly offset by an increase in technology, furniture and equipment expense. The decrease in other non-interest expense was primarily related to decreases in outside computer service expense; travel, meals and entertainment expense; and professional service expense; among other things; partly offset by increases in subscriptions expense and platform fees expense. The decrease in net occupancy expense was primarily related to a decrease in lease expense. The increase in technology, furniture and equipment expense was primarily related to an increase in cloud services expense.

Non-Banks

The Non-Banks operating segment had a net loss of $9.0 million for 2021 compared to a net loss of $10.6 million in 2020. The decreased net loss was primarily due to decreases in other non-interest expense and net interest expense. The decrease in other non-interest expense was primarily due to decreases in professional services expense and travel, meals and entertainment expense. The decrease in net interest expense was primarily related to a decrease in the average rates paid on our long-term borrowings. Net interest expense was also positively impacted by the redemption, during the fourth quarter of 2021, of $13.4 million of junior subordinated deferrable interest debentures issued to WNB Capital Trust I.

Income Taxes

We recognized income tax expense of $46.5 million, for an effective tax rate of 9.5%, in 2021 compared to $20.2 million, for an effective tax rate of 5.7%, in 2020. The effective income tax rates differed from the U.S. statutory federal income tax rate of 21% during 2021 and 2020 primarily due to the effect of tax-exempt income from loans, securities and life insurance policies and the income tax effects associated with stock-based compensation, among other things, and their relative proportion to total pre-tax net income. The increase in the effective tax rate during 2021 was primarily related to an increase in pre-tax net income, partly off-set by the impact of higher discrete tax benefits associated with stock-based compensation. The effective tax rate during 2020 was also impacted by a one-time, discrete tax benefit associated with an asset contribution to a charitable trust. See Note 13 - Income Taxes in the accompanying notes to consolidated financial statements elsewhere in this report.

Sources and Uses of Funds

The following table illustrates, during the years presented, the mix of our funding sources and the assets in which those funds are invested as a percentage of our average total assets for the period indicated. Average assets totaled $46.0 billion in 2021 compared to $38.0 billion in 2020.

	2021	2020	2019
Sources of Funds:			
Deposits:			
Non-interest-bearing	36.2 %	35.7 %	32.3 %
Interest-bearing	47.4	47.1	50.1
Federal funds purchased	0.1	0.1	0.1
Repurchase agreements	4.6	3.8	3.9
Long-term debt and other borrowings	0.5	0.9	0.7
Other non-interest-bearing liabilities	1.7	1.8	1.4
Equity capital	9.5	10.6	11.5
Total	100.0 %	100.0 %	100.0 %
Uses of Funds:			
Loans	36.5 %	45.2 %	45.0 %
Securities	28.0	33.4	41.4
Interest-bearing deposits	29.4	14.0	5.0
Federal funds sold	—	0.2	0.7
Resell agreements	—	0.1	0.1
Other non-interest-earning assets	6.1	7.1	7.8
Total	100.0 %	100.0 %	100.0 %

Deposits continue to be our primary source of funding. Average deposits increased $7.0 billion, or 22.4%, in 2021 compared to 2020. Non-interest-bearing deposits remain a significant source of funding, which has been a key factor in maintaining our relatively low cost of funds. Average non-interest-bearing deposits totaled 43.3% of total average deposits in 2021 compared to 43.1% in 2020. Though federal prohibitions on the payment of interest on demand deposits were repealed in 2011, we have not experienced any significant additional costs as a result. Should the market dictate, we may increase the interest rates we pay on some or all of our various interest-bearing deposit products. This could lead to a decrease in the relative proportion of non-interest-bearing deposits to total deposits.

We primarily invest funds in loans, securities and interest-bearing deposits (primarily amounts held by us in an interest-bearing account at the Federal Reserve). Average loans decreased $394.8 million, or 2.3%, ($88.1 million, or 0.6% excluding PPP loans) in 2021 compared to 2020 while average securities increased $193.6 million, or 1.5%, in 2021 compared to 2020. Average interest-bearing deposits (primarily amounts held by us in an interest-bearing account at the Federal Reserve) increased $8.2 billion, or 155.2%, in 2021 compared to 2020, primarily as a result of deposit growth.

Loans

Overview. Details of our loan portfolio are presented in Note 3 - Loans in the accompanying notes to consolidated financial statements included elsewhere in this report. Year-end total loans decreased $1.1 billion, or 6.5%, during 2021 compared to 2020. As further discussed below, during the second quarter of 2020, we began originating loans to qualified small businesses under the PPP administered by the SBA under the provisions of the CARES Act. Excluding PPP loans, total loans would have otherwise increased $860.1 million, or 5.7%, from December 31, 2020. The majority of our loan portfolio is comprised of commercial and industrial loans, energy loans and real estate loans. Commercial and industrial loans made up 32.9% and 28.4% (33.7% and 32.9% excluding PPP loans) of total loans at December 31, 2021 and 2020 while energy loans made up 6.6% and 7.1% (6.8% and 8.2% excluding PPP loans) of total loans at both December 31, 2021 and 2020 and real estate loans made up 55.0% and 47.7% (56.5% and 55.5% excluding PPP loans) of total loans at December 31, 2021 and 2020. Energy loans include commercial and industrial loans, leases and real estate loans to borrowers in the energy industry. Real estate loans include both commercial and consumer balances. It is possible that the on-going effects of COVID-19 could continue to impact demand for our loan products.

Loan Origination/Risk Management. We have certain lending policies and procedures in place that are designed to maximize loan income within an acceptable level of risk. Management reviews and approves these policies and procedures on a regular basis. A reporting system supplements the review process by providing management with frequent reports related to loan production, loan quality, concentrations of credit, loan delinquencies and non-performing and potential problem loans. Diversification in the loan portfolio is a means of managing risk associated with fluctuations in economic conditions. We have begun to explore the credit and reputational risks associated with climate change and their potential impact on the foregoing and are also closely monitoring regulatory developments on climate risk. This includes, among other things, researching and developing a formalized approach to considering climate change related risks in our underwriting processes. This approach will be impacted, in part, by the accessibility and reliability of both customer climate risk data and climate risk data in general. One of the objectives of these efforts is to enable us to better understand the climate change related risks associated with our customers' business activities and to be able to monitor their response to those risks and their ultimate impact on our customers.

Commercial and industrial loans are underwritten after evaluating and understanding the borrower’s ability to operate profitably and prudently expand its business. Underwriting standards are designed to promote relationship banking rather than transactional banking. Once it is determined that the borrower’s management possesses sound ethics and solid business acumen, our management examines current and projected cash flows to determine the ability of the borrower to repay their obligations as agreed. Commercial and industrial loans are primarily made based on the identified cash flows of the borrower and secondarily on the underlying collateral provided by the borrower. The cash flows of borrowers, however, may not be as expected and the collateral securing these loans may fluctuate in value. Most commercial and industrial loans are secured by the assets being financed or other business assets such as accounts receivable or inventory and may incorporate a personal guarantee; however, some short-term loans may be made on an unsecured basis. In the case of loans secured by accounts receivable, the availability of funds for the repayment of these loans may be substantially dependent on the ability of the borrower to collect amounts due from its customers.

Our energy loan portfolio includes loans for production, energy services and other energy loans, which includes private clients, transportation and equipment providers, manufacturers, refiners and traders. The origination process for energy loans is similar to that of commercial and industrial loans. Because, however, of the average loan size, the significance of the portfolio and the specialized nature of the energy industry, our energy lending requires a highly prescriptive underwriting policy. Production loans are secured by proven, developed and producing reserves. Loan proceeds for these types of loans are typically used for the development and drilling of additional wells, the acquisition of additional production, and/or the acquisition of additional properties to be developed and drilled. Our customers in this sector are generally large, independent, private owner-producers or large corporate producers. These borrowers typically have large capital requirements for drilling and acquisitions, and as such, loans in this portfolio are generally greater than $10 million. Production loans are collateralized by the oil and gas interests of the borrower. Collateral values are determined by the risk-adjusted and limited discounted future net revenue of the reserves. Our valuations take into consideration geographic and reservoir differentials as well as cost structures associated with each borrower. Collateral value is calculated at least semi-annually using third-party engineer-prepared reserve studies. These reserve studies are conducted using a discount factor and base case assumptions for the current and future value of oil and gas. To qualify as collateral, typically reserves must be proven, developed and producing. For certain borrowers, collateral may include up to 20% proven, non-producing reserves. Loan commitments are limited to 65% of estimated reserve value. Cash flows must be sufficient to amortize the loan commitment within 120% of the half-life of the underlying reserves. Loan commitments generally must also be 100% covered by the risk-adjusted and limited discounted future net revenue of the reserves when stressed at 75% of our base case price assumptions. In addition, the ratio of the borrower's debt to earnings before interest, taxes, depreciation and amortization ("EBITDA") should generally not exceed 350%. We generally require production borrowers to maintain an active hedging program to manage risk and to have at least 50% of their production hedged for two years.

Oil and gas service, transportation, and equipment providers are economically aligned due to their reliance on drilling and active oil and gas development. Income for these borrowers is highly dependent on the level of drilling activity and rig utilization, both of which are driven by the current and future outlook for the price of oil and gas. We mitigate the credit risk in this sector through conservative concentration limits and guidelines on the profile of eligible borrowers. Guidelines require that the companies have extensive experience through several industry cycles, and that they be supported by financially competent and committed guarantors who provide a significant secondary source of repayment. Borrowers in this sector are typically privately-owned, middle-market companies with annual sales of less than $100 million. The services provided by companies in this sector are highly diversified, and include down-hole testing and maintenance, providing and threading drilling pipe, hydraulic fracturing services or equipment, seismic testing and equipment and other direct or indirect providers to the oil and gas production sector.

Our private client portfolio primarily consists of loans to wealthy individuals and their related oil and gas exploration and production entities, where the oil and gas producing reserves are not considered to be the primary source of repayment. These borrowers and guarantors typically have significant sources of wealth including significant liquid assets and/or cash flow from other investments which can fully repay the loans. The credit structures of these loans are generally similar to those of energy production loans, described above, with respect to the valuation of the reserves taken as collateral and the repayment structures.

Although no balances were outstanding at December 31, 2021 and 2020, in prior years we have had a small portfolio of loans to refiners where our credit involvement with these customers was through purchases of shared national credit syndications. These borrowers refine crude oil into gasoline, diesel, jet fuel, asphalt and other petrochemicals and are not dependent on drilling or development. All of the borrowers in this portfolio are very large public companies that are important employers in several of our major markets. These borrowers, for the most part, have been long-term customers and we have a strong relationship with these companies and their executive management. There is no new customer origination process for this segment and any outstanding balances are expected to only reflect the needs of these existing relationships.

We also have a small portfolio of loans to energy trading companies that serve as intermediaries that buy and sell oil, gas, other petrochemicals, and ethanol. These companies are not dependent on drilling or development. As a general policy, we do not lend to energy traders; however, we have made an exception to this policy for certain customers based upon their underlying business models which minimize risk as commodities are bought only to fill existing orders (back-to-back trading). As such, the commodity price risk and sale risk are eliminated.

PPP loans, which we began originating in April 2020, are loans to qualified small businesses under the PPP administered by the SBA under the provisions of the CARES Act. Loans covered by the PPP may be eligible for loan forgiveness for certain costs incurred related to payroll, group health care benefit costs and qualifying mortgage, rent and utility payments. The remaining loan balance after forgiveness of any amounts is still fully guaranteed by the SBA. Terms of the PPP loans include the following (i) maximum amount limited to the lesser of $10 million or an amount calculated using a payroll-based formula, (ii) maximum loan term of five years, (iii) interest rate of 1.00%, (iv) no collateral or personal guarantees are required, (v) no payments are required until the date on which the forgiveness amount relating to the loan is remitted to the lender and (vi) loan forgiveness up to the full principal amount of the loan and any accrued interest, subject to certain requirements including that no more than 40% of the loan forgiveness amount may be attributable to non-payroll costs. In return for processing and booking a PPP loan, the SBA paid lenders a processing fee tiered by the size of the loan (5% for loans of not more than $350 thousand; 3% for loans of more than $350 thousand and less than $2 million; and 1% for loans of at least $2 million).

Commercial real estate loans are subject to underwriting standards and processes similar to commercial and industrial loans, in addition to those of real estate loans. These loans are viewed primarily as cash flow loans and secondarily as loans secured by real estate. Commercial real estate lending typically involves higher loan principal amounts and the repayment of these loans is generally largely dependent on the successful operation of the property securing the loan or the business conducted on the property securing the loan. Commercial real estate loans may be more adversely affected by conditions in the real estate markets or in the general economy. The properties securing our commercial real estate portfolio are diverse in terms of type and geographic location. This diversity helps reduce our exposure to adverse economic events that affect any single market or industry. Management monitors and evaluates commercial real estate loans based on collateral, geography and risk grade criteria. As a general rule, we avoid financing single-purpose projects unless other underwriting factors are present to help mitigate risk. We also utilize third-party experts to provide insight and guidance about economic conditions and trends affecting market areas we serve. In addition, management tracks the level of owner-occupied commercial real estate loans versus non-owner occupied loans. At December 31, 2021, approximately 48.4% of the outstanding principal balance of our commercial real estate loans were secured by owner-occupied properties.

With respect to loans to developers and builders that are secured by non-owner occupied properties that we may originate from time to time, we generally require the borrower to have had an existing relationship with us and have a proven record of success. Construction loans are underwritten utilizing feasibility studies, independent appraisal reviews, sensitivity analysis of absorption and lease rates and financial analysis of the developers and property owners. Construction loans are generally based upon estimates of costs and value associated with the completed project. These estimates may be inaccurate. Construction loans often involve the disbursement of substantial funds with repayment substantially dependent on the success of the ultimate project. Sources of repayment for these types of loans may be pre-committed permanent loans from approved long-term lenders, sales of developed property or an interim loan commitment from us until permanent financing is obtained. These loans are closely monitored by on-site inspections and are considered to have higher risks than other real estate loans due to their ultimate repayment being sensitive to interest rate changes, governmental regulation of real property, general economic conditions and the availability of long-term financing.

We originate consumer loans utilizing a credit scoring analysis to supplement the underwriting process. To monitor and manage consumer loan risk, policies and procedures are developed and modified, as needed, jointly by line and staff personnel. This activity, coupled with relatively small loan amounts that are spread across many individual borrowers, minimizes risk. Additionally, trend and outlook reports are reviewed by management on a regular basis. Underwriting standards for home equity loans are heavily influenced by statutory requirements, which include, but are not limited to, loan-to-value limitations, collection remedies, the number of such loans a borrower can have at one time and documentation requirements.

We maintain an independent loan review department that reviews and validates the credit risk program on a periodic basis. Results of these reviews are presented to management and the appropriate committees of our board of directors. The loan review process complements and reinforces the risk identification and assessment decisions made by lenders and credit personnel, as well as our policies and procedures.

Commercial and Industrial. Commercial and industrial loans increased $409.6 million, or 8.3%, during 2021 compared to 2020. Our commercial and industrial loans are a diverse group of loans to small, medium and large businesses. The purpose of these loans varies from supporting seasonal working capital needs to term financing of equipment. While some short-term loans may be made on an unsecured basis, most are secured by the assets being financed with collateral margins that are consistent with our loan policy guidelines. The commercial and industrial loan portfolio also includes the commercial lease and purchased shared national credits.

Energy. Energy loans include loans to entities and individuals that are engaged in various energy-related activities including (i) the development and production of oil or natural gas, (ii) providing oil and gas field servicing, (iii) providing energy-related transportation services (iv) providing equipment to support oil and gas drilling (v) refining petrochemicals, or (vi) trading oil, gas and related commodities. Energy loans decreased $157.4 million, or 12.7%, during 2021 compared to 2020. The average loan size, the significance of the portfolio and the specialized nature of the energy industry requires a highly prescriptive underwriting policy. Exceptions to this policy are rarely granted. Due to the large borrowing requirements of this customer base, the energy loan portfolio includes participations and purchased shared national credits.

Paycheck Protection Program. PPP loans include loans to businesses and other entities that would otherwise be reported as commercial and industrial loans and, to a lesser extent, energy loans, originated under the guidelines discussed above. We funded approximately $1.4 billion and $3.3 billion of SBA-approved PPP loans during 2021 and 2020, respectively. During 2021 and 2020, we recognized approximately $97.3 million and $59.5 million in PPP loan related deferred processing fees (net of amortization of related deferred origination costs), respectively, as yield adjustments and these amounts are included in interest income on loans. As a result of the inclusion of these net fees in interest income, the average yields on PPP loans were 6.26% during 2021 and 3.78% during 2020, compared to the stated interest rate of 1.0% on these loans. We expect to recognize additional PPP loan related deferred processing fees (net of deferred origination costs) totaling approximately $2.8 million as a yield adjustment during 2022.

Industry Concentrations. As of December 31, 2021 and 2020, there were no concentrations of loans related to any single industry, as segregated by Standard Industrial Classification code ("SIC code"), in excess of 10% of total loans. The largest industry concentrations at such dates were related to the energy industry, which totaled 6.6% of total loans, or 6.8% excluding PPP loans, as of December 31, 2021 and 7.1% of total loans, or 8.2% excluding PPP loans, as of December 31, 2020. The SIC code system is a federally designed standard industrial numbering system used by us to categorize loans by the borrower's type of business. The following table summarizes the industry concentrations of our loan portfolio, as segregated by SIC code, stated as a percentage of year-end total loans as of December 31, 2021 and 2020.

	2021	2021 Excluding PPP Loans	2020	2020 Excluding PPP Loans
Industry Concentrations				
Energy	6.6 %	6.8 %	7.1 %	8.2 %
Public finance	4.9	5.0	4.7	5.4
Automobile dealers	4.1	4.2	3.1	3.6
Medical services	3.7	3.8	3.1	3.6
Building materials and contractors	3.7	3.8	2.8	3.3
General and specific trade contractors	3.2	3.2	2.4	2.8
Manufacturing, other	2.8	2.8	2.2	2.6
Investor	2.7	2.8	2.2	2.6
Services	2.4	2.5	1.9	2.3
Religion	2.0	2.0	1.8	2.1
Financial services, consumer credit	1.8	1.8	1.8	2.1
Paycheck Protection Program	2.6	—	13.9	—
All other	59.5	61.3	53.0	61.4
Total loans	100.0 %	100.0 %	100.0 %	100.0 %

Large Credit Relationships. The market areas served by us include three of the top ten most populated cities in the United States. These market areas are also home to a significant number of Fortune 500 companies. As a result, we originate and maintain large credit relationships with numerous commercial customers in the ordinary course of business. We consider large credit relationships to be those with commitments equal to or in excess of $10.0 million, excluding treasury management lines exposure, prior to any portion being sold. Large relationships also include loan participations purchased if the credit relationship with the agent is equal to or in excess of $10.0 million. In addition to our normal policies and procedures related to the origination of large credits, one of our Regional Credit Committees must approve all new credit facilities which are part of large credit relationships and renewals of such credit facilities with exposures between $20.0 million and $30.0 million. Our Central Credit Committee must approve all new credit facilities which are part of large credit relationships and renewals of such credit facilities with exposures that exceed $30.0 million. The Regional and Central Credit Committees meet regularly to review large credit relationship activity and discuss the current pipeline, among other things.

The following table provides additional information on our large credit relationships outstanding at year-end.

	2021			2020		
	Number of Relationships	Period-End Balances		Number of Relationships	Period-End Balances	
		Committed	Outstanding		Committed	Outstanding
Committed amount:						
$20.0 million and greater	266	$ 13,004,712	$ 7,271,704	268	$ 12,651,125	$ 7,125,484
$10.0 million to $19.9 million	194	2,634,147	1,668,999	189	2,661,548	1,626,951
Average amount:						
$20.0 million and greater		48,890	27,337		47,206	26,588
$10.0 million to $19.9 million		13,578	8,603		14,082	8,608

Purchased Shared National Credits ("SNCs"). Purchased SNCs are participations purchased from upstream financial organizations and tend to be larger in size than our originated portfolio. Our purchased SNC portfolio totaled $698.4 million at December 31, 2021 decreasing $89.7 million, or 11.4%, from $788.1 million at December 31, 2020. At December 31, 2021, 27.2% of outstanding purchased SNCs were related to the construction industry, 23.2% of outstanding purchased SNCs were related to the energy industry, 14.0% were related to the real estate management industry and 13.4% of outstanding purchased SNCs were related to the financial services industry. The remaining purchased SNCs were diversified throughout various other industries, with no other single industry exceeding 10% of the total purchased SNC portfolio. Additionally, almost all of the outstanding balance of purchased SNCs was included in the energy and commercial and industrial portfolios, with the remainder included in the real estate categories. SNC participations are originated in the normal course of business to meet the needs of our customers. As a matter of policy, we generally only participate in SNCs for companies headquartered in or which have significant operations within our market areas. In addition, we must have direct access to the company's management, an existing banking relationship or the expectation of broadening the relationship with other banking products and services within the following 12 to 24 months. SNCs are reviewed at least quarterly for credit quality and business development successes.

The following table provides additional information about certain credits within our purchased SNCs portfolio as of year-end.

	2021			2020		
	Number of Relationships	Period-End Balances		Number of Relationships	Period-End Balances	
		Committed	Outstanding		Committed	Outstanding
Committed amount:						
$20.0 million and greater	38	$ 1,474,229	$ 599,477	36	$ 1,394,555	$ 620,441
$10.0 million to $19.9 million	14	194,247	93,427	22	301,581	145,488
Average amount:						
$20.0 million and greater		38,796	15,776		38,738	17,234
$10.0 million to $19.9 million		13,875	6,673		13,708	6,613

Real Estate Loans. Real estate loans increased $636.2 million, or 7.6%, during 2021 compared to 2020. Real estate loans include both commercial and consumer balances. Commercial real estate loans totaled $7.6 billion, or 84.3% of total real estate loans, at December 31, 2021 and $7.0 billion, or 84.1% of total real estate loans, at December 31, 2020. The majority of this portfolio consists of commercial real estate mortgages, which includes both permanent and intermediate term loans. Loans secured by owner-occupied properties make up a significant portion of our commercial real estate portfolio. These loans are viewed primarily as cash flow loans and secondarily as loans secured by real estate. Consequently, these loans must undergo the analysis and underwriting process of a commercial and industrial loan, as well as that of a real estate loan.

The following tables summarize our commercial real estate loan portfolio, including commercial real estate loans reported as a component of our energy loan portfolio segment, as segregated by (i) the type of property securing the credit and (ii) the geographic region in which the loans were originated. Property type concentrations are stated as a percentage of year-end total commercial real estate loans as of December 31, 2021 and 2020:

	2021	2020
Property type:		
Office building	24.0 %	25.0 %
Office/warehouse	18.4	16.6
Retail	10.2	8.9
Multifamily	6.6	8.6
Dealerships	5.1	5.4
Non-farm/non-residential	4.8	5.2
Hotel	3.8	3.7
Medical offices and services	3.7	4.5
1-4 family construction	3.7	2.8
Religious	3.3	3.2
Strip centers	2.3	3.3
Restaurant	2.0	2.0
1-4 family	1.9	1.7
Mini storage	1.4	1.5
All other	8.8	7.6
Total commercial real estate loans	100.0 %	100.0 %

	2021	2020
Geographic region:		
San Antonio	26.6 %	27.6 %
Houston	23.5	23.3
Fort Worth	16.4	17.4
Dallas	15.6	15.2
Austin	11.0	9.3
Rio Grande Valley	3.1	3.3
Corpus Christi	2.0	1.6
Permian Basin	1.8	2.3
Total commercial real estate loans	100.0 %	100.0 %

Consumer Loans. The consumer loan portfolio at December 31, 2021 increased $51.7 million, or 2.8%, from December 31, 2020. As the following table illustrates, the consumer loan portfolio has two distinct segments, including consumer real estate and consumer and other.

	2021	2020
Consumer real estate:		
Home equity loans	$ 324,157	$ 329,390
Home equity lines of credit	519,098	452,854
Other	567,535	548,530
Total consumer real estate	1,410,790	1,330,774
Consumer and other	477,369	505,680
Total consumer loans	$ 1,888,159	$ 1,836,454

Consumer real estate loans at December 31, 2021 increased $80.0 million, or 6.0%, from December 31, 2020. Combined, home equity loans and lines of credit made up 59.8% and 58.8% of the consumer real estate loan total at December 31, 2021 and 2020, respectively. We offer home equity loans up to 80% of the estimated value of the personal residence of the borrower, less the value of existing mortgages and home improvement loans. We have not generally originated 1-4 family mortgage loans since 2000; however, from time to time, we invested in such loans to meet the needs of our customers or for other regulatory compliance purposes. Nonetheless, we expect to begin regular production of 1-4 family mortgage loans for portfolio investment purposes in the second half of 2022. The consumer and other loan portfolio at December 31, 2021 decreased $28.3 million, or 5.6%, from December 31, 2020. This portfolio primarily consists of automobile loans, unsecured revolving credit products, personal loans secured by cash and cash equivalents, and other similar types of credit facilities.

Foreign Loans. We make U.S. dollar-denominated loans and commitments to borrowers in Mexico. The outstanding balance of these loans and the unfunded amounts available under these commitments were not significant at December 31, 2021 or 2020.

Maturities and Sensitivities of Loans to Changes in Interest Rates. The following table presents the maturity distribution of our loan portfolio at December 31, 2021. The table also presents the portion of loans that have fixed interest rates or variable interest rates that fluctuate over the life of the loans in accordance with changes in an interest rate index.

	Due in One Year or Less	After One, but Within Five Years	After Five but Within Fifteen Years	After Fifteen Years	Total
Commercial and industrial	$ 2,034,433	$ 2,313,542	$ 874,801	$ 142,178	$ 5,364,954
Energy	529,184	520,348	27,644	616	1,077,792
Paycheck Protection Program	65,783	363,099	—	—	428,882
Commercial real estate					
Buildings, land and other	853,657	2,608,397	2,642,266	168,019	6,272,339
Construction	404,810	650,066	175,987	73,408	1,304,271
Consumer Real Estate	8,652	19,774	550,337	832,027	1,410,790
Consumer and Other	275,173	190,628	11,568	—	477,369
Total	$ 4,171,692	$ 6,665,854	$ 4,282,603	$ 1,216,248	$ 16,336,397
Loans with fixed interest rates:					
Commercial and industrial	$ 258,103	$ 948,376	$ 579,787	$ 101,224	$ 1,887,490
Energy	12,346	60,176	26,347	616	99,485
Paycheck Protection Program	65,783	363,099	—	—	428,882
Commercial real estate:					
Buildings, land and other	148,108	1,141,474	2,002,748	58,146	3,350,476
Construction	1,034	52,785	140,987	—	194,806
Consumer Real Estate	8,651	17,907	475,482	389,651	891,691
Consumer and Other	18,295	33,681	7,818	—	59,794
Total	$ 512,320	$ 2,617,498	$ 3,233,169	$ 549,637	$ 6,912,624
Loans with floating interest rates:					
Commercial and industrial	$ 1,776,330	$ 1,365,166	$ 295,014	$ 40,954	$ 3,477,464
Energy	516,838	460,172	1,297	—	978,307
Paycheck Protection Program	—	—	—	—	—
Commercial real estate:					
Buildings, land and other	705,549	1,466,923	639,518	109,873	2,921,863
Construction	403,776	597,281	35,000	73,408	1,109,465
Consumer Real Estate	1	1,867	74,855	442,376	519,099
Consumer and Other	256,878	156,947	3,750	—	417,575
Total	$ 3,659,372	$ 4,048,356	$ 1,049,434	$ 666,611	$ 9,423,773

We generally structure commercial loans with shorter-term maturities in order to match our funding sources and to enable us to effectively manage the loan portfolio by providing the flexibility to respond to liquidity needs, changes in interest rates and changes in underwriting standards and loan structures, among other things. Due to the shorter-term nature of such loans, from time to time in the ordinary course of business and without any contractual obligation on our part, we will renew/extend maturing lines of credit or refinance existing loans at their maturity dates. Some loans may renew multiple times in a given year as a result of general customer practice and need. These renewals, extensions and refinancings are made in the ordinary course of business for customers that meet our normal level of credit standards. Such borrowers typically request renewals to support their on-going working capital needs to finance their operations. Such borrowers are not experiencing financial difficulties and generally could obtain similar financing from another financial institution. In connection with each renewal, extension or refinancing, we may require a principal reduction, adjust the rate of interest and/or modify the structure and other terms to reflect the current market pricing/structuring for such loans or to maintain competitiveness with other financial institutions. In such cases, we do not generally grant concessions, and, except for those reported in Note 3 - Loans, any such renewals, extensions or refinancings that occurred during the reported periods were not deemed to be troubled debt restructurings pursuant to applicable accounting guidance. Loans exceeding $1.0 million undergo a complete underwriting process at each renewal.

Accruing Past Due Loans. Accruing past due loans are presented in the following table. Also see Note 3 - Loans in the accompanying notes to consolidated financial statements included elsewhere in this report.

		Accruing Loans 30-89 Days Past Due		Accruing Loans 90 or More Days Past Due		Total Accruing Past Due Loans	
	Total Loans	Amount	Percent of Loans in Category	Amount	Percent of Loans in Category	Amount	Percent of Loans in Category
December 31, 2021							
Commercial and industrial	$ 5,364,954	$ 29,491	0.55 %	$ 7,802	0.15 %	$ 37,293	0.70 %
Energy	1,077,792	1,353	0.13	215	0.02	1,568	0.15
Paycheck Protection Program	428,882	4,979	1.16	18,766	4.38	23,745	5.54
Commercial real estate:							
Buildings, land and other	6,272,339	37,033	0.59	8,687	0.14	45,720	0.73
Construction	1,304,271	188	0.01	—	—	188	0.01
Consumer real estate	1,410,790	4,866	0.34	2,177	0.15	7,043	0.49
Consumer and other	477,369	4,185	0.88	1,076	0.23	5,261	1.11
Total	$ 16,336,397	$ 82,095	0.50	$ 38,723	0.24	$120,818	0.74
Excluding PPP loans	$ 15,907,515	$ 77,116	0.48	$ 19,957	0.13	$ 97,073	0.61
December 31, 2020							
Commercial and industrial	$ 4,955,341	$ 45,126	0.91 %	$ 5,615	0.11 %	$ 50,741	1.02 %
Energy	1,235,198	10,037	0.81	3,696	0.30	13,733	1.11
Paycheck Protection Program	2,433,849	—	—	—	—	—	—
Commercial real estate:							
Buildings, land and other	5,796,653	18,959	0.33	1,275	0.02	20,234	0.35
Construction	1,223,814	856	0.07	—	—	856	0.07
Consumer real estate	1,330,774	8,084	0.61	2,469	0.19	10,553	0.80
Consumer and other	505,680	5,537	1.09	1,233	0.24	6,770	1.33
Total	$ 17,481,309	$ 88,599	0.51	$ 14,288	0.08	$102,887	0.59
Excluding PPP loans	$ 15,047,460	$ 88,599	0.59	$ 14,288	0.09	$102,887	0.68

Accruing past due loans at December 31, 2021 increased $17.9 million compared to December 31, 2020. The increase was primarily due to increases in past due non-construction related commercial real estate loans (up $25.5 million) and past due PPP loans (up $23.7 million). PPP loans are fully guaranteed by the SBA and we expect to collect all amounts due related to these loans. Excluding PPP loans, accruing past due loans decreased $5.8 million as the aforementioned increase in past due non-construction related commercial real estate loans was entirely offset by decreases in past due commercial and industrial loans (down $13.4 million) and past due energy loans (down $12.2 million) and, to a lesser extent, decreases in past due consumer real estate loans (down $3.5 million), past due consumer and other loans (down $1.5 million) and past due construction loans (down $668 thousand).

Non-Accrual Loans. Non-accrual loans are presented in the tables below. Also see Note 3 - Loans in the accompanying notes to consolidated financial statements included elsewhere in this report.

	December 31, 2021			December 31, 2020		
		Non-Accrual Loans			Non-Accrual Loans	
	Total Loans	Amount	Percent of Loans in Category	Total Loans	Amount	Percent of Loans in Category
Commercial and industrial	$ 5,364,954	$ 22,582	0.42 %	$ 4,955,341	$ 19,849	0.40 %
Energy	1,077,792	14,433	1.34	1,235,198	23,168	1.88
Paycheck Protection Program	428,882	—	—	2,433,849	—	—
Commercial real estate:						
Buildings, land and other	6,272,339	15,297	0.24	5,796,653	15,737	0.27
Construction	1,304,271	948	0.07	1,223,814	1,684	0.14
Consumer real estate	1,410,790	440	0.03	1,330,774	993	0.07
Consumer and other	477,369	13	—	505,680	18	—
Total	$ 16,336,397	$ 53,713	0.33	$ 17,481,309	$ 61,449	0.35
Excluding PPP loans	$ 15,907,515	$ 53,713	0.34	$ 15,047,460	$ 61,449	0.41
Allowance for credit losses on loans		$248,666			$263,177	
Ratio of allowance for credit losses on loans to non-accrual loans		462.95 %			428.29 %	

Non-accrual loans at December 31, 2021 decreased $7.7 million from December 31, 2020 primarily due to a decrease in non-accrual energy loans. The decrease was primarily related to principal payments and, to a lesser extent, loans returning to accrual status and charge-offs, partly offset by new loans placed on non-accrual status during 2021.

Generally, loans are placed on non-accrual status if principal or interest payments become 90 days past due and/or management deems the collectibility of the principal and/or interest to be in question, as well as when required by regulatory requirements. Once interest accruals are discontinued, accrued but uncollected interest is charged to current year operations. Subsequent receipts on non-accrual loans are recorded as a reduction of principal, and interest income is recorded only after principal recovery is reasonably assured. Classification of a loan as non-accrual does not preclude the ultimate collection of loan principal or interest. There were no non-accrual commercial and industrial loans in excess of $5.0 million at December 31, 2021. Non-accrual commercial and industrial loans included one credit relationship in excess of $5.0 million with an aggregate balance of $9.0 million at December 31, 2020. We recognized a charge-off totaling $861 thousand related to this relationship during 2021 while the remainder of the decrease was related to principal payments made by the borrower. Non-accrual energy loans included one credit relationship in excess of $5 million totaling $9.6 million at December 31, 2021. This credit relationship was previously reported as non-accrual with an aggregate balance of $20.1 million at December 31, 2020. The decrease in the aggregate balance of this credit relationship was related to principal payments made by the borrower. Non-accrual real estate loans primarily consist of land development, 1-4 family residential construction credit relationships and loans secured by office buildings and religious facilities. There were no non-accrual commercial real estate loans in excess of $5.0 million at December 31, 2021 or December 31, 2020.

The COVID-19 pandemic has contributed to an increased risk of delinquencies, defaults and foreclosures. As a result of the COVID-19 pandemic, a significant number and amount of our loans experienced ratings downgrades, credit deterioration and defaults. We have a significant amount of loans in certain industries that have been particularly impacted. These include energy, hotels/lodging, restaurants, entertainment and commercial real estate, among others. See additional information about the effects of and risks associated with the COVID-19 pandemic in the section captioned "Recent Developments Related to COVID-19" elsewhere in this discussion and Part I. Item 1A. Risk Factors elsewhere in this report.

Allowance For Credit Losses

As discussed in Note 1 - Summary of Significant Accounting Policies in the accompanying notes to consolidated financial statements, our policies and procedures related to accounting for credit losses changed on January 1, 2020 in connection with the adoption of a new accounting standard update as codified in Accounting Standards Codification ("ASC") Topic 326 ("ASC 326") Financial Instruments - Credit Losses. In the case of off-balance-sheet credit exposures, the allowance for credit losses is a liability account, calculated in accordance with ASC 326, reported as a component of accrued interest payable and other liabilities in our consolidated balance sheets. The amount of each allowance account represents management's best estimate of current expected credit losses ("CECL") on these financial instruments considering available information, from internal and external sources, relevant to assessing exposure to credit loss over the contractual term of the instrument. Relevant available information includes historical credit loss experience, current conditions and reasonable and supportable forecasts. While historical credit loss experience provides the basis for the estimation of expected credit losses, adjustments to historical loss information may be made for differences in current portfolio-specific risk characteristics, environmental conditions or other relevant factors. While management utilizes its best judgment and information available, the ultimate adequacy of our allowance accounts is dependent upon a variety of factors beyond our control, including the performance of our portfolios, the economy, changes in interest rates and the view of the regulatory authorities toward classification of assets. For additional information regarding our accounting policies related to credit losses, refer to Note 1 - Summary of Significant Accounting Policies and Note 3 - Loans in the accompanying notes to consolidated financial statements.

Allowance for Credit Losses - Loans. The table below provides an allocation of the year-end allowance for credit losses on loans by loan portfolio segment; however, allocation of a portion of the allowance to one segment does not preclude its availability to absorb losses in other segments.

	Amount of Allowance Allocated	Percent of Loans in Each Category to Total Loans	Total Loans	Ratio of Allowance Allocated to Loans in Each Category
December 31, 2021				
Commercial and industrial	$ 72,091	32.9 %	$ 5,364,954	1.34 %
Energy	17,217	6.6	1,077,792	1.60
Paycheck Protection Program	—	2.6	428,882	—
Commercial real estate	144,936	46.4	7,576,610	1.91
Consumer real estate	6,585	8.6	1,410,790	0.47
Consumer and other	7,837	2.9	477,369	1.64
Total	$ 248,666	100.0 %	$ 16,336,397	1.52
Excluding PPP loans	$ 248,666		$ 15,907,515	1.56
December 31, 2020				
Commercial and industrial	$ 73,843	28.4 %	$ 4,955,341	1.49 %
Energy	39,553	7.1	1,235,198	3.20
Paycheck Protection Program	—	13.9	2,433,849	—
Commercial real estate	134,892	40.1	7,020,467	1.92
Consumer real estate	7,926	7.6	1,330,774	0.60
Consumer and other	6,963	2.9	505,680	1.38
Total	$ 263,177	100.0 %	$ 17,481,309	1.51
Excluding PPP loans	$ 263,177		$ 15,047,460	1.75

The allowance allocated to commercial and industrial loans totaled $72.1 million, or 1.34% of total commercial and industrial loans, at December 31, 2021 decreasing $1.8 million, or 2.4%, compared to $73.8 million, or 1.49% of total commercial and industrial loans at December 31, 2020. Modeled expected credit losses decreased $18.7 million while qualitative factor ("Q-Factor") and other qualitative adjustments related to commercial and industrial loans increased $11.7 million. Specific allocations for commercial and industrial loans that were evaluated for expected credit losses on an individual basis increased $5.2 million, or 98.0%, from $5.3 million at December 31, 2020 to $10.5 million at December 31, 2021. The increase in specific allocations for commercial and industrial loans was primarily related to several newly downgraded credit relationships with specific allocations totaling $9.2 million partly offset by reductions in allocations for certain other loans due to principal payments received and the recognition of charge-offs.

The allowance allocated to energy loans totaled $17.2 million, or 1.60% of total energy loans, at December 31, 2021 decreasing $22.3 million, or 56.5%, compared to $39.6 million, or 3.20% of total energy loans at December 31, 2020. Modeled expected credit losses related to energy loans decreased $2.5 million while Q-Factor and other qualitative adjustments related to energy loans decreased $15.8 million. Specific allocations for energy loans that were evaluated for expected credit losses on an individual basis totaled $5.5 million at December 31, 2021 decreasing $3.9 million, or 41.9%, compared to $9.4 million at December 31, 2020. The decrease in specific allocations for energy loans was primarily related to principal payments received and, to a lesser extent, the recognition of charge-offs.

The allowance allocated to commercial real estate loans totaled $144.9 million, or 1.91% of total commercial real estate loans, at December 31, 2021 increasing $10.0 million, or 7.4%, compared to $134.9 million, or 1.92% of total commercial real estate loans at December 31, 2020. Modeled expected credit losses related to commercial real estate loans decreased $108.5 million while Q-Factor and other qualitative adjustments related to commercial real estate loans increased $118.6 million. Specific allocations for commercial real estate loans that were evaluated for expected credit losses on an individual basis decreased from $513 thousand at December 31, 2020 to $400 thousand at December 31, 2021.

The allowance allocated to consumer real estate loans totaled $6.6 million, or 0.47% of total consumer real estate loans, at December 31, 2021 decreasing $1.3 million, or 16.9%, compared to $7.9 million, or 0.60% of total consumer real estate loans at December 31, 2020 primarily due to modeled expected credit losses which decreased $1.4 million.

The allowance allocated to consumer loans totaled $7.8 million, or 1.64% of total consumer loans, at December 31, 2021 increasing $874 thousand, or 12.6%, compared to $7.0 million, or 1.38% of total consumer loans at December 31, 2020. Modeled expected credit losses related to consumer loans decreased $548 thousand while Q-Factor and other qualitative adjustments related to consumer loans increased $1.4 million.

As more fully described in Note 3 - Loans in the accompanying consolidated financial statements, we measure expected credit losses over the life of each loan utilizing a combination of models which measure probability of default and loss given default, among other things. The measurement of expected credit losses is impacted by loan/ borrower attributes and certain macroeconomic variables. Models are adjusted to reflect the current impact of certain macroeconomic variables as well as their expected changes over a reasonable and supportable forecast period.

In estimating expected credit losses as of December 31, 2021, we utilized the Moody’s Analytics December 2021 Consensus Scenario (the “December 2021 Consensus Scenario”) to forecast the macroeconomic variables used in our models. The December 2021 Consensus Scenario was based on the review of a variety of surveys of baseline forecasts of the U.S. economy. The December 2021 Consensus Scenario projections included, among other things, (i) U.S. Gross Domestic Product (“GDP”) annualized quarterly growth rate of 6.4% in the first quarter of 2022, followed by annualized quarterly growth rates in the range of 3.8% to 5.4% during the remainder of 2022 and an average annualized growth rate of 4.8% through the end of the forecast period in the fourth quarter of 2023; (ii) U.S. unemployment rate of 4.3% in the first quarter of 2022 improving to 3.7% by the end of the forecast period in the fourth quarter of 2023 with Texas unemployment rates slightly higher at those dates; and (iii) projected average 10 year Treasury rate of 1.59% in the first quarter of 2022, increasing to average projected rates of 1.75% during the remainder of 2022 and 2.10% in 2023. Furthermore, the December 2021 Consensus Scenario projects an average oil price in the range of approximately $62 to $66 per barrel through the end of the forecast period in the fourth quarter of 2023.

In estimating expected credit losses as of December 31, 2020, we utilized the Moody’s Analytics December 2020 BL Baseline Scenario (the “December BL Scenario”) to forecast the macroeconomic variables used in our models. The December BL Scenario was based on the review of a variety of surveys of baseline forecasts of the U.S. economy. The December BL Scenario projections included, among other things, (i) U.S. Gross Domestic Product (“GDP”) annualized quarterly growth rate of 4.6% for the fourth quarter of 2020 followed by projected annualized quarterly growth rates in the range of approximately 3.0% to 8.0% during 2021 and 6.0% to 7.5% through the end of the forecast period in the fourth quarter of 2022; (ii) a U.S. unemployment rate of 6.7% in the fourth quarter of 2020 and an average projected rate of 7.0% in 2021 and 6.0% in 2022, with the fourth quarter of 2022 projected to be 5.4% (Texas unemployment rates were projected to be slightly less for those periods); and (iii) an average 10 year Treasury rate of 0.79% in the fourth quarter of 2020, increasing to an average projected rate of 1.05% in 2021 and 2.04% in 2022. The December BL Scenario also projected average oil prices of $40 per barrel in the fourth quarter of 2020, $45 per barrel on average for the year in 2021 and $55 per barrel on average for the year in 2022, with the fourth quarter of 2022 projected to be $59 per barrel.

The overall loan portfolio, excluding PPP loans which are fully guaranteed by the SBA, as of December 31, 2021 increased $860.1 million, or 5.7%, compared to December 31, 2020. This increase included a $556.1 million, or 7.9%, increase in commercial real estate loans, a $409.6 million, or 8.3%, increase in commercial and industrial loans and a $80.0 million, or 6.0%, increase in consumer real estate loans partly offset by a $157.4 million, or 12.7%, decrease in energy loans and a $28.3 million, or 5.6%, decrease in consumer and other loans. The weighted average risk grade for commercial and industrial loans decreased to 6.22 at December 31, 2021 compared to 6.45 at December 31, 2020. Commercial and industrial loans graded "watch" and "special mention" (risk grades 9 and 10) decreased $135.2 million during 2021 while classified commercial and industrial loans decreased $12.9 million. Classified loans consist of loans having a risk grade of 11, 12 or 13. The weighted-average risk grade for energy loans decreased to 6.06 at December 31, 2021 from 6.85 at December 31, 2020. The decrease in the weighted average risk grade was primarily related to a $141.6 million decrease in energy loans graded "watch" and "special mention" (risk grades 9 and 10) and a $56.1 million decrease in classified energy loans. Pass grade energy loans increased $40.2 million while the weighted-average risk grade of pass grade energy loans decreased slightly from 5.99 at December 31, 2020 to 5.78 at December 31, 2021. The weighted average risk grade for commercial real estate loans decreased from 7.32 at December 31, 2020 to 7.19 at December 31, 2021. Pass grade commercial real estate loans increased $679.2 million while commercial real estate loans graded as "watch" and "special mention" decreased $62.8 million and classified commercial real estate loans decreased $60.3 million.

As noted above our credit loss models utilized the economic forecasts in the Moody's Consensus Scenario for December 2021 for our estimated expected credit losses as of December 31, 2021 and the Moody's Baseline Scenario for December 2020 for our estimate of expected credit losses as of December 31, 2020. We qualitatively adjusted the model results based on these scenarios for various risk factors that are not considered within our modeling processes but are nonetheless relevant in assessing the expected credit losses within our loan pools. These Q-Factor and other qualitative adjustments are discussed below.

Q-Factor adjustments are based upon management judgment and current assessment as to the impact of risks related to changes in lending policies and procedures; economic and business conditions; loan portfolio attributes and credit concentrations; and external factors, among other things, that are not already captured within the modeling inputs, assumptions and other processes. Management assesses the potential impact of such items within a range of severely negative impact to positive impact and adjusts the modeled expected credit loss by an aggregate adjustment percentage based upon the assessment. As a result of this assessment as of December 31, 2021, modeled expected credit losses were adjusted upwards by a weighted-average Q-Factor adjustment of approximately 2.3%, up from approximately 1.2% at December 31, 2020. The weighted-average Q-Factor adjustment at December 31, 2021 was based on a limited negative expected impact on our commercial loan portfolios related to changes in lending policies procedures and underwriting standards and changes in loan portfolio concentrations; a negative expected impact associated with national, regional and local economic and business conditions and developments that affect the collectability of loans; a severely negative expected impact from other risk factors associated with our commercial real estate construction and land loan portfolios, particularly the risks related to expected extensions; and no impact to changes in loan portfolio attributes, changes in risk grades, changes in the volumes and severity of loan delinquencies and adverse classifications and potential deterioration of collateral values. The weighted-average Q-Factor adjustment at December 31, 2020 was based on a positive expected impact related to changes in lending policies, procedures and underwriting standards; a limited negative expected impact associated with changes in loan portfolio attributes and concentrations, changes in risk grades, changes in the volumes and severity of loan delinquencies and adverse classifications and potential deterioration of collateral values; and a severely negative expected impact from other risk factors associated with our commercial real estate construction and land loan portfolios, particularly the risks related to expected extensions.

In the first quarter of 2020, unprecedented economic conditions due to the COVID-19 pandemic and oil and gas price volatility resulted in significant spikes in the unemployment rate and the level of unemployment claims as well as severe declines in the level of the U.S. and Texas GDPs, among other things. In some cases, our expected credit loss models consider these economic variables on a three- to four-quarter lag basis. As of December 31, 2021, the significant spikes in several of these variables are no longer impacting our model results; however, as the economy has entered recovery, the models are now being impacted by exceptionally positive changes in certain variables which has resulted in lower estimates of expected credit losses. Notwithstanding the foregoing, management believes there are still significant headwinds impacting the recovery of the U.S. and Texas economies and certain categories of our loan portfolio. As a result, we have provided additional qualitative adjustments for certain categories of loans, as further described below.

As of December 31, 2020, we provided an additional qualitative adjustment for energy production loans. This adjustment was estimated based on borrowing base determinations for our energy production loans using current engineering valuations. We also performed an analysis of our customers' secondary sources of capital. As a result of the estimated borrowing base deficiencies for the identified credits, we provided an additional qualitative adjustment of approximately $21.1 million for energy production loans at December 31, 2020. Using a similar methodology, we determined that a similar qualitative adjustment was not necessary as of December 31, 2021 as there were no longer any significant borrowing base deficiencies within the energy production portfolio as a result of higher market prices for oil and gas and lower line balances on production loans. Nonetheless, as of December 31, 2021, we provided an additional qualitative adjustment for energy loans totaling $5.2 million to address the risk associated with relationship exposure concentrations within the energy loan portfolio, as further discussed below.

Our Commercial Real Estate Oversight Council, in its oversight and assessment of the credit quality of our commercial real estate loan portfolios, believes these portfolios continue to have an elevated level of risk notwithstanding recent economic stimulus efforts by federal and state governments. As of December 31, 2021, we provided additional qualitative adjustments totaling $127.2 million for various categories of our commercial real estate loan portfolio. This amount includes $67.3 million for non-owner-occupied commercial real estate loans, $40.5 million for owner-occupied commercial real estate loans and $19.4 million for commercial real estate construction loans. These additional qualitative adjustments are largely related to the on-going effects of the COVID-19 pandemic, as further discussed below, and to compensate for the effect of unusually large positive changes in certain economic variables used by our credit loss models. The COVID-19 pandemic has also been a catalyst for the evolution of various remote work options which could impact the long-term performance of some types of office properties within our commercial real estate portfolio. Furthermore, management believes that there are still significant headwinds impacting the recovery of the U.S. and Texas economies and certain categories of our loan portfolio. These additional qualitative adjustments also include $2.6 million to address the risk associated with relationship exposure concentrations within our commercial real estate loan portfolio, as further discussed below.

The COVID-19 pandemic has resulted in a significant decrease in commercial activity throughout the State of Texas as well as nationally. Efforts to limit the spread of COVID-19 led to the closure of non-essential businesses, travel restrictions, supply chain disruptions and prohibitions on public gatherings, among other things, throughout many parts of the United States and, in particular, the markets in which we operate. Nonetheless, by late 2020, the markets in which we operate had substantially reopened. We lend to customers operating in certain industries (detailed in the table below) that have been, and are expected to continue to be, more significantly impacted by the effects of the COVID-19 pandemic. We are continuing to monitor customers in these industries closely. In assessing these portfolios for an additional qualitative adjustment, we performed a comprehensive review of the financial condition and overall outlook of the borrowers within these portfolios. Based on this analysis, we determined that there continues to be an elevated level of risk associated with these industries. As a result, we provided an additional qualitative adjustment related to the effects of the COVID-19 pandemic totaling $45.2 million as of December 31, 2021, of which $40.5 million was allocated to commercial real estate loans and $4.7 million was allocated to commercial and industrial loans. These amounts are included in the totals detailed above. As of December 31, 2020, we provided a similar additional qualitative adjustment totaling $47.1 million, which, for the most part, was allocated to commercial real estate loans.

These industries that management believes are particularly impacted by the effects of the COVID-19 pandemic are presented in the following table as of December 31, 2021 and 2020 and include amounts reported as both commercial and industrial loans and commercial real estate loans while PPP loans are excluded.

	Outstanding Balance	Percentage of Total Loans, Excluding PPP Loans	Allocated Allowance	Allocated Allowance as a Percentage of Outstanding Balance
December 31, 2021				
Hotels/lodging	$ 295,088	1.86 %	$ 26,443	8.96 %
Restaurants	285,786	1.80	12,601	4.41
Entertainment	104,019	0.65	9,101	8.75
Total	$ 684,893	4.31 %	$ 48,145	7.03 %
December 31, 2020				
Retail/strip centers	$ 916,633	6.09 %	$ 21,049	2.30 %
Hotels/lodging	268,825	1.79	24,546	9.13
Restaurants	277,054	1.84	20,617	7.44
Entertainment	126,266	0.84	6,151	4.87
Total	$ 1,588,778	10.56 %	$ 72,363	4.55 %

As of December 31, 2021, we provided an additional qualitative adjustment for our commercial and industrial loan portfolio totaling $13.7 million, of which $4.7 million was included in the $45.2 million additional qualitative adjustment for COVID-19 impacted industries discussed above. The adjustment also included $5.0 million to address the risk associated with relationship exposure concentrations within our commercial and industrial loan portfolio, as further discussed below. Lastly, the adjustment included $4.0 million to address the risk associated with the long-term sustainability of borrowers within our small business commercial and industrial loan portfolio. The majority of these borrowers have been bolstered by PPP funding from the SBA which has helped them to sustain their operations amid on-going pandemic-related shutdowns and other restrictions. Nonetheless, management believes there is an elevated level of risk associated with the long-term viability of many of these businesses when this government supplemented funding runs out. Furthermore, on March 27, 2021, the COVID-19 Bankruptcy Relief Extension Act of 2021 was enacted, extending the bankruptcy relief provisions enacted in the CARES Act of 2020 until March 27, 2022. These provisions provide financially distressed small businesses and individuals greater access to bankruptcy relief. In that regard, we also provided an additional qualitative adjustment for our consumer and other loan portfolio totaling $1.4 million in light of the level of unsecured loans within this portfolio and other risk factors.

As of December 31, 2021, we allocated $12.8 million to address the risk associated with relationship exposure concentrations within our loan portfolio. Of this amount, $5.2 million was allocated to energy loans, $5.0 million was allocated to commercial and industrial loans and $2.6 million was allocated to commercial real estate loans. Management has observed through industry research that the degree to which expected credit losses fluctuate is directly related to the degree to which a loan portfolio is concentrated or diversified. A highly concentrated loan portfolio is more likely to exhibit concentrated losses compared to a well diversified loan portfolio where segments are exposed to relatively uncorrelated factors. The variations in loan portfolio concentrations over time cause expected credit losses within our existing portfolio to differ from historical loss experience. Given that the allowance for credit losses on loans reflects expected credit losses within our loan portfolio and the fact that these expected credit losses are uncertain as to nature, timing and amount, management believes that segments with higher concentration risk are more likely to experience a high loss event. Due to the fact that a significant portion of our loan portfolio is concentrated in large credit relationships and because of large, concentrated credit losses in recent years, management made the aforementioned qualitative adjustments, which were based upon statistical analysis, to address the risk associated with the such a relationship deteriorating to a loss event.

Additional information related to credit loss expense and net (charge-offs) recoveries is presented in the tables below. Also see Note 3 - Loans in the accompanying notes to consolidated financial statements included elsewhere in this report.

	Credit Loss Expense (Benefit)	Net (Charge-Offs) Recoveries	Average Loans	Ratio of Annualized Net (Charge-Offs) Recoveries to Average Loans
2021				
Commercial and industrial	$ (2,160)	$ 408	$ 4,854,465	0.01 %
Energy	(19,207)	(3,129)	1,049,540	(0.30)
Paycheck Protection Program	—	—	1,851,765	—
Commercial real estate	8,101	1,943	7,189,325	0.03
Consumer real estate	(3,061)	1,720	1,350,554	0.13
Consumer and other	10,230	(9,356)	473,982	(1.97)
Total	$ (6,097)	$ (8,414)	$ 16,769,631	(0.05)
Excluding PPP loans	$ (6,097)	$ (8,414)	$ 14,917,866	(0.06)
2020				
Commercial and industrial	$ 15,156	$ (14,169)	$ 5,068,730	(0.28)%
Energy	85,889	(73,265)	1,459,450	(5.02)
Paycheck Protection Program	—	—	2,158,477	—
Commercial real estate	124,427	(7,053)	6,705,206	(0.11)
Consumer real estate	1,906	(485)	1,260,556	(0.04)
Consumer and other	9,632	(8,463)	512,034	(1.65)
Total	$ 237,010	$ (103,435)	$ 17,164,453	(0.60)
Excluding PPP loans	$ 237,010	$ (103,435)	$ 15,005,976	(0.69)
2019				
Commercial and industrial	$ 13,144	$ (10,131)	$ 5,227,627	(0.19)%
Energy	14,388	(6,058)	1,556,005	(0.39)
Paycheck Protection Program	—	—	—	—
Commercial real estate	(6,934)	(806)	5,969,354	(0.01)
Consumer real estate	467	(2,457)	1,154,723	(0.21)
Consumer and other	12,694	(14,272)	532,840	(2.68)
Total	$ 33,759	$ (33,724)	$ 14,440,549	(0.23)
Excluding PPP loans	$ 33,759	$ (33,724)	$ 14,440,549	(0.23)

We recorded a net credit loss benefit related to loans totaling $6.1 million for 2021 compared to a net credit loss expense related to loans totaling $237.0 million in 2020 and $33.8 million in 2019. The net credit loss benefit related to loans during 2021 primarily reflects improvements in forecasted economic conditions and oil price trends relative to the prevailing conditions in 2020 as well as a decrease in net charge-offs. Credit loss expense related to loans during 2020 reflected the uncertain future impacts associated with the COVID-19 pandemic and the significant volatility in oil prices as well as the level of net charge-offs, the expected deterioration in credit quality and other changes within the loan portfolio. Credit loss expense during 2019 was calculated under our prior incurred loss methodology and primarily reflected the level of net charge-offs and specific valuation allowances as well as the impact of the overall growth in the loan portfolio since previous year-end. The ratio of the allowance for credit losses on loans to total loans was 1.52% (1.56% excluding PPP loans) at December 31, 2021 compared to 1.51% (1.75% excluding PPP loans) at December 31, 2020 and 0.90% at December 31, 2019. Management believes the recorded amount of the allowance for credit losses on loans is appropriate based upon management's best estimate of current expected credit losses within the existing portfolio of loans. Should any of the factors considered by management in making this estimate change, our estimate of current expect credit losses could also change, which could affect the level of future credit loss expense related to loans.

Allowance for Credit Losses - Off-Balance-Sheet Credit Exposures. The allowance for credit losses on off-balance-sheet credit exposures totaled $50.3 million and $44.2 million at December 31, 2021 and December 31, 2020, respectively. The level of the allowance for credit losses on off-balance-sheet credit exposures depends upon the volume of outstanding commitments, underlying risk grades, the expected utilization of available funds and forecasted economic conditions impacting our loan portfolio. Credit loss expense related to off-balance-sheet credit exposures totaled $6.2 million during 2021 compared to $4.3 million during 2020. The increase in credit loss expense primarily reflects an increase in overall off-balance-sheet credit exposures and the uncertain future impacts associated with COVID-19. Credit loss expense for off-balancee-sheet credit exposures in 2021 was also partly impacted by the down-grade of a large credit commitment within our SNC portfolio. No credit loss expense related to off-balance-sheet credit exposures was recognized during 2019 under our prior incurred loss methodology. Further information regarding our policies and methodology used to estimate the allowance for credit losses on off-balance-sheet credit exposures is presented in Note 8 - Off-Balance-Sheet Arrangements, Commitments, Guarantees and Contingencies in the accompanying notes to consolidated financial statements.

Securities

The following tables summarize the maturity distribution schedule with corresponding weighted-average yields of securities held to maturity and securities available for sale as of December 31, 2021. Weighted-average yields have been computed on a fully taxable-equivalent basis using a tax rate of 21%. Mortgage-backed securities are included in maturity categories based on their stated maturity date. Expected maturities may differ from contractual maturities because issuers may have the right to call or prepay obligations. Other securities classified as available for sale include stock in the Federal Reserve Bank and the Federal Home Loan Bank, which have no maturity date. These securities have been included in the total column only. Held-to-maturity securities are presented at amortized cost before any allowance for credit losses.

	Within 1 Year		1-5 Years		5-10 Years		After 10 Years		Total	
	Amount	Weighted Average Yield	Amount	Weighted Average Yield	Amount	Weighted Average Yield	Amount	Weighted Average Yield	Amount	Weighted Average Yield
Held to maturity:										
Residential mortgage-backed securities	$ 37	1.68 %	$ —	— %	$ 515,100	2.28 %	$ 12,127	2.51 %	$ 527,264	2.28 %
States and political subdivisions	464,112	3.31	180,373	3.43	73,808	3.23	502,280	3.57	1,220,573	3.43
Other	1,500	1.92	—	—	—	—	—	—	1,500	1.92
Total	$ 465,649	3.31	$ 180,373	3.43	$ 588,908	2.40	$ 514,407	3.54	$ 1,749,337	3.08
Available for sale:										
U.S. Treasury	$ —	— %	$ 1,038,734	1.42 %	$ 942,113	1.42 %	$ 198,586	2.15 %	$ 2,179,433	1.48 %
Residential mortgage-backed securities	64	2.06	15,954	3.22	19,624	1.53	4,030,623	1.98	4,066,265	1.98
States and political subdivisions	87,493	4.32	1,715,065	3.94	858,485	3.42	4,975,528	3.48	7,636,571	3.59
Other	—	—	—	—	—	—	—	—	42,359	—
Total	$ 87,557	4.32	$ 2,769,753	2.96	$ 1,820,222	2.33	$ 9,204,737	2.77	$ 13,924,628	2.75

All mortgage-backed securities included in the above tables were issued by U.S. government agencies and corporations. At December 31, 2021, all of the securities in our municipal bond portfolio were issued by the State of Texas or political subdivisions or agencies within the State of Texas, of which approximately 77.9% are either guaranteed by the Texas Permanent School Fund, which has a "triple-A" insurer financial strength rating, or secured by U.S. Treasury securities via defeasance of the debt by the issuers.

The average taxable-equivalent yield on the securities portfolio based on a 21% tax rate was 3.29% in 2021 compared to 3.46% in 2020. Tax-exempt municipal securities totaled 64.2% of average securities in 2021 compared to 66.6% in 2020. The average yield on taxable securities was 1.97% in 2021 compared to 2.27% in 2020, while the average taxable-equivalent yield on tax-exempt securities was 4.06% in 2021 compared to 4.08% in 2020. See the section captioned "Net Interest Income" elsewhere in this discussion.

Deposits

The table below presents the daily average balances of deposits by type and weighted-average rates paid thereon during the years presented:

	2021		2020		2019	
	Average Balance	Average Rate Paid	Average Balance	Average Rate Paid	Average Balance	Average Rate Paid
Non-interest-bearing demand deposits	$ 16,670,807		$ 13,563,696		$ 10,358,416	
Interest-bearing deposits:						
Savings and interest checking	10,682,149	0.01 %	8,283,665	0.03 %	7,243,016	0.15 %
Money market accounts	9,990,626	0.09	8,457,263	0.18	7,806,175	0.93
Time accounts	1,129,041	0.33	1,133,648	1.25	1,005,670	1.64
Total interest-bearing deposits	21,801,816	0.07	17,874,576	0.18	16,054,861	0.62
Total deposits	$ 38,472,623	0.04	$ 31,438,272	0.10	$ 26,413,277	0.38

Average deposits increased $7.0 billion, or 22.4%, in 2021 compared to 2020. The most significant volume growth during 2021 compared to 2020 was in non-interest bearing deposits; savings and interest checking; and money market deposits. The ratio of average interest-bearing deposits to total average deposits was 56.7% in 2021 compared to 56.9% in 2020. The average cost of interest-bearing deposits and total deposits was 0.07% and 0.04% during 2021 compared to 0.18% and 0.10% during 2020. The decrease in the average cost of interest-bearing deposits in 2021 as compared to 2020 was related to lower average interest rates paid on most of our interest-bearing deposit products as a result of lower average market interest rates.

Geographic Concentrations. The following table summarizes our average total deposit portfolio, as segregated by the geographic region from which the deposit accounts were originated. Certain accounts, such as correspondent bank deposits and deposits allocated to certain statewide operational units, are recorded at the statewide level.

	2021	Percent of Total	2020	Percent of Total	2019	Percent of Total
San Antonio	$ 11,140,600	29.0 %	$ 9,147,078	29.1 %	$ 7,869,417	29.8 %
Houston	7,360,930	19.1	5,715,514	18.2	4,467,132	16.9
Fort Worth	6,650,164	17.3	5,615,584	17.9	4,699,142	17.8
Austin	4,931,275	12.8	3,882,661	12.3	3,285,637	12.5
Dallas	3,181,252	8.3	2,553,571	8.1	2,160,684	8.2
Corpus Christi	1,965,158	5.1	1,655,395	5.3	1,473,967	5.6
Permian Basin	1,694,366	4.4	1,518,781	4.8	1,326,517	5.0
Rio Grande Valley	1,055,427	2.7	895,653	2.8	747,713	2.8
Statewide	493,451	1.3	454,035	1.5	383,068	1.4
Total	$ 38,472,623	100.0 %	$ 31,438,272	100.0 %	$ 26,413,277	100.0 %

Foreign Deposits. Mexico has historically been considered a part of the natural trade territory of our banking offices. Accordingly, U.S. dollar-denominated foreign deposits from sources within Mexico have traditionally been a significant source of funding. Average deposits from foreign sources, primarily Mexico, totaled $933.3 million in 2021 and $824.9 million in 2020.

Brokered Deposits. From time to time, we have obtained interest-bearing deposits through brokered transactions including participation in the Certificate of Deposit Account Registry Service ("CDARS"). Brokered deposits were not significant during the reported periods.

Capital and Liquidity

Capital. Shareholders' equity totaled $4.4 billion at December 31, 2021 and $4.3 billion at December 31, 2020. In addition to net income of $443.1 million, other sources of capital during 2021 included $54.4 million in proceeds from stock option exercises and $12.8 million related to stock-based compensation. Additionally, we issued $1.7 million of common stock held in treasury to our 401(k) plan in connection with matching contributions. Uses of capital during 2021 included $195.9 million of dividends paid on preferred and common stock, an other comprehensive loss, net of tax, of $165.7 million and $3.9 million of treasury stock purchases.

The accumulated other comprehensive income/loss component of shareholders' equity totaled a net, after-tax, unrealized gain of $347.3 million at December 31, 2021 compared to a net, after-tax, unrealized gain $513.0 million at December 31, 2020. The decrease was primarily due to a $183.6 million net, after-tax, decrease in the net unrealized gain on securities available for sale and securities transferred to held to maturity, partly offset by $17.9 million related to a decrease in the net actuarial loss and reclassification adjustments related to our defined-benefit post retirement benefit plans.

Under the Basel III Capital Rules, we elected to opt-out of the requirement to include most components of accumulated other comprehensive income in regulatory capital. Accordingly, amounts reported as accumulated other comprehensive income/loss related to securities available for sale, effective cash flow hedges and defined benefit post-retirement benefit plans do not increase or reduce regulatory capital and are not included in the calculation of risk-based capital and leverage ratios. In connection with the adoption of ASC 326 on January 1, 2020, we also elected to exclude, for a transitional period, the effects of credit loss accounting under CECL in the calculation of our regulatory capital and regulatory capital ratios. Regulatory agencies for banks and bank holding companies utilize capital guidelines designed to measure capital and take into consideration the risk inherent in both on-balance sheet and off-balance sheet items. See Note 9 - Capital and Regulatory Matters in the accompanying notes to consolidated financial statements elsewhere in this report.

We paid quarterly dividends of $0.72, $0.72, $0.75 and $0.75 per common share during the first, second, third and fourth quarters of 2021, respectively, and quarterly dividends of $0.71, $0.71, $0.71 and $0.72 per common share during the first, second, third and fourth quarters of 2020, respectively. This equates to a dividend payout ratio of 43.3% in 2021 and 55.8% in 2020. The amount of dividend, if any, we may pay may be limited as more fully discussed in Note 9 - Capital and Regulatory Matters in the accompanying notes to consolidated financial statements elsewhere in this report.

Preferred Stock. On March 16, 2020, we redeemed all 6,000,000 shares of our 5.375% Non-Cumulative Perpetual Preferred Stock, Series A, ("Series A Preferred Stock") at a redemption price of $25 per share, or an aggregate redemption of $150.0 million. On November 19, 2020 we issued 150,000 shares, or $150.0 million in aggregate liquidation preference, of our 4.450% Non-Cumulative Perpetual Preferred Stock, Series B, par value $0.01 and liquidation preference $1,000 per share ("Series B Preferred Stock"). Each share of Series B Preferred Stock issued and outstanding is represented by 40 depositary shares, each representing a 1/40th ownership interest in a share of the Series B Preferred Stock (equivalent to a liquidation preference of $25 per share). Additional details about our preferred stock are included in Note 9 - Capital and Regulatory Matters in the accompanying notes to consolidated financial statements elsewhere in this report.

Stock Repurchase Plans. From time to time, our board of directors has authorized stock repurchase plans. In general, stock repurchase plans allow us to proactively manage our capital position and return excess capital to shareholders. Shares purchased under such plans also provide us with shares of common stock necessary to satisfy obligations related to stock compensation awards. On January 26, 2022, our board of directors authorized a $100.0 million stock repurchase plan, allowing us to repurchase shares of our common stock over a one-year period from time to time at various prices in the open market or through private transactions. Under prior stock repurchase plans, we repurchased, 177,834 shares at a total cost of $13.7 million during 2020 and 699,031 shares at a total cost of $67.2 million during 2019. No shares were repurchased under a stock repurchase plan during 2021. See Part II, Item 5 - Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities, elsewhere in this report.

Liquidity. Liquidity measures the ability to meet current and future cash flow needs as they become due. The liquidity of a financial institution reflects its ability to meet loan requests, to accommodate possible outflows in deposits and to take advantage of interest rate market opportunities. The ability of a financial institution to meet its current financial obligations is a function of its balance sheet structure, its ability to liquidate assets and its access to alternative sources of funds. The objective of our liquidity management is to manage cash flow and liquidity reserves so that they are adequate to fund our operations and to meet obligations and other commitments on a timely basis and at a reasonable cost. We seek to achieve this objective and ensure that funding needs are met by maintaining an appropriate level of liquid funds through asset/liability management, which includes managing the mix and time to maturity of financial assets and financial liabilities on our balance sheet. Our liquidity position is enhanced by our ability to raise additional funds as needed in the wholesale markets.

Asset liquidity is provided by liquid assets which are readily marketable or pledgeable or which will mature in the near future. Liquid assets include cash, interest-bearing deposits in banks, securities available for sale, maturities and cash flow from securities held to maturity, and federal funds sold and resell agreements. Liability liquidity is provided by access to funding sources which include core deposits and correspondent banks in our natural trade area that maintain accounts with and sell federal funds to Frost Bank, as well as federal funds purchased and repurchase agreements from upstream banks and deposits obtained through financial intermediaries.

Our liquidity position is continuously monitored and adjustments are made to the balance between sources and uses of funds as deemed appropriate. Liquidity risk management is an important element in our asset/liability management process. We regularly model liquidity stress scenarios to assess potential liquidity outflows or funding problems resulting from economic disruptions, volatility in the financial markets, unexpected credit events or other significant occurrences deemed problematic by management. These scenarios are incorporated into our contingency funding plan, which provides the basis for the identification of our liquidity needs. As of December 31, 2021, we had approximately $15.9 billion held in an interest-bearing account at the Federal Reserve. We also have the ability to borrow funds as a member of the Federal Home Loan Bank ("FHLB"). As of December 31, 2021, based upon available, pledgeable collateral, our total borrowing capacity with the FHLB was approximately $3.1 billion. Furthermore, at December 31, 2021, we had approximately $9.3 billion in securities that were unencumbered by a pledge and could be used to support additional borrowings through repurchase agreements or the Federal Reserve discount window, as needed. As of December 31, 2021, management is not aware of any events that are reasonably likely to have a material adverse effect on our liquidity, capital resources or operations. In addition, management is not aware of any regulatory recommendations regarding liquidity that would have a material adverse effect on us.

In the ordinary course of business we have entered into contractual obligations and have made other commitments to make future payments. Refer to the accompanying notes to consolidated financial statements elsewhere in this report for the expected timing of such payments as of December 31, 2021. These include payments related to (i) long-term borrowings (Note 7 - Borrowed Funds), (ii) operating leases (Note 4 - Premises and Equipment and Lease Commitments), (iii) time deposits with stated maturity dates (Note 6 - Deposits) and (iv) commitments to extend credit and standby letters of credit (Note 8 - Off-Balance-Sheet Arrangements, Commitments, Guarantees and Contingencies).

Since Cullen/Frost is a holding company and does not conduct operations, its primary sources of liquidity are dividends upstreamed from Frost Bank and borrowings from outside sources. Banking regulations may limit the amount of dividends that may be paid by Frost Bank. See Note 9 - Capital and Regulatory Matters in the accompanying notes to consolidated financial statements elsewhere in this report regarding such dividends. At December 31, 2021, Cullen/Frost had liquid assets, including cash and resell agreements, totaling $471.9 million.

Regulatory and Economic Policies

Our business and earnings are affected by general and local economic conditions and by the monetary and fiscal policies of the United States government, its agencies and various other governmental regulatory authorities, among other things. The Federal Reserve Board regulates the supply of money in order to influence general economic conditions. Among the instruments of monetary policy historically available to the Federal Reserve Board are (i) conducting open market operations in United States government obligations, (ii) changing the discount rate on financial institution borrowings, (iii) imposing or changing reserve requirements against financial institution deposits, and (iv) restricting certain borrowings and imposing or changing reserve requirements against certain borrowings by financial institutions and their affiliates. These methods are used in varying degrees and combinations to affect directly the availability of bank loans and deposits, as well as the interest rates charged on loans and paid on deposits. For that reason alone, the policies of the Federal Reserve Board have a material effect on our earnings.

Governmental policies have had a significant effect on the operating results of commercial banks in the past and are expected to continue to do so in the future; however, we cannot accurately predict the nature, timing or extent of any effect such policies may have on our future business and earnings.

Accounting Standards Updates

See Note 20 - Accounting Standards Updates in the accompanying notes to consolidated financial statements elsewhere in this report for details of recently issued accounting pronouncements and their expected impact on our financial statements.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

The disclosures set forth in this item are qualified by Item 1A. Risk Factors and the section captioned "Forward-Looking Statements and Factors that Could Affect Future Results" included in Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations, of this report, and other cautionary statements set forth elsewhere in this report.

Market risk refers to the risk of loss arising from adverse changes in interest rates, foreign currency exchange rates, commodity prices, and other relevant market rates and prices, such as equity prices. The risk of loss can be assessed from the perspective of adverse changes in fair values, cash flows, and future earnings. Due to the nature of our operations, we are primarily exposed to interest rate risk and, to a lesser extent, liquidity risk.

Interest rate risk on our balance sheets consists of reprice, option, and basis risks. Reprice risk results from differences in the maturity, or repricing, of asset and liability portfolios. Option risk arises from "embedded options" present in many financial instruments such as loan prepayment options, deposit early withdrawal options and interest rate options. These options allow customers opportunities to benefit when market interest rates change, which typically results in higher costs or lower revenue for us. Basis risk refers to the potential for changes in the underlying relationship between market rates and indices, which subsequently result in a narrowing of the profit spread on an earning asset or liability. Basis risk is also present in administered rate liabilities, such as savings accounts, negotiable order of withdrawal accounts, and money market accounts where historical pricing relationships to market rates may change due to the level or directional change in market interest rates.

We seek to avoid fluctuations in our net interest margin and to maximize net interest income within acceptable levels of risk through periods of changing interest rates. Accordingly, our interest rate sensitivity and liquidity are monitored on an ongoing basis by our Asset and Liability Committee ("ALCO"), which oversees market risk management and establishes risk measures, limits and policy guidelines for managing the amount of interest rate risk and its effect on net interest income and capital. A variety of measures are used to provide for a comprehensive view of the magnitude of interest rate risk, the distribution of risk, the level of risk over time and the exposure to changes in certain interest rate relationships.

We utilize an earnings simulation model as the primary quantitative tool in measuring the amount of interest rate risk associated with changing market rates. The model quantifies the effects of various interest rate scenarios on projected net interest income and net income over the next 12 months. The model measures the impact on net interest income relative to a flat-rate case scenario of hypothetical fluctuations in interest rates over the next 12 months. These simulations incorporate assumptions regarding balance sheet growth and mix, pricing and the repricing and maturity characteristics of the existing and projected balance sheet. The impact of interest rate derivatives, such as interest rate swaps, caps and floors, is also included in the model. Other interest rate-related risks such as prepayment, basis and option risk are also considered.

ALCO continuously monitors and manages the balance between interest rate-sensitive assets and liabilities. The objective is to manage the impact of fluctuating market rates on net interest income within acceptable levels. In order to meet this objective, management may lengthen or shorten the duration of assets or liabilities or enter into derivative contracts to mitigate potential market risk.

For modeling purposes, as of December 31, 2021, the model simulations projected that 100 and 200 basis point ratable increases in interest rates would result in positive variances in net interest income of 2.8% and 7.1%, respectively, relative to the flat-rate case over the next 12 months, while a 25 basis point ratable decrease in interest rates would result in a negative variance in net interest income of 3.0% relative to the flat-rate case over the next 12 months. As of December 31, 2020, the model simulations projected that 100 and 200 basis point ratable increases in interest rates would result in positive variances in net interest income of 2.3% and 6.2%, respectively, relative to the flat-rate case over the next 12 months, while a 25 basis point ratable decrease in interest rates would result in a negative variance in net interest income of 1.8% relative to the flat-rate case over the next 12 months. Both the December 31, 2021 and 2020 model simulations for increased interest rates were impacted by the assumption, for modeling purposes, that we will begin to pay interest on commercial demand deposits (those not already receiving an earnings credit rate) in the first quarters of 2022 and 2021, respectively, as further discussed below. The likelihood of a decrease in interest rates beyond 25 basis points as of December 31, 2021 and 2020 was considered to be remote given prevailing interest rate levels.

The model simulations as of December 31, 2021 indicate that our projected balance sheet is more asset sensitive in comparison to our balance sheet as of December 31, 2020. The increased asset sensitivity was primarily due to an increase in the relative proportion of interest-bearing deposits (primarily amounts held by us in an interest-bearing account at the Federal Reserve) to projected average interest-earning assets. Such interest-bearing deposits are more immediately impacted by changes in interest rates in comparison to our other categories of earning assets.

We do not currently pay interest on a significant portion of our commercial demand deposits. Any interest rate that would ultimately be paid on these commercial demand deposits would likely depend upon a variety of factors, some of which are beyond our control. Our modeling simulations as of December 31, 2021 and 2020 assume a slightly aggressive pricing structure with regards to interest payments on commercial demand deposits (those not already receiving an earnings credit) with interest payments assumed to begin in the first quarters of 2022 and 2021, respectively. This pricing structure on commercial demand deposits assumes a deposit pricing beta of 25%. The pricing beta is a measure of how much deposit rates reprice, up or down, given a defined change in market rates.

As of December 31, 2021, the effects of a 200 basis point increase and a 25 basis point decrease in interest rates on our derivative holdings would not result in a significant variance in our net interest income.

The effects of hypothetical fluctuations in interest rates on our securities classified as “trading” under ASC Topic 320, “Investments - Debt and Equity Securities” are not significant, and, as such, separate quantitative disclosure is not presented.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

Report of Independent Registered Public Accounting Firm

To the Shareholders and the Board of Directors of Cullen/Frost Bankers, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Cullen/Frost Bankers, Inc. (the Company) as of December 31, 2021 and 2020, and the related consolidated statements of income, comprehensive income, changes in shareholders' equity and cash flows for each of the three years in the period ended December 31, 2021, and the related notes (collectively referred to as the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2021 and 2020, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2021, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2021, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) and our report dated February 4, 2022 expressed an unqualified opinion thereon.

Adoption of New Accounting Standard

As discussed in Notes 1 and 3 to the consolidated financial statements, the Company changed its method for accounting for credit losses on loans in 2020 due to the adoption of Accounting Standards Update (ASU) No. 2016-13, Financial Instruments — Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments, and the related amendments.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current period audit of the financial statements that was communicated or required to be communicated to the audit committee and that: (1) relates to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective or complex judgments. The communication of the critical audit matter does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

Allowances for Credit Losses

Description of the Matter

The Company's loan portfolio totaled $16.3 billion as of December 31, 2021 and the associated allowance for credit losses on loans was $248.7 million. The Company's unfunded loan commitments totaled $10.7 billion, with an associated allowance for credit loss of $50.3 million. Together these amounts represent the allowances for credit losses ("ACL"). As discussed in Notes 1, and 3 to the consolidated financial statements, in the cases of loans, the allowance for credit losses is a contra-asset valuation account, calculated in accordance with ASC 326, that is deducted from the amortized cost basis of loans to present the net amount expected to be collected. As discussed in Notes 1, 3, and 8 to the consolidated financial statements, in the case of unfunded loan commitments, the allowance for credit losses is a liability account, calculated in accordance with ASC 326, reported as a component of accrued interest payable and other liabilities. The amount of each allowance account represented management's best estimate of current expected credit losses on these financial instruments considering all available information, from internal and external sources, relevant to assessing exposure to credit loss over the contractual term of the instrument. In calculating the allowance for credit losses, most loans were segmented into pools based upon similar characteristics and risk profiles. For each loan pool, management measured expected credit losses over the life of each loan utilizing a combination of models which measured probability of default ("PD"), probability of attrition ("PA"), loss given default ("LGD"), and exposure at default ("EAD"). Modeled expected credit losses were calculated as the product of PD (adjusted for attrition), LGD, and EAD. PD and PA were estimated by analyzing internally sourced data related to historical performance of each loan pool over a complete economic cycle. PD and PA were adjusted to reflect the current impact of certain macroeconomic variables as well as their expected changes over a reasonable and supportable forecast period. After the reasonable and supportable forecast period, the forecasted macroeconomic variables were reverted to their historical mean utilizing a rational, systematic basis. The LGD was based on historical recovery averages for each loan pool, adjusted to reflect the current impact of certain macroeconomic variables as well as their expected changes over the reasonable and supportable forecast period. EAD was estimated using a linear regression model that estimates the average percentage of the loan balance that remains at the time of default. In some cases, management determined that an individual loan exhibited unique risk characteristics which differentiated the loan from other loans with the identified loan pools. In such cases, the loans were evaluated for expected credit losses on an individual basis and excluded from the collective evaluation. Management qualitatively adjusted model results for risk factors that were not considered within the modeling processes but were nonetheless relevant in assessing the expected credit losses within the loan pools. These qualitative factor adjustments modified management's estimate of expected credit losses by a calculated percentage or amount based upon the estimated level of risk.

Auditing management's estimate of the ACL involved a high degree of subjectivity due to the nature of the qualitative factor adjustments included in the allowances for credit losses and complexity due to the utilization of the PD, PA, LGD, and EAD models (the "Models"). Management's identification and measurement of the qualitative factor adjustments is highly judgmental and could have a significant effect on the ACL.

How We Addressed the Matter in Our Audit

We obtained an understanding of the Company's process for establishing the ACL, including the utilization of Models and the qualitative factor adjustments of the ACL. We evaluated the design and tested the operating effectiveness of related controls over the reliability and accuracy of data used to calculate and estimate the various components of the ACL, the accuracy of the calculation of the ACL, management's review and approval of methodologies used to establish the ACL, validation procedures over the Models, analysis of changes in various components of the ACL relative to changes in the Company's loan portfolio and economy and evaluation of the overall reasonableness and appropriateness of the ACL. In doing so, we tested the operating effectiveness of review and approval controls in the Company's governance process designed to identify and assess the qualitative factor adjustments which is meant to measure expected credit losses associated with factors not captured fully in the other components of the ACL.

To test the reasonableness of the qualitative factor adjustments, we performed audit procedures that included, among others testing the appropriateness of the methodologies used by the Company to estimate the ACL, testing the completeness and accuracy of data and information used by the Company in estimating the components of the ACL, assessing the reasonableness of the Models, evaluating the appropriateness of assumptions used in estimating the qualitative factor adjustments, analyzing the changes in assumptions and various components of the ACL relative to changes in the Company's loan portfolio and the economy and evaluating the appropriateness and level of the qualitative factor adjustments. For example, we 1) evaluated the inherent limitations of the Company's modeled components of the ALL and hence the need for and levels of the qualitative factor adjustments; 2) involved modeling specialists to test the appropriateness of the design and operation of the Models; 3) analyzed the changes, assumptions and modifications made to the qualitative factor adjustments; and 4) evaluated the appropriateness and completeness of risk factors used in determining the amount of the qualitative factor adjustments. We also evaluated the data and information utilized by management to estimate the qualitative factor adjustments by independently obtaining internal and external data and information to assess the appropriateness of the data and information used by management and to consider the existence of new and potentially contradictory information used. In addition, we evaluated the overall ACL amounts, inclusive of the adjustments for the qualitative factor adjustments, and whether the amount appropriately reflects losses expected in the loan portfolio as of the consolidated balance sheet date by comparing the overall ALL to those established by similar banking institutions with similar loan portfolios. We also reviewed subsequent events and transactions and considered whether they corroborate or contradict the Company's conclusion.

Ernst + Young LLP

We have served as the Company's auditor since 1969.
San Antonio, Texas
February 4, 2022

Cullen/Frost Bankers, Inc.
Consolidated Balance Sheets
(Dollars in thousands, except per share amounts)

	December 31, 2021	December 31, 2020
Assets:		
Cash and due from banks	$ 555,778	$ 529,454
Interest-bearing deposits	15,985,244	9,758,624
Federal funds sold	34,075	775
Resell agreements	7,903	—
Total cash and cash equivalents	16,583,000	10,288,853
Securities held to maturity, net of allowance for credit losses of $158 in 2021 and $160 in 2020	1,749,179	1,945,673
Securities available for sale, at estimated fair value	13,924,628	10,437,565
Trading account securities	25,162	24,456
Loans, net of unearned discounts	16,336,397	17,481,309
Less: Allowance for credit losses on loans	(248,666)	(263,177)
Net loans	16,087,731	17,218,132
Premises and equipment, net	1,050,331	1,045,578
Goodwill	654,952	654,952
Other intangible assets, net	866	1,563
Cash surrender value of life insurance policies	190,139	189,984
Accrued interest receivable and other assets	612,502	584,561
Total assets	$ 50,878,490	$ 42,391,317
Liabilities:		
Deposits:		
Non-interest-bearing demand deposits	$ 18,423,018	$ 15,117,051
Interest-bearing deposits	24,272,678	19,898,710
Total deposits	42,695,696	35,015,761
Federal funds purchased	25,925	48,850
Repurchase agreements	2,740,799	2,068,147
Junior subordinated deferrable interest debentures, net of unamortized issuance costs	123,011	136,357
Subordinated notes, net of unamortized issuance costs	99,178	99,021
Accrued interest payable and other liabilities	754,326	730,165
Total liabilities	46,438,935	38,098,301
Shareholders' Equity:		
Preferred stock, par value $0.01 per share; 10,000,000 shares authorized; 150,000 Series B shares ($1,000 liquidation preference) issued in 2021 and 2020	145,452	145,452
Common stock, par value $0.01 per share; 210,000,000 shares authorized; 64,236,306 shares issued in both 2021 and 2020	642	642
Additional paid-in capital	1,009,921	997,168
Retained earnings	2,956,966	2,750,723
Accumulated other comprehensive income, net of tax	347,318	512,970
Treasury stock, at cost; 250,070 shares in 2021 and 1,225,066 in 2020	(20,744)	(113,939)
Total shareholders' equity	4,439,555	4,293,016
Total liabilities and shareholders' equity	$ 50,878,490	$ 42,391,317

See accompanying Notes to Consolidated Financial Statements.

Cullen/Frost Bankers, Inc.
Consolidated Statements of Income
(Dollars in thousands, except per share amounts)

	Year Ended December 31,		
	2021	**2020**	**2019**
Interest income:			
Loans, including fees	$ 674,611	$ 680,064	$ 741,747
Securities:			
Taxable	89,550	93,569	117,082
Tax-exempt	226,683	233,614	233,842
Interest-bearing deposits	17,878	12,893	35,590
Federal funds sold	31	723	5,260
Resell agreements	16	172	264
Total interest income	1,008,769	1,021,035	1,133,785
Interest expense:			
Deposits	14,520	32,018	99,742
Federal funds purchased	32	100	347
Repurchase agreements	2,209	4,382	19,328
Junior subordinated deferrable interest debentures	2,484	3,560	5,706
Subordinated notes	4,657	4,656	4,657
Federal Home Loan Bank advances	—	318	—
Total interest expense	23,902	45,034	129,780
Net interest income	984,867	976,001	1,004,005
Credit loss expense	63	241,230	33,759
Net interest income after credit loss expense	984,804	734,771	970,246
Non-interest income:			
Trust and investment management fees	148,994	129,272	126,722
Service charges on deposit accounts	83,292	80,873	88,983
Insurance commissions and fees	51,548	50,313	52,345
Interchange and card transaction fees	17,461	13,470	14,873
Other charges, commissions and fees	36,836	34,825	37,123
Net gain (loss) on securities transactions	69	108,989	293
Other	48,528	47,712	43,563
Total non-interest income	386,728	465,454	363,902
Non-interest expense:			
Salaries and wages	395,497	387,328	375,029
Employee benefits	82,029	75,676	86,230
Net occupancy	107,344	102,938	89,466
Technology, furniture and equipment	112,738	105,232	91,995
Deposit insurance	12,232	10,502	10,126
Intangible amortization	697	918	1,168
Other	171,457	166,310	180,665
Total non-interest expense	881,994	848,904	834,679
Income before income taxes	489,538	351,321	499,469
Income taxes	46,459	20,170	55,870
Net income	443,079	331,151	443,599
Preferred stock dividends	7,157	2,016	8,063
Redemption of preferred stock	—	5,514	—
Net income available to common shareholders	$ 435,922	$ 323,621	$ 435,536
Earnings per common share:			
Basic	$ 6.79	$ 5.11	$ 6.89
Diluted	6.76	5.10	6.84

See accompanying Notes to Consolidated Financial Statements.

Cullen/Frost Bankers, Inc.
Consolidated Statements of Comprehensive Income
(Dollars in thousands)

	Year Ended December 31,		
	2021	2020	2019
Net income	$ 443,079	$ 331,151	$ 443,599
Other comprehensive income (loss), before tax:			
Securities available for sale and transferred securities:			
Change in net unrealized gain/loss during the period	(231,355)	427,331	418,556
Change in net unrealized gain on securities transferred to held to maturity	(971)	(1,256)	(1,292)
Reclassification adjustment for net (gains) losses included in net income	(69)	(108,989)	(293)
Total securities available for sale and transferred securities	(232,395)	317,086	416,971
Defined-benefit post-retirement benefit plans:			
Change in the net actuarial gain/loss	16,593	(11,518)	(3,644)
Reclassification adjustment for net amortization of actuarial gain/loss included in net income as a component of net periodic cost (benefit)	6,116	5,319	5,623
Total defined-benefit post-retirement benefit plans	22,709	(6,199)	1,979
Other comprehensive income (loss), before tax	(209,686)	310,887	418,950
Deferred tax expense (benefit)	(44,034)	65,287	87,980
Other comprehensive income (loss), net of tax	(165,652)	245,600	330,970
Comprehensive income	$ 277,427	$ 576,751	$ 774,569

See accompanying Notes to Consolidated Financial Statements.

Cullen/Frost Bankers, Inc.
Consolidated Statement of Changes in Shareholders' Equity
(Dollars in thousands, except per share amounts)

	Preferred Stock	Common Stock	Additional Paid-In Capital	Retained Earnings	Accumulated Other Comprehensive Income (Loss), Net of Tax	Treasury Stock	Total
Balance at January 1, 2019	$144,486	$ 642	$ 967,304	$2,440,002	$ (63,600)	$(119,917)	$3,368,917
Cumulative effect of accounting change	—	—	—	(14,672)	—	—	(14,672)
Adjusted beginning balance	144,486	642	967,304	2,425,330	(63,600)	(119,917)	3,354,245
Net income	—	—	—	443,599	—	—	443,599
Other comprehensive income, net of tax	—	—	—	—	330,970	—	330,970
Stock option exercises/stock unit conversions (399,224 shares)	—	—	—	(16,326)	—	37,096	20,770
Stock-based compensation expense recognized in earnings	—	—	15,946	—	—	—	15,946
Purchase of treasury stock (716,062 shares)	—	—	—	—	—	(68,793)	(68,793)
Cash dividends - preferred stock (approximately $1.34 per share)	—	—	—	(8,063)	—	—	(8,063)
Cash dividends – common stock ($2.80 per share)	—	—	—	(177,006)	—	—	(177,006)
Balance at December 31, 2019	144,486	642	983,250	2,667,534	267,370	(151,614)	3,911,668
Cumulative effect of accounting change	—	—	—	(29,252)	—	—	(29,252)
Adjusted beginning balance	144,486	642	983,250	2,638,282	267,370	(151,614)	3,882,416
Net income	—	—	—	331,151	—	—	331,151
Other comprehensive income, net of tax	—	—	—	—	245,600	—	245,600
Stock option exercises/stock unit conversions (408,563 shares)	—	—	—	(27,214)	—	39,771	12,557
Stock-based compensation expense recognized in earnings	—	—	13,918	—	—	—	13,918
Redemption of series A preferred stock (6,000,000 shares)	(144,486)	—	—	(5,514)	—	—	(150,000)
Issuance of series B preferred stock (150,000 shares)	145,452	—	—	—	—	—	145,452
Purchase of treasury stock (206,951 shares)	—	—	—	—	—	(15,785)	(15,785)
Treasury stock issued to the 401(k) stock purchase plan (140,264 shares)	—	—	—	(3,382)	—	13,689	10,307
Cash dividends – preferred stock (approximately $0.34 per share)	—	—	—	(2,016)	—	—	(2,016)
Cash dividends – common stock ($2.85 per share)	—	—	—	(180,584)	—	—	(180,584)
Balance at December 31, 2020	145,452	642	997,168	2,750,723	512,970	(113,939)	4,293,016
Net income	—	—	—	443,079	—	—	443,079
Other comprehensive income, net of tax	—	—	—	—	(165,652)	—	(165,652)
Stock option exercises/stock unit conversions (987,758 shares)	—	—	—	(40,836)	—	95,253	54,417
Stock-based compensation expense recognized in earnings	—	—	12,753	—	—	—	12,753
Purchase of treasury stock (31,317 shares)	—	—	—	—	—	(3,864)	(3,864)
Treasury stock issued to the 401(k) stock purchase plan (18,555 shares)	—	—	—	(57)	—	1,806	1,749
Cash dividends – Series B preferred stock (approximately $47.71 per share which is equivalent to approximately $1.19 per depositary share)	—	—	—	(7,157)	—	—	(7,157)
Cash dividends – common stock ($2.94 per share)	—	—	—	(188,786)	—	—	(188,786)
Balance at December 31, 2021	$145,452	$ 642	$1,009,921	$2,956,966	$ 347,318	$ (20,744)	$4,439,555

See accompanying Notes to Consolidated Financial Statements

Cullen/Frost Bankers, Inc.
Consolidated Statements of Cash Flows
(Dollars in thousands)

	Year Ended December 31,		
	2021	**2020**	**2019**
Operating Activities:			
Net income	$ 443,079	$ 331,151	$ 443,599
Adjustments to reconcile net income to net cash from operating activities:			
Credit loss expense	63	241,230	33,759
Deferred tax expense (benefit)	7,784	(15,832)	7,614
Accretion of loan discounts	(12,890)	(15,692)	(15,197)
Securities premium amortization (discount accretion), net	119,242	123,785	115,558
Net (gain) loss on securities transactions	(69)	(108,989)	(293)
Depreciation and amortization	69,289	64,370	54,091
Net (gain) loss on sale/exchange/write-down of assets/foreclosed assets	(11,578)	524	(5,712)
Stock-based compensation	12,753	13,918	15,946
Net tax benefit from stock-based compensation	7,877	852	2,447
Earnings on life insurance policies	(2,462)	(3,731)	(3,683)
Net change in:			
Trading account securities	(560)	(158)	(212)
Lease right-of-use assets	23,504	23,933	20,124
Accrued interest receivable and other assets	(46,560)	(158,264)	(15,570)
Accrued interest payable and other liabilities	38,821	27,146	(18,381)
Net cash from operating activities	648,293	524,243	634,090
Investing Activities:			
Securities held to maturity:			
Purchases	—	(1,500)	(649,326)
Maturities, calls and principal repayments	177,593	63,577	81,762
Securities available for sale:			
Purchases	(24,217,841)	(20,841,622)	(23,306,694)
Sales	1,999,891	1,162,352	18,660,147
Maturities, calls and principal repayments	18,425,108	20,893,464	4,694,927
Proceeds from sale of loans	—	37,535	24,036
Net change in loans	1,145,924	(2,856,395)	(693,587)
Benefits received on life insurance policies	2,307	903	—
Proceeds from sales of premises and equipment	7,044	5,988	8,038
Purchases of premises and equipment	(65,850)	(95,422)	(206,716)
Proceeds from sales of repossessed properties	809	73	663
Net cash from investing activities	(2,525,015)	(1,631,047)	(1,386,750)
Financing Activities:			
Net change in deposits	7,679,935	7,376,197	490,360
Net change in short-term borrowings	649,727	421,655	327,794
Proceeds from Federal Home Loan Bank advances	—	1,250,000	—
Principal payments on Federal Home Loan Bank advances	—	(1,250,000)	—
Principal payments on long-term borrowings	(13,403)	—	—
Redemption of Series A preferred stock	—	(150,000)	—
Proceeds from issuance of Series B preferred stock	—	145,452	—
Proceeds from stock option exercises	54,417	12,557	20,770
Purchase of treasury stock	(3,864)	(15,785)	(68,793)
Cash dividends paid on preferred stock	(7,157)	(2,016)	(8,063)
Cash dividends paid on common stock	(188,786)	(180,584)	(177,006)
Net cash from financing activities	8,170,869	7,607,476	585,062
Net change in cash and cash equivalents	6,294,147	6,500,672	(167,598)
Cash and cash equivalents at beginning of year	10,288,853	3,788,181	3,955,779
Cash and cash equivalents at end of year	$ 16,583,000	$ 10,288,853	$ 3,788,181

See accompanying Notes to Consolidated Financial Statements.

Note 1 - Summary of Significant Accounting Policies

Nature of Operations. Cullen/Frost Bankers, Inc. ("Cullen/Frost") is a financial holding company and a bank holding company headquartered in San Antonio, Texas that provides, through its subsidiaries, a broad array of products and services throughout numerous Texas markets. The terms "Cullen/Frost," "the Corporation," "we," "us" and "our" mean Cullen/Frost Bankers, Inc. and its subsidiaries, when appropriate. In addition to general commercial and consumer banking, other products and services offered include trust and investment management, insurance, brokerage, mutual funds, leasing, treasury management, capital markets advisory and item processing.

Basis of Presentation. The consolidated financial statements include the accounts of Cullen/Frost and all other entities in which Cullen/Frost has a controlling financial interest. All significant intercompany balances and transactions have been eliminated in consolidation. The accounting and financial reporting policies we follow conform, in all material respects, to accounting principles generally accepted in the United States and to general practices within the financial services industry.

We determine whether we have a controlling financial interest in an entity by first evaluating whether the entity is a voting interest entity or a variable interest entity ("VIE") under accounting principles generally accepted in the United States. Voting interest entities are entities in which the total equity investment at risk is sufficient to enable the entity to finance itself independently and provides the equity holders with the obligation to absorb losses, the right to receive residual returns and the right to make decisions about the entity's activities. We consolidate voting interest entities in which we have all, or at least a majority of, the voting interest. As defined in applicable accounting standards, VIEs are entities that lack one or more of the characteristics of a voting interest entity. A controlling financial interest in a VIE is present when an enterprise has both the power to direct the activities of the VIE that most significantly impact the VIE's economic performance and an obligation to absorb losses or the right to receive benefits that could potentially be significant to the VIE. The enterprise with a controlling financial interest, known as the primary beneficiary, consolidates the VIE. Our wholly-owned subsidiary, Cullen/Frost Capital Trust II, is a VIE for which we are not the primary beneficiary and, as such, its accounts are not included in our consolidated financial statements.

Acquisitions are accounted for using the purchase method with the operating results of the acquired companies included with our results of operations since their respective dates of acquisition.

We have evaluated subsequent events for potential recognition and/or disclosure through the date these consolidated financial statements were issued.

Use of Estimates. The preparation of financial statements in conformity with accounting principles generally accepted in the United States requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements. Actual results could differ from those estimates. The allowance for credit losses on loans and off-balance-sheet credit exposures, the fair values of financial instruments and the status of contingencies are particularly subject to change.

Concentrations and Restrictions on Cash and Cash Equivalents. We maintain deposits with other financial institutions in amounts that exceed federal deposit insurance coverage. Furthermore, federal funds sold are essentially uncollateralized loans to other financial institutions. Management regularly evaluates the credit risk associated with the counterparties to these transactions and believes that we are not exposed to any significant credit risks on cash and cash equivalents.

As of December 31, 2021 and 2020, we had $110.3 million and $74.0 million in cash collateral on deposit with other financial institution counterparties to interest rate swap transactions. Additionally, prior to 2021 we were required to maintain a minimum amount cash on hand or on deposit with the Federal Reserve Bank to meet regulatory reserve and clearing requirements. This amount totaled $42.0 million at December 31, 2020.

Cash Flow Reporting. Cash and cash equivalents include cash, deposits with other financial institutions that have an initial maturity of less than 90 days when acquired by us, federal funds sold and resell agreements. Net cash flows are reported for loans, deposit transactions and short-term borrowings. Additional cash flow information was as follows:

	Year Ended December 31,		
	2021	2020	2019
Cash paid for interest	$ 29,003	$ 49,300	$ 124,781
Cash paid for income tax	39,852	44,140	45,352
Significant non-cash transactions:			
Transfer of securities from available for sale to held to maturity	—	—	377,812
Exchange of real estate	11,036	—	—
Unsettled securities transactions	27,032	57,783	—
Loans foreclosed and transferred to other real estate owned and foreclosed assets	3,464	140	1,348
Loans to facilitate the sale of other real estate owned	—	—	847
Right-of-use lease assets obtained in exchange for lessee operating lease liabilities	12,854	18,284	319,286
Treasury stock issued to 401(k) stock purchase plan	1,749	10,307	—

Repurchase/Resell Agreements. We purchase certain securities under agreements to resell. The amounts advanced under these agreements represent short-term loans and are reflected as assets in the accompanying consolidated balance sheets. The securities underlying these agreements are book-entry securities. We also sell certain securities under agreements to repurchase. The agreements are treated as collateralized financing transactions and the obligations to repurchase securities sold are reflected as a liability in the accompanying consolidated balance sheets. The dollar amount of the securities underlying the agreements remains in the asset accounts.

Securities. Securities are classified as held to maturity and carried at amortized cost when management has the positive intent and ability to hold them until maturity. Securities to be held for indefinite periods of time are classified as available for sale and carried at fair value, with the unrealized holding gains and losses (those for which no allowance for credit losses are recorded) reported as a component of other comprehensive income, net of tax. Securities held for resale in anticipation of short-term market movements are classified as trading and are carried at fair value, with changes in unrealized holding gains and losses included in income. Management determines the appropriate classification of securities at the time of purchase. Securities with limited marketability, such as stock in the Federal Reserve Bank and the Federal Home Loan Bank, are carried at cost.

Interest income on securities includes amortization of purchase premiums and discounts. Premiums and discounts on securities are generally amortized using the interest method with a constant effective yield without anticipating prepayments, except for mortgage-backed securities where prepayments are anticipated. Premiums on callable securities are amortized to their earliest call date. A security is placed on non-accrual status if (i) principal or interest has been in default for a period of 90 days or more or (ii) full payment of principal and interest is not expected. Interest accrued but not received for a security placed on non-accrual status is reversed against interest income. Gains and losses on sales are recorded on the trade date and are derived from the amortized cost of the security sold.

Loans. Loans are reported at the principal balance outstanding net of unearned discounts. Interest income on loans is reported on the level-yield method and includes amortization of deferred loan fees and costs over the terms of the individual loans to which they relate, or, in certain cases, over the average expected term for loans where deferred fees and costs are accounted for on a pooled basis. Net loan commitment fees or costs for commitment periods greater than one year are deferred and amortized into fee income or other expense on a straight-line basis over the commitment period. Income on direct financing leases is recognized on a basis that achieves a constant periodic rate of return on the outstanding investment. Further information regarding our accounting policies related to past due loans, non-accrual loans, impaired loans and troubled-debt restructurings is presented in Note 3 - Loans.

Allowance for Credit Losses. As further discussed below, we adopted Accounting Standards Update ("ASU") 2016-13, "Financial Instruments - Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments," on January 1, 2020. Accounting Standards Codification ("ASC") Topic 326 ("ASC 326") replaced the previous "incurred loss" model for measuring credit losses, which encompassed allowances for current known and inherent losses within the portfolio, with an "expected loss" model, which encompasses allowances for losses expected to be incurred over the life of the portfolio. The new current expected credit loss ("CECL") model requires the measurement of all expected credit losses for financial assets measured at amortized cost and certain off-balance-sheet credit exposures based on historical experience, current conditions, and reasonable and supportable forecasts. In connection with the adoption of ASC 326, we revised certain accounting policies and implemented certain accounting policy elections. The revised accounting policies are described below.

Allowance For Credit Losses - Held-to-Maturity Securities: The allowance for credit losses on held-to-maturity securities is a contra-asset valuation account, calculated in accordance with ASC 326, that is deducted from the amortized cost basis of held-to-maturity securities to present management's best estimate of the net amount expected to be collected. Held-to-maturity securities are charged-off against the allowance when deemed uncollectible by management. Adjustments to the allowance are reported in our income statement as a component of credit loss expense. Management measures expected credit losses on held-to-maturity securities on a collective basis by major security type with each type sharing similar risk characteristics and considers historical credit loss information that is adjusted for current conditions and reasonable and supportable forecasts. Management has made the accounting policy election to exclude accrued interest receivable on held-to-maturity securities from the estimate of credit losses. Further information regarding our policies and methodology used to estimate the allowance for credit losses on held-to-maturity securities is presented in Note 2 - Securities.

Allowance For Credit Losses - Available-for-Sale Securities: For available-for-sale securities in an unrealized loss position, we first assess whether (i) we intend to sell or (ii) it is more likely than not that we will be required to sell the security before recovery of its amortized cost basis. If either case is affirmative, any previously recognized allowances are charged-off and the security's amortized cost is written down to fair value through income. If neither case is affirmative, the security is evaluated to determine whether the decline in fair value has resulted from credit losses or other factors. In making this assessment, management considers the extent to which fair value is less than amortized cost, any changes to the rating of the security by a rating agency and any adverse conditions specifically related to the security, among other factors. If this assessment indicates that a credit loss exists, the present value of cash flows expected to be collected from the security are compared to the amortized cost basis of the security. If the present value of cash flows expected to be collected is less than the amortized cost basis, a credit loss exists and an allowance for credit losses is recorded for the credit loss, limited by the amount that the fair value is less than the amortized cost basis. Any impairment that has not been recorded through an allowance for credit losses is recognized in other comprehensive income. Adjustments to the allowance are reported in our income statement as a component of credit loss expense. Management has made the accounting policy election to exclude accrued interest receivable on available-for-sale securities from the estimate of credit losses. Available-for-sale securities are charged-off against the allowance or, in the absence of any allowance, written down through income when deemed uncollectible by management or when either of the aforementioned criteria regarding intent or requirement to sell is met.

Prior to the adoption of ASU 2016-13, declines in the fair value of held-to-maturity and available-for-sale securities below their cost that were deemed to be other than temporary were reflected in earnings as realized losses. In estimating other-than-temporary impairment losses prior to January 1, 2020, management considered, among other things, (i) the length of time and the extent to which the fair value had been less than cost, (ii) the financial condition and near-term prospects of the issuer and (iii) the intent and our ability to retain our investment in the issuer for a period of time sufficient to allow for any anticipated recovery in fair value.

Allowance for Credit Losses - Loans: The allowance for credit losses on loans is a contra-asset valuation account, calculated in accordance with ASC 326, that is deducted from the amortized cost basis of loans to present management's best estimate of the net amount expected to be collected. Loans are charged-off against the allowance when deemed uncollectible by management. Expected recoveries do not exceed the aggregate of amounts previously charged-off and expected to be charged-off. Adjustments to the allowance are reported in our income statement as a component of credit loss expense. Management has made the accounting policy election to exclude accrued interest receivable on loans from the estimate of credit losses. Further information regarding our policies and methodology used to estimate the allowance for credit losses on loans is presented in Note 3 - Loans.

Prior to the adoption of ASU 2016-13, the allowance for credit losses on loans was a contra-asset valuation account established through a provision for loan losses charged to expense, which represented management's best estimate of inherent losses that had been incurred within the existing portfolio of loans. The allowance for credit losses on loans included allowance allocations calculated in accordance with ASC Topic 310, "Receivables" and allowance allocations calculated in accordance with ASC Topic 450, "Contingencies."

Allowance For Credit Losses - Off-Balance-Sheet Credit Exposures: The allowance for credit losses on off-balance-sheet credit exposures is a liability account, calculated in accordance with ASC 326, representing expected credit losses over the contractual period for which we are exposed to credit risk resulting from a contractual obligation to extend credit. No allowance is recognized if we have the unconditional right to cancel the obligation. The allowance is reported as a component of accrued interest payable and other liabilities in our consolidated balance sheets. Adjustments to the allowance are reported in our income statement as a component of credit loss expense. Further information regarding our policies and methodology used to estimate the allowance for credit losses on off-balance-sheet credit exposures is presented in Note 8 - Off-Balance-Sheet Arrangements, Commitments, Guarantees and Contingencies.

Premises and Equipment. Land is carried at cost. Building and improvements, and furniture and equipment are carried at cost, less accumulated depreciation, computed principally by the straight-line method based on the estimated useful lives of the related property. Leasehold improvements are generally depreciated over the lesser of the term of the respective leases or the estimated useful lives of the improvements.

We lease certain office facilities and office equipment under operating leases. We also own certain office facilities which we lease to outside parties under operating lessor leases; however, such leases are not significant. In 2019, we adopted certain accounting standard updates related to accounting for leases as further discussed below. Under the new standards, for operating leases other than those considered to be short-term, we recognize lease right-of-use assets and related lease liabilities. Such amounts are reported as components of premises and equipment and accrued interest payable and other liabilities, respectively, on our accompanying consolidated balance sheet. We do not recognize short-term operating leases on our balance sheet. A short-term operating lease has an original term of 12 months or less and does not have a purchase option that is likely to be exercised.

In recognizing lease right-of-use assets and related lease liabilities, we account for lease and non-lease components (such as taxes, insurance, and common area maintenance costs) separately as such amounts are generally readily determinable under our lease contracts. Lease payments over the expected term are discounted using our incremental borrowing rate referenced to the Federal Home Loan Bank Secure Connect advance rates for borrowings of similar term. We also consider renewal and termination options in the determination of the term of the lease. If it is reasonably certain that a renewal or termination option will be exercised, the effects of such options are included in the determination of the expected lease term. Generally, we cannot be reasonably certain about whether or not we will renew a lease until such time the lease is within the last two years of the existing lease term. However, renewal options related to our regional headquarters facilities or operations centers are evaluated on a case-by-case basis, typically in advance of such time frame. When we are reasonably certain that a renewal option will be exercised, we measure/remeasure the right-of-use asset and related lease liability using the lease payments specified for the renewal period or, if such amounts are unspecified, we generally assume an increase (evaluated on a case-by-case basis in light of prevailing market conditions) in the lease payment over the final period of the existing lease term.

Foreclosed Assets. Assets acquired through or instead of loan foreclosure are held for sale and are initially recorded at fair value less estimated selling costs when acquired, establishing a new cost basis. Write-downs occurring at acquisition are charged against the allowance for credit losses on loans. Foreclosed assets are included in other assets in the accompanying consolidated balance sheets and totaled $3.4 million and $850 thousand at December 31, 2021 and 2020. Regulatory guidelines require us to reevaluate the fair value of foreclosed assets on at least an annual basis. Our policy is to comply with the regulatory guidelines. If the fair value of the asset declines, a write-down is recorded through other non-interest expense along with other expenses related to maintaining the properties. The valuation of foreclosed assets is subjective in nature and may be adjusted in the future because of changes in economic conditions. Write-downs of foreclosed assets totaled $14 thousand during 2021 and $231 thousand in 2020 while there were no write-downs during 2019. There were no significant concentrations of any properties, to which the aforementioned write-downs relate, in any single geographic region.

Goodwill. Goodwill represents the excess of the cost of businesses acquired over the fair value of the net assets acquired. Goodwill is assigned to reporting units and tested for impairment at least annually on October 1st, or on an interim basis if an event occurs or circumstances change that would more likely than not reduce the fair value of the reporting unit below its carrying value. See Note 5 - Goodwill and Other Intangible Assets.

Intangibles and Other Long-Lived Assets. Intangible assets are acquired assets that lack physical substance but can be distinguished from goodwill because of contractual or other legal rights or because the asset is capable of being sold or exchanged either on its own or in combination with a related contract, asset, or liability. Our intangible assets relate to core deposits, non-compete agreements and customer relationships. Intangible assets with definite useful lives are amortized on an accelerated basis over their estimated life. Intangible assets with indefinite useful lives are not amortized until their lives are determined to be definite. Intangible assets, premises and equipment and other long-lived assets are tested for impairment whenever events or changes in circumstances indicate the carrying amount of the assets may not be recoverable from future undiscounted cash flows. If impaired, the assets are recorded at fair value. See Note 5 - Goodwill and Other Intangible Assets.

Revenue Recognition. In general, for revenue not associated with financial instruments, guarantees and lease contracts, we apply the following steps when recognizing revenue from contracts with customers: (i) identify the contract, (ii) identify the performance obligations, (iii) determine the transaction price, (iv) allocate the transaction price to the performance obligations and (v) recognize revenue when a performance obligation is satisfied. Our contracts with customers are generally short term in nature, typically due within one year or less or cancellable by us or our customer upon a short notice period. Performance obligations for our customer contracts are generally satisfied at a single point in time, typically when the transaction is complete, or over time. For performance obligations satisfied over time, we primarily use the output method, directly measuring the value of the products/ services transferred to the customer, to determine when performance obligations have been satisfied. We typically receive payment from customers and recognize revenue concurrent with the satisfaction of our performance obligations. In most cases, this occurs within a single financial reporting period. For payments received in advance of the satisfaction of performance obligations, revenue recognition is deferred until such time as the performance obligations have been satisfied. In cases where we have not received payment despite satisfaction of our performance obligations, we accrue an estimate of the amount due in the period our performance obligations have been satisfied. For contracts with variable components, only amounts for which collection is probable are accrued. We generally act in a principal capacity, on our own behalf, in most of our contracts with customers. In such transactions, we recognize revenue and the related costs to provide our services on a gross basis in our financial statements. In some cases, we act in an agent capacity, deriving revenue through assisting other entities in transactions with our customers. In such transactions, we recognize revenue and the related costs to provide our services on a net basis in our financial statements. These transactions recognized on a net basis primarily relate to insurance and brokerage commissions and fees derived from our customers' use of various interchange and ATM/ debit card networks.

Share-Based Payments. Compensation expense for stock options, non-vested stock awards/stock units and deferred stock units is based on the fair value of the award on the measurement date, which, for us, is the date of the grant and is recognized ratably over the service period of the award. Compensation expense for performance stock units is based on the fair value of the award on the measurement date, which, for us, is the date of the grant and is recognized over the service period of the award based upon the probable number of units expected to vest. The fair value of stock options is estimated using a binomial lattice-based valuation model. The fair value of non-vested stock awards/stock units and deferred stock units is generally the market price of our stock on the date of grant. The fair value of performance stock units is generally the market price of our stock on the date of grant discounted by the present value of the dividends expected to be paid on our common stock during the service period of the award because dividend equivalent payments on performance stock units are deferred until such time that the units vest and shares are issued. The impact of forfeitures of share-based payment awards on compensation expense is recognized as forfeitures occur.

Advertising Costs. Advertising costs are expensed as incurred.

Income Taxes. Income tax expense is the total of the current year income tax due or refundable and the change in deferred tax assets and liabilities (excluding deferred tax assets and liabilities related to business combinations or components of other comprehensive income). Deferred tax assets and liabilities are the expected future tax amounts for the temporary differences between carrying amounts and tax bases of assets and liabilities, computed using enacted tax rates. A valuation allowance, if needed, reduces deferred tax assets to the expected amount most likely to be realized. Realization of deferred tax assets is dependent upon the generation of a sufficient level of future taxable income. Although realization is not assured, management believes it is more likely than not that all of the deferred tax assets will be realized. Interest and/or penalties related to income taxes are reported as a component of income tax expense. The income tax effects related to settlements of share-based payment awards are reported in earnings as an increase (or decrease) to income tax expense. See Note 13 - Income Taxes.

We file a consolidated income tax return with our subsidiaries. Federal income tax expense or benefit has been allocated to subsidiaries on a separate return basis.

Basic and Diluted Earnings Per Common Share. Earnings per common share is computed using the two-class method prescribed under ASC Topic 260, “Earnings Per Share.” ASC 260 provides that unvested share-based payment awards that contain nonforfeitable rights to dividends or dividend equivalents (whether paid or unpaid) are participating securities and shall be included in the computation of earnings per share pursuant to the two-class method. We have determined that our outstanding non-vested stock awards/stock units and deferred stock units are participating securities.

Under the two-class method, basic earnings per common share is computed by dividing net earnings allocated to common stock by the weighted-average number of common shares outstanding during the applicable period, excluding outstanding participating securities. Diluted earnings per common share is computed using the weighted-average number of shares determined for the basic earnings per common share computation plus the dilutive effect of stock compensation using the treasury stock method. A reconciliation of the weighted-average shares used in calculating basic earnings per common share and the weighted average common shares used in calculating diluted earnings per common share for the reported periods is provided in Note 10 - Earnings Per Common Share.

Comprehensive Income. Comprehensive income includes all changes in shareholders’ equity during a period, except those resulting from transactions with shareholders. Besides net income, other components of our comprehensive income include the after tax effect of changes in the net unrealized gain/loss on securities available for sale, changes in the net unrealized gain on securities transferred to held to maturity and changes in the net actuarial gain/loss on defined benefit post-retirement benefit plans. See Note 14 - Other Comprehensive Income (Loss).

Derivative Financial Instruments. Our hedging policies permit the use of various derivative financial instruments to manage interest rate risk or to hedge specified assets and liabilities. All derivatives are recorded at fair value on our balance sheet. Derivatives executed with the same counterparty are generally subject to master netting arrangements, however, fair value amounts recognized for derivatives and fair value amounts recognized for the right/obligation to reclaim/return cash collateral are not offset for financial reporting purposes. We may be required to recognize certain contracts and commitments as derivatives when the characteristics of those contracts and commitments meet the definition of a derivative.

To qualify for hedge accounting, derivatives must be highly effective at reducing the risk associated with the exposure being hedged and must be designated as a hedge at the inception of the derivative contract. We consider a hedge to be highly effective if the change in fair value of the derivative hedging instrument is within 80% to 125% of the opposite change in the fair value of the hedged item attributable to the hedged risk. If derivative instruments are designated as hedges of fair values, and such hedges are highly effective, both the change in the fair value of the hedge and the hedged item are included in current earnings. Fair value adjustments related to cash flow hedges are recorded in other comprehensive income and are reclassified to earnings when the hedged transaction is reflected in earnings. Ineffective portions of hedges are reflected in earnings as they occur. Actual cash receipts and/or payments and related accruals on derivatives related to hedges are recorded as adjustments to the interest income or interest expense associated with the hedged item. During the life of the hedge, we formally assess whether derivatives designated as hedging instruments continue to be highly effective in offsetting changes in the fair value or cash flows of hedged items. If it is determined that a hedge has ceased to be highly effective, we will discontinue hedge accounting prospectively. At such time, previous adjustments to the carrying value of the hedged item are reversed into current earnings and the derivative instrument is reclassified to a trading position recorded at fair value.

Fair Value Measurements. In general, fair values of financial instruments are based upon quoted market prices, where available. If such quoted market prices are not available, fair value is based upon internally developed models that primarily use, as inputs, observable market-based parameters. Valuation adjustments may be made to ensure that financial instruments are recorded at fair value. These adjustments may include amounts to reflect counterparty credit quality and our creditworthiness, among other things, as well as unobservable parameters. Any such valuation adjustments are applied consistently over time. See Note 17 - Fair Value Measurements.

Transfers of Financial Assets. Transfers of financial assets are accounted for as sales when control over the assets has been surrendered. Control over transferred assets is deemed to be surrendered when (i) the assets have been isolated from us, (ii) the transferee obtains the right (free of conditions that constrain it from taking advantage of that right) to pledge or exchange the transferred assets, and (iii) we do not maintain effective control over the transferred assets through an agreement to repurchase them before their maturity.

Loss Contingencies. Loss contingencies, including claims and legal actions arising in the ordinary course of business are recorded as liabilities when the likelihood of loss is probable and an amount or range of loss can be reasonably estimated.

Trust Assets. Assets of our trust department, other than cash on deposit at Frost Bank, are not included in the accompanying financial statements because they are not our assets.

Accounting Changes, Reclassifications and Restatements. Certain items in prior financial statements have been reclassified to conform to the current presentation.

As discussed above, on January 1, 2020 we adopted the provisions of ASC 326 using the modified retrospective method for all financial assets measured at amortized cost and off-balance-sheet credit exposures. Upon adoption, we recognized an after-tax cumulative effect reduction to retained earnings totaling $29.3 million, as detailed in the table below. Operating results for periods after January 1, 2020 are presented in accordance with ASC 326 while prior period amounts continue to be reported in accordance with previously applicable standards and the accounting policies as described above.

The following table details the impact of the adoption of ASC 326 on the allowance for credit losses as of January 1, 2020.

	January 1, 2020			
	Pre-Adoption Allowance	**Impact of Adoption**	**Post-Adoption Allowance**	**Cumulative Effect on Retained Earnings**
Securities held to maturity:				
U.S. Treasury	$ —	$ —	$ —	$ —
Residential mortgage-backed securities	—	—	—	—
States and political subdivisions	—	215	215	(170)
Other	—	—	—	—
Total	$ —	$ 215	$ 215	$ (170)
Loans:				
Commercial and industrial	$ 51,593	$ 21,263	$ 72,856	$ (16,798)
Energy	37,382	(10,453)	26,929	8,258
Commercial real estate	31,037	(13,519)	17,518	10,680
Consumer real estate	4,113	2,392	6,505	(1,890)
Consumer and other	8,042	(2,248)	5,794	1,776
Total	$ 132,167	$ (2,565)	$ 129,602	$ 2,026
Off-balance-sheet credit exposures	$ 500	$ 39,377	$ 39,877	$ (31,108)

On January 1, 2019, we adopted certain accounting standard updates related to accounting for leases, primarily ASU 2016-02 “Leases (Topic 842)” and subsequent updates. Among other things, these updates require lessees to recognize a lease liability, measured on a discounted basis, related to the lessee's obligation to make lease payments arising under a lease contract; and a right-of-use asset related to the lessee’s right to use, or control the use of, a specified asset for the lease term. The updates did not significantly change lease accounting requirements applicable to lessors and did not significantly impact our financial statements in relation to contracts whereby we act as a lessor. We adopted the updates using a modified-retrospective transition approach and recognized right-of-use lease assets and related lease liabilities totaling $170.5 million and $174.4 million, respectively, as of January 1, 2019. We elected to apply certain practical adoption expedients provided under the updates whereby we did not reassess (i) whether any expired or existing contracts are or contain leases, (ii) the lease classification for any expired or existing leases and (iii) initial direct costs for any existing leases. We did not elect to apply the recognition requirements of the updates to short-term leases. See Note 4 - Premises and Equipment and Lease Commitments.

On January 1, 2019, we also adopted ASU 2017-08 "Receivables - Nonrefundable Fees and Other Costs (Subtopic 310-20) - Premium Amortization on Purchased Callable Debt Securities." ASU 2017-08 shortens the amortization period for certain callable debt securities held at a premium to require such premiums to be amortized to the earliest call date unless applicable guidance related to certain pools of securities is applied to consider estimated prepayments. Under prior guidance, entities were generally required to amortize premiums on individual, non-pooled callable debt securities as a yield adjustment over the contractual life of the security. ASU 2017-08 does not change the accounting for callable debt securities held at a discount. Upon adoption, using a modified retrospective transition adoption approach, we recognized a cumulative effect reduction to retained earnings totaling $14.7 million.

Note 2 - Securities

Securities - Held to Maturity. A summary of the amortized cost, fair value and allowance for credit losses related to securities held to maturity as of December 31, 2021 and 2020 is presented below.

	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value	Allowance for Credit Losses	Net Carrying Amount
December 31, 2021						
Residential mortgage-backed securities	$ 527,264	$ 18,766	$ —	$ 546,030	$ —	$ 527,264
States and political subdivisions	1,220,573	41,141	101	1,261,613	(158)	1,220,415
Other	1,500	—	—	1,500	—	1,500
Total	$ 1,749,337	$ 59,907	$ 101	$ 1,809,143	$ (158)	$ 1,749,179
December 31, 2020						
Residential mortgage-backed securities	$ 528,784	$ 41,742	$ —	$ 570,526	$ —	$ 528,784
States and political subdivisions	1,415,549	65,321	—	1,480,870	(160)	1,415,389
Other	1,500	—	—	1,500	—	1,500
Total	$ 1,945,833	$ 107,063	$ —	$ 2,052,896	$ (160)	$ 1,945,673

All mortgage-backed securities included in the above table were issued by U.S. government agencies and corporations. The carrying value of held-to-maturity securities pledged to secure public funds, trust deposits, repurchase agreements and for other purposes, as required or permitted by law was $642.3 million and $659.2 million at December 31, 2021 and 2020, respectively. Accrued interest receivable on held-to-maturity securities totaled $18.4 million and $21.7 million at December 31, 2021 and 2020, respectively and is included in accrued interest receivable and other assets in the accompanying consolidated balance sheets.

From time to time, we have reclassified certain securities from available for sale to held to maturity. During 2019, we reclassified securities with an aggregate fair value of $377.8 million and an aggregate net unrealized gain of $3.3 million ($2.6 million, net of tax) on the date of the transfer. The net unamortized, unrealized gain remaining on transferred securities, including those transferred in 2019 and in years prior, included in accumulated other comprehensive income in the accompanying balance sheet totaled $2.5 million ($2.0 million, net of tax) at December 31, 2021 and $3.5 million ($2.8 million, net of tax) at December 31, 2020. This amount will be amortized out of accumulated other comprehensive income over the remaining life of the underlying securities as an adjustment of the yield on those securities.

The allowance for credit losses on held-to-maturity securities is a contra-asset valuation account that is deducted from the amortized cost basis of held-to-maturity securities to present the net amount expected to be collected. Management measures expected credit losses on held-to-maturity securities on a collective basis by major security type with each type sharing similar risk characteristics, and considers historical credit loss information that is adjusted for current conditions and reasonable and supportable forecasts. With regard to U.S. Treasury and residential mortgage-backed securities issued by the U.S. government, or agencies thereof, it is expected that the securities will not be settled at prices less than the amortized cost bases of the securities as such securities are backed by the full faith and credit of and/or guaranteed by the U.S. government. Accordingly, no allowance for credit losses has been recorded for these securities. With regard to securities issued by States and political subdivisions and other held-to-maturity securities, management considers (i) issuer bond ratings, (ii) historical loss rates for given bond ratings, (iii) whether issuers continue to make timely principal and interest payments under the contractual terms of the securities, (iv) internal forecasts and (v) whether or not such securities are guaranteed by the Texas Permanent School Fund ("PSF") or pre-refunded by the issuers.

The following table summarizes Moody's and/or Standard & Poor's bond ratings for our portfolio of held-to-maturity securities issued by States and political subdivisions and other securities as of December 31, 2021:

	States and Political Subdivisions				
	Not Guaranteed or Pre-Refunded	Guaranteed by the Texas PSF	Pre-Refunded	Total	Other Securities
Aaa/AAA	$ 92,379	$ 460,648	$ 563,251	$ 1,116,278	$ —
Aa/AA	104,295	—	—	104,295	—
Not rated	—	—	—	—	1,500
Total	$ 196,674	$ 460,648	$ 563,251	$ 1,220,573	$ 1,500

Historical loss rates associated with securities having similar grades as those in our portfolio have generally not been significant. Furthermore, as of December 31, 2021, there were no past due principal or interest payments associated with these securities. The PSF is a sovereign wealth fund which serves to provide revenues for funding of public primary and secondary education in the State of Texas. Based upon (i) the PSF's AAA insurer financial strength rating, (ii) the PSF's substantial capitalization and excess guarantee capacity and (iii) a zero historical loss rate, no allowance for credit losses has been recorded for securities guaranteed by the PSF as there is no current expectation of credit losses related to these securities. Pre-refunded securities have been defeased by the issuer and are fully secured by cash and/or U.S. Treasury securities held in escrow for payment to holders when the underlying call dates of the securities are reached. Accordingly, no allowance for credit losses has been recorded for securities that have been defeased as there is no current expectation of credit losses related to these securities.

The following table details activity in the allowance for credit losses on held-to-maturity securities.

	2021	2020
Beginning balance	$ 160	$ —
Impact of adopting ASC 326	—	215
Credit loss expense (benefit)	(2)	(55)
Ending balance	$ 158	$ 160

Securities - Available for Sale. A summary of the amortized cost, fair value and allowance for credit losses related to securities available for sale as of December 31, 2021 and 2020 is presented below.

	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Allowance for Credit Losses	Estimated Fair Value
December 31, 2021					
U.S. Treasury	$ 2,165,702	$ 23,333	$ 9,602	$ —	$ 2,179,433
Residential mortgage-backed securities	4,059,692	31,662	25,089	—	4,066,265
States and political subdivisions	7,178,135	463,810	5,374	—	7,636,571
Other	42,359	—	—	—	42,359
Total	$ 13,445,888	$ 518,805	$ 40,065	$ —	$ 13,924,628
December 31, 2020					
U.S. Treasury	$ 1,084,542	$ 35,091	$ —	$ —	$ 1,119,633
Residential mortgage-backed securities	1,916,581	71,102	4	—	1,987,679
States and political subdivisions	6,683,927	603,975	—	—	7,287,902
Other	42,351	—	—	—	42,351
Total	$ 9,727,401	$ 710,168	$ 4	$ —	$ 10,437,565

All mortgage-backed securities included in the above table were issued by U.S. government agencies and corporations. At December 31, 2021 all of the securities in our available for sale municipal bond portfolio were issued by the State of Texas or political subdivisions or agencies within the State of Texas, of which approximately 76.6% are either guaranteed by the PSF or have been pre-refunded. Securities with limited marketability, such as stock in the Federal Reserve Bank and the Federal Home Loan Bank, are carried at cost and are reported as other available for sale securities in the table above. The carrying value of available-for-sale securities pledged to secure public funds, trust deposits, repurchase agreements and for other purposes, as required or permitted by law was $5.8 billion and $4.4 billion at December 31, 2021 and 2020, respectively. Accrued interest receivable on available-for-sale securities totaled $120.5 million and $111.0 million at December 31, 2021 and 2020, respectively, and is included in accrued interest receivable and other assets in the accompanying consolidated balance sheets.

The table below summarizes, as of December 31, 2021, securities available for sale in an unrealized loss position for which an allowance for credit losses has not been recorded, aggregated by type of security and length of time in a continuous unrealized loss position.

	Less than 12 Months		More than 12 Months		Total	
	Estimated Fair Value	**Unrealized Losses**	**Estimated Fair Value**	**Unrealized Losses**	**Estimated Fair Value**	**Unrealized Losses**
U.S. Treasury	$ 684,242	$ 9,602	$ —	$ —	$ 684,242	$ 9,602
Residential mortgage-backed securities	2,219,261	23,625	45,963	1,464	2,265,224	25,089
States and political subdivisions	364,056	5,074	5,675	300	369,731	5,374
Total	$ 3,267,559	$ 38,301	$ 51,638	$ 1,764	$ 3,319,197	$ 40,065

As of December 31, 2021, no allowance for credit losses has been recognized on available for sale securities in an unrealized loss position as management does not believe any of the securities are impaired due to reasons of credit quality. This is based upon our analysis of the underlying risk characteristics, including credit ratings, and other qualitative factors related to our available for sale securities and in consideration of our historical credit loss experience and internal forecasts. The issuers of these securities continue to make timely principal and interest payments under the contractual terms of the securities. Furthermore, management does not have the intent to sell any of the securities classified as available for sale in the table above and believes that it is more likely than not that we will not have to sell any such securities before a recovery of cost. The unrealized losses are due to increases in market interest rates over the yields available at the time the underlying securities were purchased. The fair value is expected to recover as the securities approach their maturity date or repricing date or if market yields for such investments decline.

Contractual Maturities. The following table summarizes the maturity distribution schedule of securities held to maturity and securities available for sale as of December 31, 2021. Mortgage-backed securities are included in maturity categories based on their stated maturity date. Expected maturities may differ from contractual maturities because issuers may have the right to call or prepay obligations. Other securities classified as available for sale include stock in the Federal Reserve Bank and the Federal Home Loan Bank, which have no maturity date. These securities have been included in the total column only.

	Within 1 Year	1 - 5 Years	5 - 10 Years	After 10 Years	Total
Held To Maturity					
Amortized Cost					
Residential mortgage-backed securities	$ 37	$ —	$ 515,100	$ 12,127	$ 527,264
States and political subdivisions	464,112	180,373	73,808	502,280	1,220,573
Other	1,500	—	—	—	1,500
Total	$ 465,649	$ 180,373	$ 588,908	$ 514,407	$ 1,749,337
Estimated Fair Value					
Residential mortgage-backed securities	$ 37	$ —	$ 533,454	$ 12,539	$ 546,030
States and political subdivisions	468,685	185,458	74,729	532,741	1,261,613
Other	1,500	—	—	—	1,500
Total	$ 470,222	$ 185,458	$ 608,183	$ 545,280	$ 1,809,143
Available For Sale					
Amortized Cost					
U. S. Treasury	$ —	$ 1,030,591	$ 943,417	$ 191,694	$ 2,165,702
Residential mortgage-backed securities	63	15,278	19,175	4,025,176	4,059,692
States and political subdivisions	86,485	1,611,040	808,323	4,672,287	7,178,135
Other	—	—	—	—	42,359
Total	$ 86,548	$ 2,656,909	$ 1,770,915	$ 8,889,157	$ 13,445,888
Estimated Fair Value					
U. S. Treasury	$ —	$ 1,038,734	$ 942,113	$ 198,586	$ 2,179,433
Residential mortgage-backed securities	64	15,954	19,624	4,030,623	4,066,265
States and political subdivisions	87,493	1,715,065	858,485	4,975,528	7,636,571
Other	—	—	—	—	42,359
Total	$ 87,557	$ 2,769,753	$ 1,820,222	$ 9,204,737	$ 13,924,628

Sales of Securities. Sales of securities available for sale were as follows:

	2021	2020	2019
Proceeds from sales	$ 1,999,891	$ 1,162,352	$ 18,660,147
Gross realized gains	69	108,989	930
Gross realized losses	—	—	(637)
Tax benefit (expense) related to securities gains/losses	(14)	(22,888)	(62)

Premiums and Discounts. Premium amortization and discount accretion included in interest income on securities was as follows:

	2021	2020	2019
Premium amortization	$ (121,994)	$ (126,210)	$ (120,785)
Discount accretion	2,752	2,425	5,227
Net (premium amortization) discount accretion	$ (119,242)	$ (123,785)	$ (115,558)

Trading Account Securities. Year-end trading account securities, at estimated fair value, were as follows:

	2021	2020
U.S. Treasury	$ 24,237	$ 23,996
States and political subdivisions	925	460
Total	$ 25,162	$ 24,456

Net gains and losses on trading account securities were as follows:

	2021	2020	2019
Net gain on sales transactions	$ 1,014	$ 1,102	$ 2,173
Net mark-to-market gains (losses)	(75)	85	(176)
Net gain on trading account securities	$ 939	$ 1,187	$ 1,997

Note 3 - Loans

Year-end loans, including leases net of unearned discounts, consisted of the following:

	2021	2020
Commercial and industrial	$ 5,364,954	$ 4,955,341
Energy:		
Production	878,436	976,473
Service	105,901	116,825
Other	93,455	141,900
Total energy	1,077,792	1,235,198
Paycheck Protection Program	428,882	2,433,849
Commercial real estate:		
Commercial mortgages	5,867,062	5,478,806
Construction	1,304,271	1,223,814
Land	405,277	317,847
Total commercial real estate	7,576,610	7,020,467
Consumer real estate:		
Home equity loans	324,157	329,390
Home equity lines of credit	519,098	452,854
Other	567,535	548,530
Total consumer real estate	1,410,790	1,330,774
Total real estate	8,987,400	8,351,241
Consumer and other	477,369	505,680
Total loans	$ 16,336,397	$ 17,481,309

Concentrations of Credit. Most of our lending activity occurs within the State of Texas, including the four largest metropolitan areas of Austin, Dallas/Ft. Worth, Houston and San Antonio, as well as other markets. The majority of our loan portfolio consists of commercial and industrial and commercial real estate loans. As of December 31, 2021 and 2020, there were no concentrations of loans related to any single industry in excess of 10% of total loans. At such dates, the largest industry concentration was related to the energy industry, which totaled 6.6% of total loans, or 6.8% excluding PPP Loans at December 31, 2021 and 7.1% of total loans, or 8.2% excluding PPP Loans at December 31, 2020. Unfunded commitments to extend credit and standby letters of credit issued to customers in the energy industry totaled $891.4 million and $68.9 million, respectively, as of December 31, 2021.

Foreign Loans. We have U.S. dollar denominated loans and commitments to borrowers in Mexico. The outstanding balance of these loans and the unfunded amounts available under these commitments were not significant at December 31, 2021 or 2020.

Overdrafts. Deposit account overdrafts reported as loans totaled $7.8 million and $5.6 million at December 31, 2021 and 2020.

Related Party Loans. In the ordinary course of business, we have granted loans to certain directors, executive officers and their affiliates (collectively referred to as “related parties”). Activity in related party loans during 2021 is presented in the following table. Other changes were primarily related to changes in related-party status.

Balance outstanding at December 31, 2020	$ 353,105
Principal additions	262,761
Principal payments	(196,634)
Other changes	(68,694)
Balance outstanding at December 31, 2021	$ 350,538

Accrued Interest Receivable. Accrued interest receivable on loans totaled $40.0 million and $48.7 million at December 31, 2021 and 2020, respectively and is included in accrued interest receivable and other assets in the accompany consolidated balance sheets.

Non-Accrual and Past Due Loans. Loans are considered past due if the required principal and interest payments have not been received as of the date such payments were due. Loans are placed on non-accrual status when, in management’s opinion, the borrower may be unable to meet payment obligations as they become due, as well as when required by regulatory provisions. In determining whether or not a borrower may be unable to meet payment obligations for each class of loans, we consider the borrower’s debt service capacity through the analysis of current financial information, if available, and/or current information with regards to our collateral position. Regulatory provisions would typically require the placement of a loan on non-accrual status if (i) principal or interest has been in default for a period of 90 days or more unless the loan is both well secured and in the process of collection or (ii) full payment of principal and interest is not expected. Loans may be placed on non-accrual status regardless of whether or not such loans are considered past due. When interest accrual is discontinued, all unpaid accrued interest is reversed. Interest income on non-accrual loans is recognized only to the extent that cash payments are received in excess of principal due. A loan may be returned to accrual status when all the principal and interest amounts contractually due are brought current and future principal and interest amounts contractually due are reasonably assured, which is typically evidenced by a sustained period (at least six months) of repayment performance by the borrower.

Year-end non-accrual loans, segregated by class of loans, were as follows:

	December 31, 2021		December 31, 2020	
	Total Non-Accrual	**Non-Accrual with No Credit Loss Allowance**	**Total Non-Accrual**	**Non-Accrual with No Credit Loss Allowance**
Commercial and industrial	$ 22,582	$ 4,701	$ 19,849	$ 4,479
Energy	14,433	8,533	23,168	639
Paycheck Protection Program	—	—	—	—
Commercial real estate:				
Buildings, land and other	15,297	13,817	15,737	14,116
Construction	948	—	1,684	1,684
Consumer real estate	440	138	993	993
Consumer and other	13	13	18	—
Total	$ 53,713	$ 27,202	$ 61,449	$ 21,911

The following tables present non-accrual loans as of December 31, 2021 and December 31, 2020 by class and year of origination.

	December 31, 2021								
	2021	2020	2019	2018	2017	Prior	Revolving Loans	Revolving Loans Converted to Term	Total
Commercial and industrial	$ 636	$ 3,856	$ 5,047	$ 1,820	$ 765	$ 353	$ 4,635	$ 5,470	$ 22,582
Energy	—	—	5,358	1,325	—	—	6,931	819	14,433
Paycheck Protection Program	—	—	—	—	—	—	—	—	—
Commercial real estate:									
Buildings, land and other	6,038	307	3,446	814	2,030	2,662	—	—	15,297
Construction	—	948	—	—	—	—	—	—	948
Consumer real estate	—	—	—	—	—	408	—	32	440
Consumer and other	13	—	—	—	—	—	—	—	13
Total	$ 6,687	$ 5,111	$ 13,851	$ 3,959	$ 2,795	$ 3,423	$ 11,566	$ 6,321	$ 53,713

	December 31, 2020								
	2020	2019	2018	2017	2016	Prior	Revolving Loans	Revolving Loans Converted to Term	Total
Commercial and industrial	$ 9,479	$ 3,351	$ 1,846	$ 1,489	$ 105	$ 29	$ 839	$ 2,711	$ 19,849
Energy	2,421	6,772	2,144	—	—	359	11,193	279	23,168
Paycheck Protection Program	—	—	—	—	—	—	—	—	—
Commercial real estate:									
Buildings, land and other	2,914	5,031	999	2,019	1,933	2,736	105	—	15,737
Construction	1,684	—	—	—	—	—	—	—	1,684
Consumer real estate	—	—	—	211	—	408	259	115	993
Consumer and other	—	—	—	—	—	—	18	—	18
Total	$ 16,498	$ 15,154	$ 4,989	$ 3,719	$ 2,038	$ 3,532	$ 12,414	$ 3,105	$ 61,449

In the tables above, loans reported as 2021 originations as of December 31, 2021 and loans reported as 2020 originations as of December 31, 2020 were, for the most part, first originated in various years prior to 2021 and 2020, respectively, but were renewed in the respective year. Had non-accrual loans performed in accordance with their original contract terms, we would have recognized additional interest income, net of tax, of approximately $1.8 million in 2021, $2.9 million in 2020 and $3.9 million in 2019.

An age analysis of past due loans (including both accruing and non-accruing loans), segregated by class of loans, as of December 31, 2021 is presented in the following table. Despite their past due status, Paycheck Protection Plan loans are fully guaranteed by the SBA.

	Loans 30-89 Days Past Due	Loans 90 or More Days Past Due	Total Past Due Loans	Current Loans	Total Loans	Accruing Loans 90 or More Days Past Due
Commercial and industrial	$ 34,096	$ 12,364	$ 46,460	$ 5,318,494	$ 5,364,954	$ 7,802
Energy	1,451	7,867	9,318	1,068,474	1,077,792	215
Paycheck Protection Program	4,979	18,766	23,745	405,137	428,882	18,766
Commercial real estate:						
Buildings, land and other	37,899	14,136	52,035	6,220,304	6,272,339	8,687
Construction	188	—	188	1,304,083	1,304,271	—
Consumer real estate	4,877	2,513	7,390	1,403,400	1,410,790	2,177
Consumer and other	4,185	1,076	5,261	472,108	477,369	1,076
Total	$ 87,675	$ 56,722	$ 144,397	$16,192,000	$16,336,397	$ 38,723

Troubled Debt Restructurings. The restructuring of a loan is considered a "troubled debt restructuring" if both (i) the borrower is experiencing financial difficulties and (ii) the creditor has granted a concession. Concessions may include interest rate reductions or below market interest rates, principal forgiveness, restructuring amortization schedules, reductions in collateral and other actions intended to minimize potential losses. Troubled debt restructurings that occurred during 2021, 2020 and 2019 are set forth in the following table.

	2021		2020		2019	
	Balance at Restructure	Balance at Year-end	Balance at Restructure	Balance at Year-end	Balance at Restructure	Balance at Year-end
Commercial and industrial	$ 1,312	$ 1,162	$ 3,661	$ 192	$ 3,845	$ 2,161
Energy	3,817	721	2,432	2,421	—	—
Commercial real estate:						
Buildings, land and other	1,888	1,862	9,310	4,922	9,457	9,393
Construction	—	—	1,017	1,017	—	—
Consumer real estate	—	—	—	—	124	120
Consumer and other	—	—	1,104	—	—	—
	$ 7,017	$ 3,745	$ 17,524	$ 8,552	$ 13,426	$ 11,674

Loan modifications are typically related to extending amortization periods, converting loans to interest only for a limited period of time, deferral of interest payments, waiver of certain covenants, consolidating notes and/or reducing collateral or interest rates. The modifications during the reported periods did not significantly impact our determination of the allowance for credit losses on loans.

Additional information related to restructured loans was as follows:

	2021	2020	2019
Restructured loans past due in excess of 90 days at period-end:			
Number of loans	2	1	4
Dollar amount of loans	$ 1,027	$ 2,008	$ 3,340
Restructured loans on non-accrual status at period end	3,439	8,552	5,576
Charge-offs of restructured loans:			
Recognized in connection with restructuring	—	337	—
Recognized on previously restructured loans	4,278	3,894	1,500

Credit Quality Indicators. As part of the on-going monitoring of the credit quality of our loan portfolio, management tracks certain credit quality indicators including trends related to (i) the weighted-average risk grade of commercial loans, (ii) the level of classified commercial loans, (iii) the delinquency status of consumer loans (iv) non-performing loans (see details above) and (vi) the general economic conditions in the State of Texas.

We utilize a risk grading matrix to assign a risk grade to each of our commercial loans. Loans are graded on a scale of 1 to 14. A description of the general characteristics of the 14 risk grades is as follows:

- *Grades 1, 2 and 3* - These grades include loans to very high credit quality borrowers of investment or near investment grade. These borrowers are generally publicly traded (grades 1 and 2), have significant capital strength, moderate leverage, stable earnings and growth, and readily available financing alternatives. Smaller entities, regardless of strength, would generally not fit in these grades.
- *Grades 4 and 5* - These grades include loans to borrowers of solid credit quality with moderate risk. Borrowers in these grades are differentiated from higher grades on the basis of size (capital and/or revenue), leverage, asset quality and the stability of the industry or market area.
- *Grades 6, 7 and 8* - These grades include "pass grade" loans to borrowers of acceptable credit quality and risk. Such borrowers are differentiated from Grades 4 and 5 in terms of size, secondary sources of repayment or they are of lesser stature in other key credit metrics in that they may be over-leveraged, under capitalized, inconsistent in performance or in an industry or an economic area that is known to have a higher level of risk, volatility, or susceptibility to weaknesses in the economy.
- *Grade 9* - This grade includes loans on management's "watch list" and is intended to be utilized on a temporary basis for pass grade borrowers where a significant risk-modifying action is anticipated in the near term.
- *Grade 10* - This grade is for "Other Assets Especially Mentioned" in accordance with regulatory guidelines. This grade is intended to be temporary and includes loans to borrowers whose credit quality has clearly deteriorated and are at risk of further decline unless active measures are taken to correct the situation.
- *Grade 11* - This grade includes "Substandard" loans, in accordance with regulatory guidelines, for which the accrual of interest has not been stopped. By definition under regulatory guidelines, a "Substandard" loan has defined weaknesses which make payment default or principal exposure likely, but not yet certain. Such loans are apt to be dependent upon collateral liquidation, a secondary source of repayment or an event outside of the normal course of business.
- *Grade 12* - This grade includes "Substandard" loans, in accordance with regulatory guidelines, for which the accrual of interest has been stopped. This grade includes loans where interest is more than 120 days past due and not fully secured and loans where a specific valuation allowance may be necessary, but generally does not exceed 30% of the principal balance.
- *Grade 13* - This grade includes "Doubtful" loans in accordance with regulatory guidelines. Such loans are placed on non-accrual status and may be dependent upon collateral having a value that is difficult to determine or upon some near-term event which lacks certainty. Additionally, these loans generally have a specific valuation allowance in excess of 30% of the principal balance.
- *Grade 14* - This grade includes "Loss" loans in accordance with regulatory guidelines. Such loans are to be charged-off or charged-down when payment is acknowledged to be uncertain or when the timing or value of payments cannot be determined. "Loss" is not intended to imply that the loan or some portion of it will never be paid, nor does it in any way imply that there has been a forgiveness of debt.

In monitoring credit quality trends in the context of assessing the appropriate level of the allowance for credit losses on loans, we monitor portfolio credit quality by the weighted-average risk grade of each class of commercial loan. Individual relationship managers, under the oversight of credit administration, review updated financial information for all pass grade loans to reassess the risk grade on at least an annual basis. When a loan has a risk grade of 9, it is still considered a pass grade loan; however, it is considered to be on management's "watch list," where a significant risk-modifying action is anticipated in the near term. When a loan has a risk grade of 10 or higher, a special assets officer monitors the loan on an on-going basis.

The following tables present weighted-average risk grades for all commercial loans, by class and year of origination/renewal as of December 31, 2021 and 2020. Paycheck Protection Program ("PPP") loans are excluded as such loans are fully guaranteed by the Small Business Administration ("SBA").

	December 31, 2021								
	2021	2020	2019	2018	2017	Prior	Revolving Loans	Revolving Loans Converted to Term	Total
Commercial and industrial									
Risk grades 1-8	$1,567,883	$ 657,529	$ 350,563	$ 179,209	$ 146,064	$ 131,201	$1,987,061	$ 44,337	$5,063,847
Risk grade 9	32,866	21,094	24,683	26,327	612	11,419	65,131	5,738	187,870
Risk grade 10	27,961	6,273	4,047	4,357	1,021	98	14,091	1,289	59,137
Risk grade 11	1,178	4,572	8,068	2,450	2,460	221	4,714	7,855	31,518
Risk grade 12	456	2,495	3,828	1,756	347	353	613	2,687	12,535
Risk grade 13	180	1,361	1,219	64	418	—	4,022	2,783	10,047
	$1,630,524	$ 693,324	$ 392,408	$ 214,163	$ 150,922	$ 143,292	$2,075,632	$ 64,689	$5,364,954
W/A risk grade	5.91	6.30	6.89	7.06	5.91	5.80	6.21	8.04	6.22
Energy									
Risk grades 1-8	$ 445,489	$ 8,075	$ 9,259	$ 6,441	$ 3,110	$ 4,368	$ 464,454	$ 67,174	$1,008,370
Risk grade 9	19,274	611	1,775	187	—	724	11,635	2,416	36,622
Risk grade 10	—	101	631	511	—	—	—	530	1,773
Risk grade 11	10,260	752	3,968	1,016	—	546	—	52	16,594
Risk grade 12	—	—	3,888	246	—	—	4,000	819	8,953
Risk grade 13	—	—	1,470	1,079	—	—	2,931	—	5,480
	$ 475,023	$ 9,539	$ 20,991	$ 9,480	$ 3,110	$ 5,638	$ 483,020	$ 70,991	$1,077,792
W/A risk grade	6.21	7.81	9.34	8.60	7.12	7.63	5.61	6.46	6.06
Commercial real estate:									
Buildings, land, other									
Risk grades 1-8	$1,707,550	$1,096,274	$ 874,130	$ 533,362	$ 492,492	$ 713,268	$ 52,150	$ 105,696	$5,574,922
Risk grade 9	16,302	145,340	52,427	43,806	27,188	27,767	4,445	4,258	321,533
Risk grade 10	28,209	13,813	69,643	46,250	64,950	46,582	—	—	269,447
Risk grade 11	3,455	1,321	8,720	7,788	26,107	34,970	3,000	5,779	91,140
Risk grade 12	5,838	307	3,446	814	2,030	2,662	—	—	15,097
Risk grade 13	200	—	—	—	—	—	—	—	200
	$1,761,554	$1,257,055	$1,008,366	$ 632,020	$ 612,767	$ 825,249	$ 59,595	$ 115,733	$6,272,339
W/A risk grade	7.19	7.18	7.35	7.39	7.34	7.01	7.06	7.02	7.22
Construction									
Risk grades 1-8	$ 657,471	$ 262,176	$ 178,226	$ 2,339	$ 38	$ 1,930	$ 160,020	$ —	$1,262,200
Risk grade 9	35,721	4,956	—	—	446	—	—	—	41,123
Risk grade 10	—	—	—	—	—	—	—	—	—
Risk grade 11	—	—	—	—	—	—	—	—	—
Risk grade 12	—	748	—	—	—	—	—	—	748
Risk grade 13	—	200	—	—	—	—	—	—	200
	$ 693,192	$ 268,080	$ 178,226	$ 2,339	$ 484	$ 1,930	$ 160,020	$ —	$1,304,271
W/A risk grade	7.17	6.56	7.60	7.51	8.92	6.73	6.79	—	7.06
Total commercial real estate	$2,454,746	$1,525,135	$1,186,592	$ 634,359	$ 613,251	$ 827,179	$ 219,615	$ 115,733	$7,576,610
W/A risk grade	7.18	7.07	7.39	7.39	7.34	7.00	6.86	7.02	7.19

	December 31, 2020								
	2020	**2019**	**2018**	**2017**	**2016**	**Prior**	**Revolving Loans**	**Revolving Loans Converted to Term**	**Total**
Commercial and industrial									
Risk grades 1-8	$1,300,844	$ 552,885	$ 290,088	$ 226,232	$ 107,063	$ 113,458	$1,852,341	$ 63,210	$4,506,121
Risk grade 9	50,785	37,865	33,961	20,851	12,348	5,510	85,756	9,122	256,198
Risk grade 10	31,333	7,361	11,379	6,749	710	113	65,180	3,152	125,977
Risk grade 11	4,700	7,002	6,551	3,416	1,426	140	15,005	8,956	47,196
Risk grade 12	6,899	2,399	1,195	1,005	105	29	480	2,416	14,528
Risk grade 13	2,580	952	651	484	—	—	359	295	5,321
	$1,397,141	$ 608,464	$ 343,825	$ 258,737	$ 121,652	$ 119,250	$2,019,121	$ 87,151	$4,955,341
W/A risk grade	6.19	6.88	7.22	6.39	6.32	5.84	6.38	7.51	6.45
Energy									
Risk grades 1-8	$ 403,156	$ 18,911	$ 9,759	$ 8,083	$ 1,415	$ 4,326	$ 494,946	$ 27,548	$ 968,144
Risk grade 9	105,772	2,272	1,743	—	—	—	18,194	5,566	133,547
Risk grade 10	703	4,049	1,339	—	759	—	37,637	1,940	46,427
Risk grade 11	12,218	16,849	1,325	—	—	661	30,124	2,735	63,912
Risk grade 12	1,101	4,580	654	—	—	359	6,768	279	13,741
Risk grade 13	1,320	2,192	1,490	—	—	—	4,425	—	9,427
	$ 524,270	$ 48,853	$ 16,310	$ 8,083	$ 2,174	$ 5,346	$ 592,094	$ 38,068	$1,235,198
W/A risk grade	6.86	9.57	8.68	7.40	7.85	8.06	6.45	8.20	6.85
Commercial real estate:									
Buildings, land, other									
Risk grades 1-8	$1,544,558	$ 947,102	$ 749,879	$ 605,152	$ 432,941	$ 661,301	$ 56,600	$ 50,340	$5,047,873
Risk grade 9	45,527	81,224	75,893	45,485	26,745	37,728	10,521	2,104	325,227
Risk grade 10	14,183	36,414	45,014	71,814	25,343	60,225	200	5,261	258,454
Risk grade 11	22,633	16,302	11,916	39,727	8,655	42,904	6,977	248	149,362
Risk grade 12	2,714	5,031	999	2,019	1,683	2,736	42	—	15,224
Risk grade 13	200	—	—	—	250	—	63	—	513
	$1,629,815	$1,086,073	$ 883,701	$ 764,197	$ 495,617	$ 804,894	$ 74,403	$ 57,953	$5,796,653
W/A risk grade	7.13	7.36	7.54	7.55	7.54	7.20	7.54	7.12	7.34
Construction									
Risk grades 1-8	$ 374,661	$ 436,077	$ 168,517	$ 67	$ 1,144	$ 1,758	$ 127,801	$ —	$1,110,025
Risk grade 9	37,430	16,567	—	2,848	—	—	14,311	1,131	72,287
Risk grade 10	5,846	—	27,653	—	—	—	5,463	—	38,962
Risk grade 11	856	—	—	—	—	—	—	—	856
Risk grade 12	1,684	—	—	—	—	—	—	—	1,684
Risk grade 13	—	—	—	—	—	—	—	—	—
	$ 420,477	$ 452,644	$ 196,170	$ 2,915	$ 1,144	$ 1,758	$ 147,575	$ 1,131	$1,223,814
W/A risk grade	6.82	7.18	8.08	8.95	7.30	6.44	7.29	9.00	7.22
Total commercial real estate	$2,050,292	$1,538,717	$1,079,871	$ 767,112	$ 496,761	$ 806,652	$ 221,978	$ 59,084	$7,020,467
W/A risk grade	7.06	7.31	7.64	7.56	7.54	7.20	7.37	7.15	7.32

At December 31, 2021 and 2020, the weighted-average risk grades for “pass grade” (risk grades 1-8) loans were 6.01 and 6.13, respectively, for commercial and industrial; 5.78 and 5.99, respectively, for energy; 6.91 and 6.97, respectively, for commercial real estate - buildings, land and other; and 6.99 and 6.99, respectively, for commercial real estate - construction. Furthermore, in the tables above, there are loans reported as 2021 originations as of December 31, 2021 and 2020 originations as of December 31, 2020 that have risk grades of 11 or higher. These loans were, for the most part, first originated in various years prior to 2021 and 2020, respectively, but were renewed in the respective year.

Information about the payment status of consumer loans, segregated by portfolio segment and year of origination, as of December 31, 2021 and December 31, 2020 was as follows:

	December 31, 2021								
	2021	2020	2019	2018	2017	Prior	Revolving Loans	Revolving Loans Converted to Term	Total
Consumer real estate:									
Past due 30-89 days	$ 280	$ 204	$ 406	$ 489	$ 296	$ 1,344	$ 126	$ 1,732	$ 4,877
Past due 90 or more days	—	—	—	154	355	828	991	185	2,513
Total past due	280	204	406	643	651	2,172	1,117	1,917	7,390
Current loans	319,042	251,160	95,900	55,893	48,841	116,423	505,333	10,808	1,403,400
Total	$ 319,322	$ 251,364	$ 96,306	$ 56,536	$ 49,492	$ 118,595	$ 506,450	$ 12,725	$ 1,410,790
Consumer and other:									
Past due 30-89 days	$ 1,600	$ 91	$ 120	$ 38	$ 51	$ 17	$ 325	$ 1,943	$ 4,185
Past due 90 or more days	548	—	45	—	—	—	34	449	1,076
Total past due	2,148	91	165	38	51	17	359	2,392	5,261
Current loans	46,708	17,843	6,215	2,684	1,708	1,158	371,866	23,926	472,108
Total	$ 48,856	$ 17,934	$ 6,380	$ 2,722	$ 1,759	$ 1,175	$ 372,225	$ 26,318	$ 477,369

	December 31, 2020								
	2020	2019	2018	2017	2016	Prior	Revolving Loans	Revolving Loans Converted to Term	Total
Consumer real estate:									
Past due 30-89 days	$ 225	$ 1,038	$ 1,556	$ 553	$ 628	$ 2,907	$ 652	$ 531	$ 8,090
Past due 90 or more days	15	139	109	706	25	1,287	615	151	3,047
Total past due	240	1,177	1,665	1,259	653	4,194	1,267	682	11,137
Current loans	336,441	166,323	94,374	80,625	66,241	124,590	434,939	16,104	1,319,637
Total	$ 336,681	$ 167,500	$ 96,039	$ 81,884	$ 66,894	$ 128,784	$ 436,206	$ 16,786	$ 1,330,774
Consumer and other:									
Past due 30-89 days	$ 1,750	$ 300	$ 453	$ 52	$ 17	$ —	$ 2,238	$ 727	$ 5,537
Past due 90 or more days	71	10	118	—	—	—	1,031	21	1,251
Total past due	1,821	310	571	52	17	—	3,269	748	6,788
Current loans	45,286	27,813	5,397	2,799	1,705	572	386,791	28,529	498,892
Total	$ 47,107	$ 28,123	$ 5,968	$ 2,851	$ 1,722	$ 572	$ 390,060	$ 29,277	$ 505,680

Revolving loans that converted to term during 2021 and 2020 were as follows:

	2021	2020
Commercial and industrial	$ 40,099	$ 47,562
Energy	54,996	33,150
Commercial real estate:		
Buildings, land and other	68,337	10,505
Construction	—	1,131
Consumer real estate	1,156	2,264
Consumer and other	8,367	16,395
Total	$ 172,955	$ 111,007

In assessing the general economic conditions in the State of Texas, management monitors and tracks the Texas Leading Index ("TLI"), which is produced by the Federal Reserve Bank of Dallas. The TLI is a single summary statistic that is designed to signal the likelihood of the Texas economy's transition from expansion to recession and vice versa. Management believes this index provides a reliable indication of the direction of overall credit quality. The TLI is a composite of the following eight leading indicators: (i) Texas Value of the Dollar, (ii) U.S. Leading

Index, (iii) real oil prices (iv) well permits, (v) initial claims for unemployment insurance, (vi) Texas Stock Index, (vii) Help-Wanted Index and (viii) average weekly hours worked in manufacturing. The TLI totaled 134.7 at December 31, 2021 and 118.1 at December 31, 2020. A higher TLI value implies more favorable economic conditions.

Allowance For Credit Losses - Loans. The allowance for credit losses on loans is a contra-asset valuation account, calculated in accordance with ASC 326, that is deducted from the amortized cost basis of loans to present the net amount expected to be collected. The amount of the allowance represents management's best estimate of current expected credit losses on loans considering available information, from internal and external sources, relevant to assessing collectibility over the loans' contractual terms, adjusted for expected prepayments when appropriate. The contractual term excludes expected extensions, renewals and modifications unless (i) management has a reasonable expectation that a trouble debt restructuring will be executed with an individual borrower or (ii) such extension or renewal options are not unconditionally cancellable by us and, in such cases, the borrower is likely to meet applicable conditions and likely to request extension or renewal. Relevant available information includes historical credit loss experience, current conditions and reasonable and supportable forecasts. While historical credit loss experience provides the basis for the estimation of expected credit losses, adjustments to historical loss information may be made for differences in current portfolio-specific risk characteristics, environmental conditions or other relevant factors. The allowance for credit losses is measured on a collective basis for portfolios of loans when similar risk characteristics exist. Loans that do not share risk characteristics are evaluated for expected credit losses on an individual basis and excluded from the collective evaluation. Expected credit losses for collateral dependent loans, including loans where the borrower is experiencing financial difficulty but foreclosure is not probable, are based on the fair value of the collateral at the reporting date, adjusted for selling costs as appropriate.

Credit loss expense related to loans reflects the totality of actions taken on all loans for a particular period including any necessary increases or decreases in the allowance related to changes in credit loss expectations associated with specific loans or pools of loans. Portions of the allowance may be allocated for specific credits; however, the entire allowance is available for any credit that, in management's judgment, should be charged off. While management utilizes its best judgment and information available, the ultimate appropriateness of the allowance is dependent upon a variety of factors beyond our control, including the performance of our loan portfolio, the economy, changes in interest rates and the view of the regulatory authorities toward loan classifications.

In calculating the allowance for credit losses, most loans are segmented into pools based upon similar characteristics and risk profiles. Common characteristics and risk profiles include the type/purpose of loan, underlying collateral, geographical similarity and historical/expected credit loss patterns. In developing these loan pools for the purposes of modeling expected credit losses, we also analyzed the degree of correlation in how loans within each portfolio respond when subjected to varying economic conditions and scenarios as well as other portfolio stress factors. For modeling purposes, our loan pools include (i) commercial and industrial and energy - non-revolving, (ii) commercial and industrial and energy - revolving, (iii) commercial real estate - owner occupied, (iv) commercial real estate - non-owner occupied, (v) commercial real estate - construction/land development, (vi) consumer real estate and (vii) consumer and other. We periodically reassess each pool to ensure the loans within the pool continue to share similar characteristics and risk profiles and to determine whether further segmentation is necessary.

For each loan pool, we measure expected credit losses over the life of each loan utilizing a combination of models which measure (i) probability of default ("PD"), which is the likelihood that loan will stop performing/default, (ii) probability of attrition ("PA"), which is the likelihood that a loan will pay-off prior to maturity, (iii) loss given default ("LGD"), which is the expected loss rate for loans in default and (iv) exposure at default ("EAD"), which is the estimated outstanding principal balance of the loans upon default, including the expected funding of unfunded commitments outstanding as of the measurement date. For certain commercial loan portfolios, the PD is calculated using a transition matrix to determine the likelihood of a customer's risk grade migrating from one specified range of risk grades to a different specified range. Expected credit losses are calculated as the product of PD (adjusted for attrition), LGD and EAD. This methodology builds on default probabilities already incorporated into our risk grading process by utilizing pool-specific historical loss rates to calculate expected credit losses. These pool-specific historical loss rates may be adjusted for current macroeconomic assumptions, as further discussed below, and other factors such as differences in underwriting standards, portfolio mix, or when historical asset terms do not reflect the contractual terms of the financial assets being evaluated as of the measurement date. Each time we measure expected credit losses, we assess the relevancy of historical loss information and consider any necessary adjustments to address any differences in asset-specific characteristics. Due to their short-term nature, expected credit losses for overdrafts included in consumer and other loans are based solely upon a weighting of recent historical charge-offs over a period of three years.

The measurement of expected credit losses is impacted by loan/borrower attributes and certain macroeconomic variables. Significant loan/borrower attributes utilized in our modeling processes include, among other things, (i) origination date, (ii) maturity date, (iii) payment type, (iv) collateral type and amount, (v) current risk grade, (vi) current unpaid balance and commitment utilization rate, (vii) payment status/delinquency history and (viii) expected recoveries of previously charged-off amounts. Significant macroeconomic variables utilized in our modeling processes include, among other things, (i) Gross State Product for Texas and U.S. Gross Domestic Product, (ii) selected market interest rates including U.S. Treasury rates, bank prime rate, 30-year fixed mortgage rate, BBB corporate bond rate, among others, (iii) unemployment rates, (iv) commercial and residential property prices in Texas and the U.S. as a whole, (v) West Texas Intermediate crude oil price and (vi) total stock market index.

PD and PA were estimated by analyzing internally-sourced data related to historical performance of each loan pool over a complete economic cycle. PD and PA are adjusted to reflect the current impact of certain macroeconomic variables as well as their expected changes over a reasonable and supportable forecast period. We have determined that we are reasonably able to forecast the macroeconomic variables used in our modeling processes with an acceptable degree of confidence for a total of two years with the last twelve months of the forecast period encompassing a reversion process whereby the forecasted macroeconomic variables are reverted to their historical mean utilizing a rational, systematic basis. The macroeconomic variables utilized as inputs in our modeling processes were subjected to a variety of analysis procedures and were selected primarily based on statistical relevancy and correlation to our historical credit losses. By reverting these modeling inputs to their historical mean and considering loan/borrower specific attributes, our models are intended to yield a measurement of expected credit losses that reflects our average historical loss rates for periods subsequent to the twelve-month reversion period. The LGD is based on historical recovery averages for each loan pool, adjusted to reflect the current impact of certain macroeconomic variables as well as their expected changes over a two-year forecast period, with the final twelve months of the forecast period encompassing a reversion process, which management considers to be both reasonable and supportable. This same forecast/reversion period is used for all macroeconomic variables used in all of our models. EAD is estimated using a linear regression model that estimates the average percentage of the loan balance that remains at the time of a default event.

Management qualitatively adjusts model results for risk factors that are not considered within our modeling processes but are nonetheless relevant in assessing the expected credit losses within our loan pools. These qualitative factor (“Q-Factor”) and other qualitative adjustments may increase or decrease management's estimate of expected credit losses by a calculated percentage or amount based upon the estimated level of risk. The various risks that may be considered in making Q-Factor and other qualitative adjustments include, among other things, the impact of (i) changes in lending policies and procedures, including changes in underwriting standards and practices for collections, write-offs, and recoveries, (ii) actual and expected changes in international, national, regional, and local economic and business conditions and developments that affect the collectibility of the loan pools, (iii) changes in the nature and volume of the loan pools and in the terms of the underlying loans, (iv) changes in the experience, ability, and depth of our lending management and staff, (v) changes in volume and severity of past due financial assets, the volume of non-accrual assets, and the volume and severity of adversely classified or graded assets, (vi) changes in the quality of our credit review function, (vii) changes in the value of the underlying collateral for loans that are non-collateral dependent, (viii) the existence, growth, and effect of any concentrations of credit and (ix) other factors such as the regulatory, legal and technological environments; competition; and events such as natural disasters or health pandemics.

In some cases, management may determine that an individual loan exhibits unique risk characteristics which differentiate the loan from other loans within our loan pools. In such cases, the loans are evaluated for expected credit losses on an individual basis and excluded from the collective evaluation. Specific allocations of the allowance for credit losses are determined by analyzing the borrower’s ability to repay amounts owed, collateral deficiencies, the relative risk grade of the loan and economic conditions affecting the borrower’s industry, among other things. A loan is considered to be collateral dependent when, based upon management's assessment, the borrower is experiencing financial difficulty and repayment is expected to be provided substantially through the operation or sale of the collateral. In such cases, expected credit losses are based on the fair value of the collateral at the measurement date, adjusted for estimated selling costs if satisfaction of the loan depends on the sale of the collateral. We reevaluate the fair value of collateral supporting collateral dependent loans on a quarterly basis. The fair value of real estate collateral supporting collateral dependent loans is evaluated by our internal appraisal services using a methodology that is consistent with the Uniform Standards of Professional Appraisal Practice. The fair value of collateral supporting collateral dependent construction loans is based on an "as is" valuation.

The following table presents details of the allowance for credit losses on loans segregated by loan portfolio segment as of December 31, 2021 and 2020, calculated in accordance with the CECL methodology described above. No allowance for credit losses has been recognized for PPP loans as such loans are fully guaranteed by the SBA.

	Commercial and Industrial	Energy	Commercial Real Estate	Consumer Real Estate	Consumer and Other	Total
December 31, 2021						
Modeled expected credit losses	$ 46,946	$ 6,363	$ 16,676	$ 6,484	$ 6,397	$ 82,866
Q-Factor and other qualitative adjustments	14,609	5,374	127,860	65	1,440	149,348
Specific allocations	10,536	5,480	400	36	—	16,452
Total	$ 72,091	$ 17,217	$ 144,936	$ 6,585	$ 7,837	$ 248,666
December 31, 2020						
Modeled expected credit losses	$ 65,645	$ 8,910	$ 125,126	$ 7,926	$ 6,945	$ 214,552
Q-Factor and other qualitative adjustments	2,877	21,216	9,253	—	—	33,346
Specific allocations	5,321	9,427	513	—	18	15,279
Total	$ 73,843	$ 39,553	$ 134,892	$ 7,926	$ 6,963	$ 263,177

The following table details activity in the allowance for credit losses on loans by portfolio segment for 2021, 2020 and 2019. Allocation of a portion of the allowance to one category of loans does not preclude its availability to absorb losses in other categories. No allowance for credit losses has been recognized for PPP loans as such loans are fully guaranteed by the SBA.

	Commercial and Industrial	Energy	Commercial Real Estate	Consumer Real Estate	Consumer and Other	Total
2021						
Beginning balance	$ 73,843	$ 39,553	$ 134,892	$ 7,926	$ 6,963	$ 263,177
Credit loss (expense) benefit	(2,160)	(19,207)	8,101	(3,061)	10,230	(6,097)
Charge-offs	(5,513)	(5,331)	(399)	(829)	(18,614)	(30,686)
Recoveries	5,921	2,202	2,342	2,549	9,258	22,272
Net (charge-offs) recoveries	408	(3,129)	1,943	1,720	(9,356)	(8,414)
Ending balance	$ 72,091	$ 17,217	$ 144,936	$ 6,585	$ 7,837	$ 248,666
2020						
Beginning balance	$ 51,593	$ 37,382	$ 31,037	$ 4,113	$ 8,042	$ 132,167
Impacting of adopting ASC 326	21,263	(10,453)	(13,519)	2,392	(2,248)	(2,565)
Credit loss (expense) benefit	15,156	85,889	124,427	1,906	9,632	237,010
Charge-offs	(18,908)	(76,107)	(7,499)	(2,186)	(17,830)	(122,530)
Recoveries	4,739	2,842	446	1,701	9,367	19,095
Net (charge-offs) recoveries	(14,169)	(73,265)	(7,053)	(485)	(8,463)	(103,435)
Ending balance	$ 73,843	$ 39,553	$ 134,892	$ 7,926	$ 6,963	$ 263,177
2019						
Beginning balance	$ 48,580	$ 29,052	$ 38,777	$ 6,103	$ 9,620	$ 132,132
Credit loss (expense) benefit	13,144	14,388	(6,934)	467	12,694	33,759
Charge-offs	(14,117)	(7,500)	(1,025)	(3,665)	(24,725)	(51,032)
Recoveries	3,986	1,442	219	1,208	10,453	17,308
Net (charge-offs) recoveries	(10,131)	(6,058)	(806)	(2,457)	(14,272)	(33,724)
Ending balance	$ 51,593	$ 37,382	$ 31,037	$ 4,113	$ 8,042	$ 132,167

Generally, a commercial loan, or a portion thereof, is charged-off immediately when it is determined, through the analysis of any available current financial information with regards to the borrower, that the borrower is incapable of servicing unsecured debt, there is little or no prospect for near term improvement and no realistic strengthening action of significance is pending or, in the case of secured debt, when it is determined, through analysis of current information with regards to our collateral position, that amounts due from the borrower are in excess of the calculated current fair value of the collateral. Notwithstanding the foregoing, generally, commercial loans that become past due 180 cumulative days are charged-off. Generally, a consumer loan, or a portion thereof, is charged-off in accordance with regulatory guidelines which provide that such loans be charged-off when we become aware of the loss, such as from a triggering event that may include new information about a borrower's intent/ability to repay the loan, bankruptcy, fraud or death, among other things, but in any event the charge-off must be taken within specified delinquency time frames. Such delinquency time frames state that closed-end retail loans (loans with pre-defined maturity dates, such as real estate mortgages, home equity loans and consumer installment loans) that become past due 120 cumulative days and open-end retail loans (loans that roll-over at the end of each term, such as home equity lines of credit) that become past due 180 cumulative days should be classified as a loss and charged-off.

The following table presents loans that were evaluated for expected credit losses on an individual basis and the related specific allocations, by loan portfolio segment as of December 31, 2021 and December 31, 2020.

	December 31, 2021		December 31, 2020	
	Loan Balance	Specific Allocations	Loan Balance	Specific Allocations
Commercial and industrial	$ 24,523	$ 10,536	$ 21,287	$ 5,321
Energy	16,393	5,480	22,888	9,427
Paycheck Protection Program	—	—	—	—
Commercial real estate:				
Buildings, land and other	24,670	200	34,057	513
Construction	948	200	1,684	—
Consumer real estate	303	36	561	—
Consumer and other	—	—	18	18
Total	$ 66,837	$ 16,452	$ 80,495	$ 15,279

Note 4 - Premises and Equipment and Lease Commitments

Year-end premises and equipment were as follows:

	2021	2020
Land	$ 152,219	$ 128,739
Buildings	495,903	458,693
Technology, furniture and equipment	256,323	243,395
Leasehold improvements	192,207	183,827
Construction and projects in progress	14,513	41,202
Lease right-of-use assets	281,438	292,087
	1,392,603	1,347,943
Less accumulated depreciation and amortization	(342,272)	(302,365)
Total premises and equipment, net	$ 1,050,331	$ 1,045,578

Depreciation of premises and equipment totaled $55.1 million in 2021, $49.9 million 2020 and $41.0 million in 2019.

Lease Commitments. We lease certain office facilities and office equipment under operating leases. Rent expense for all operating leases totaled $45.6 million in 2021, $46.0 million in 2020 and $42.1 million in 2019. On January 1, 2019, we adopted a new accounting standard which required the recognition of certain operating leases on our balance sheet as lease right-of-use assets (reported as component of premises and equipment) and related lease liabilities (reported as a component of accrued interest payable and other liabilities). See Note 1 - Summary of Significant Accounting Policies.

The components of total lease expense in 2021 and 2020 were as follows:

	2021	2020
Amortization of lease right-of-use assets	$ 32,811	$ 32,772
Short-term lease expense	1,595	1,799
Non-lease components (including taxes, insurance, common maintenance, etc.)	11,203	11,396
Total	$ 45,609	$ 45,967

Right-of-use lease assets totaled $281.4 million and $292.1 million at December 31, 2021 and 2020, respectively, and are reported as a component of premises and equipment on our accompanying consolidated balance sheets. The related lease liabilities totaled $313.4 million and $323.0 million at December 31, 2021 and 2020, respectively, and are reported as a component of accrued interest payable and other liabilities in the accompanying consolidated balance sheets. Lease payments under operating leases that were applied to our operating lease liability totaled $32.1 million during 2021 and $31.6 million during 2020. The following table reconciles future undiscounted lease payments due under non-cancelable operating leases (those amounts subject to recognition) to the aggregate operating lessee lease liability as of December 31, 2021:

Future lease payments	
2022	$ 32,222
2023	31,458
2024	29,398
2025	28,253
2026	27,833
Thereafter	245,819
Total undiscounted operating lease liability	394,983
Imputed interest	81,579
Total operating lease liability included in the accompanying balance sheet	$ 313,404
Weighted-average lease term in years	14.73
Weighted-average discount rate	3.05%

We lease certain buildings and branch facilities from various entities which are controlled by or affiliated with certain directors. Payments related to these leases totaled $322 thousand in 2021, $9.8 million in 2020 and $5.9 million in 2019. The decrease in these lease payments during 2021 was the result of a director who did not stand for re-election and who has a controlling interest in the entity from which we lease our headquarters building. This lease originally commenced during the second quarter of 2019 and we recognized a right-of-use asset totaling $121.7 million and a related lease liability totaling $121.7 million in connection with this lease. The lease was a separate agreement under a comprehensive development agreement between us, the City of San Antonio and a third party controlled by the aforementioned director.

Note 5 - Goodwill and Other Intangible Assets

Goodwill. Year-end goodwill was as follows:

	2021	2020
Goodwill	$ 654,952	$ 654,952

Other Intangible Assets. Year-end other intangible assets were as follows:

	Gross Intangible Assets	Accumulated Amortization	Net Intangible Assets
2021			
Core deposits	$ 9,300	$ (8,582)	$ 718
Customer relationships	2,385	(2,237)	148
	$ 11,685	$ (10,819)	$ 866
2020			
Core deposits	$ 9,300	$ (8,004)	$ 1,296
Customer relationships	2,886	(2,619)	267
	$ 12,186	$ (10,623)	$ 1,563

Other intangible assets are amortized on an accelerated basis over their estimated lives, which range from 5 to 10 years. Amortization expense related to intangible assets totaled $697 thousand in 2021, $918 thousand in 2020, and $1.2 million in 2019. The estimated aggregate future amortization expense for intangible assets remaining as of December 31, 2021 is as follows:

2022	$ 481
2023	282
2024	87
2025	11
2026	5
Thereafter	—
	$ 866

Note 6 - Deposits

Year-end deposits were as follows:

	2021	2020
Non-interest-bearing demand deposits	$ 18,423,018	$ 15,117,051
Interest-bearing deposits:		
Savings and interest checking	11,930,959	9,730,292
Money market accounts	11,228,815	9,027,655
Time accounts	1,112,904	1,140,763
Total interest-bearing deposits	24,272,678	19,898,710
Total deposits	$ 42,695,696	$ 35,015,761

The following table presents additional information about our year-end deposits:

	2021	2020
Deposits from the Certificate of Deposit Account Registry Service (CDARS)	$ —	$ 372
Deposits from foreign sources (primarily Mexico)	993,479	884,169
Non-interest-bearing public funds deposits	1,235,026	960,072
Interest-bearing public funds deposits	810,863	652,761
Total deposits not covered by deposit insurance	24,125,359	18,694,320
Time deposits not covered by deposit insurance	238,608	237,298
Deposits from certain directors, executive officers and their affiliates	276,556	210,389

Scheduled maturities of time deposits at December 31, 2021 were as follows:

2022	$ 891,392
2023	221,512
	$ 1,112,904

Scheduled maturities of time deposits not covered by deposit insurance at December 31, 2021, were as follows:

Due within 3 months or less	$ 92,403
Due after 3 months and within 6 months	34,038
Due after 6 months and within 12 months	58,357
Due after 12 months	53,810
	$ 238,608

Note 7 - Borrowed Funds

Federal Funds Purchased and Securities Sold Under Agreements to Repurchase. Federal funds purchased are short-term borrowings that typically mature within one to ninety days. Federal funds purchased totaled $25.9 million and $48.9 million at December 31, 2021 and 2020. Securities sold under agreements to repurchase are secured short-term borrowings that typically mature overnight or within thirty to ninety days. Securities sold under agreements to repurchase are stated at the amount of cash received in connection with the transaction. We may be required to provide additional collateral based on the fair value of the underlying securities. Securities sold under agreements to repurchase totaled $2.7 billion and $2.1 billion at December 31, 2021 and 2020.

Subordinated Notes. In March 2017, we issued $100 million of 4.50% subordinated notes that mature on March 17, 2027. The notes, which qualify as Tier 2 capital for Cullen/Frost, bear interest at the rate of 4.50% per annum, payable semi-annually on each March 17 and September 17. The notes are unsecured and subordinated in right of payment to the payment of our existing and future senior indebtedness and structurally subordinated to all existing and future indebtedness of our subsidiaries. Unamortized debt issuance costs related to these notes, totaled approximately $822 thousand and $1.0 million December 31, 2021 and 2020. Proceeds from sale of the notes were used for general corporate purposes.

Junior Subordinated Deferrable Interest Debentures. At December 31, 2021 and 2020, we had $123.7 million of junior subordinated deferrable interest debentures issued to Cullen/Frost Capital Trust II ("Trust II"), a wholly owned Delaware statutory business trust. Unamortized debt issuance costs related to Trust II totaled $701 thousand and $758 thousand at December 31, 2021 and 2020. At December 31, 2020, we also had $13.4 million of junior subordinated deferrable interest debentures issued to WNB Capital Trust I ("WNB Trust"), a wholly owned Delaware statutory business trust acquired in connection with the acquisition of WNB Bancshares, Inc. ("WNB") in 2014. The junior subordinated deferrable interest debentures issued to WNB Trust and the trust preferred securities issued by WNB Trust were redeemed in October 2021. Trust II is a variable interest entity for which we are not the primary beneficiary and, as such, its accounts are not included in our consolidated financial statements. This was also the case with WNB Trust prior to its dissolution in 2021. See Note 1 - Summary of Significant Accounting Policies for additional information about our consolidation policy. Details of our transactions with the capital trust are presented below.

Trust II was formed in 2004 for the purpose of issuing $120.0 million of floating rate (three-month LIBOR plus a margin of 1.55%) trust preferred securities, which represent beneficial interests in the assets of the trust. The trust preferred securities will mature on March 1, 2034 and are currently redeemable with the approval of the Federal Reserve Board in whole or in part at our option. Distributions on the trust preferred securities are payable quarterly in arrears on March 1, June 1, September 1 and December 1 of each year. Trust II also issued $3.7 million of common equity securities to Cullen/Frost. The proceeds of the offering of the trust preferred securities and common equity securities were used to purchase $123.7 million of floating rate (three-month LIBOR plus a margin of 1.55%, which was equal to 1.72% and 1.78% at December 31, 2021 and 2020) junior subordinated deferrable interest debentures issued by us, which have terms substantially similar to the trust preferred securities.

We have the right at any time during the term of the debentures issued to Trust II to defer payments of interest at any time or from time to time for an extension period not exceeding 20 consecutive quarterly periods with respect to each extension period. Under the terms of the debentures, in the event that under certain circumstances there is an event of default under the debentures or we have elected to defer interest on the debentures, we may not, with certain exceptions, declare or pay any dividends or distributions on our capital stock or purchase or acquire any of our capital stock.

Payments of distributions on the trust preferred securities and payments on redemption of the trust preferred securities are guaranteed by us on a limited basis. We are obligated by agreement to pay any costs, expenses or liabilities of Trust II other than those arising under the trust preferred securities. Our obligations under the junior subordinated debentures, the related indenture, the trust agreement establishing the trust, the guarantee and the agreement as to expenses and liabilities, in the aggregate, constitute a full and unconditional guarantee by us of Trust II's obligations under the trust preferred securities.

WNB Trust was formed in 2004 by WNB for the purpose of issuing $13.0 million of floating rate trust preferred securities, which represented beneficial interests in the assets of the trust. The proceeds of the offering of the trust preferred securities along with $403 thousand in proceeds from the issuance of common equity securities were used to purchase $13.4 million of floating rate (three-month LIBOR plus a margin of 2.35%, which was equal to 2.56% at December 31, 2020) junior subordinated deferrable interest debentures issued by WNB, which had terms substantially similar to the trust preferred securities. As noted above, the junior subordinated deferrable interest debentures issued to WNB Trust and the trust preferred securities issued by WNB Trust were redeemed in October 2021.

Although the accounts of Trust II and WNB Trust are not included in our consolidated financial statements, the trust preferred securities issued by these are included in the capital of Cullen/Frost for regulatory capital purposes. See Note 9 - Capital and Regulatory Matters.

Note 8 - Off-Balance-Sheet Arrangements, Commitments, Guarantees and Contingencies

Financial Instruments with Off-Balance-Sheet Risk. In the normal course of business, we enter into various transactions, which, in accordance with generally accepted accounting principles in the United States, are not included in our consolidated balance sheets. We enter into these transactions to meet the financing needs of our customers. These transactions include commitments to extend credit and standby letters of credit, which involve, to varying degrees, elements of credit risk and interest rate risk in excess of the amounts recognized in the consolidated balance sheets. We minimize our exposure to loss under these commitments by subjecting them to credit approval and monitoring procedures.

We enter into contractual commitments to extend credit, normally with fixed expiration dates or termination clauses, at specified rates and for specific purposes. Substantially all of our commitments to extend credit are contingent upon customers maintaining specific credit standards at the time of loan funding. Standby letters of credit are written conditional commitments issued by us to guarantee the performance of a customer to a third party. In the event the customer does not perform in accordance with the terms of the agreement with the third party, we would be required to fund the commitment. The maximum potential amount of future payments we could be required to make is represented by the contractual amount of the commitment. If the commitment were funded, we would be entitled to seek recovery from the customer. Our policies generally require that standby letter of credit arrangements contain security and debt covenants similar to those contained in loan agreements.

We consider the fees collected in connection with the issuance of standby letters of credit to be representative of the fair value of our obligation undertaken in issuing the guarantee. In accordance with applicable accounting standards related to guarantees, we defer fees collected in connection with the issuance of standby letters of credit. The fees are then recognized in income proportionately over the life of the standby letter of credit agreement. The deferred standby letter of credit fees represent the fair value of our potential obligations under the standby letter of credit guarantees.

Year-end financial instruments with off-balance-sheet risk are presented in the following table. Commitments and standby letters of credit are presented at contractual amounts; however, since many of these commitments are expected to expire unused or only partially used, the total amounts of these commitments do not necessarily reflect future cash requirements.

	2021	2020
Commitments to extend credit	$ 10,420,142	$ 9,814,475
Standby letters of credit	238,690	241,345
Deferred standby letter of credit fees	2,072	1,723

Allowance For Credit Losses - Off-Balance-Sheet Credit Exposures. The allowance for credit losses on off-balance-sheet credit exposures is a liability account, calculated in accordance with ASC 326, representing expected credit losses over the contractual period for which we are exposed to credit risk resulting from a contractual obligation to extend credit. No allowance is recognized if we have the unconditional right to cancel the obligation. Off-balance-sheet credit exposures primarily consist of amounts available under outstanding lines of credit and letters of credit detailed in the table above. For the period of exposure, the estimate of expected credit losses considers both the likelihood that funding will occur and the amount expected to be funded over the estimated remaining life of the commitment or other off-balance-sheet exposure. The likelihood and expected amount of funding are based on historical utilization rates. The amount of the allowance represents management's best estimate of expected credit losses on commitments expected to be funded over the contractual life of the commitment.

Estimating credit losses on amounts expected to be funded uses the same methodology as described for loans in Note 3 - Loans as if such commitments were funded.

The following table details activity in the allowance for credit losses on off-balance-sheet credit exposures.

	2021	2020	2019
Beginning balance	$ 44,152	$ 500	$ 500
Impact of adopting ASC 326	—	39,377	—
Credit loss expense	6,162	4,275	—
Ending balance	$ 50,314	$ 44,152	$ 500

Credit Card Guarantees. We guarantee the credit card debt of certain customers to the merchant bank that issues the cards. At December 31, 2021 and 2020, the guarantees totaled approximately $8.6 million and $9.1 million, of which amounts, $962 thousand and $8.2 million were fully collateralized.

Trust Accounts. We hold certain assets which are not included in our consolidated balance sheets including assets held in fiduciary or custodial capacity on behalf of our trust customers. The estimated fair value of trust assets was approximately $43.3 billion and $38.6 billion at December 31, 2021 and 2020, respectively. These assets are primarily composed of equity securities, fixed income securities, alternative investments and cash equivalents, among other things.

Executive Change-In-Control Severance Plan. We maintain a change-in-control severance plan for the benefit of certain executive officers. Under this plan, each covered person could receive, upon the effectiveness of a change-in-control, two to three times (depending on the person) their base compensation plus the target bonus established for the year, and any unpaid base salary and pro rata target bonus for the year in which the termination occurs, including vacation pay. Additionally, the executive's insurance benefits will continue for two to three full years after the termination and all long-term incentive awards will immediately vest.

Litigation. We are subject to various claims and legal actions that have arisen in the course of conducting business. Management does not expect the ultimate disposition of these matters to have a material adverse impact on our financial statements.

Note 9 - Capital and Regulatory Matters

Banks and bank holding companies are subject to various regulatory capital requirements administered by state and federal banking agencies. Capital adequacy guidelines and, additionally for banks, prompt corrective action regulations, involve quantitative measures of assets, liabilities, and certain off-balance-sheet items calculated under regulatory accounting practices. Capital amounts and classifications are also subject to qualitative judgments by regulators about components, risk weighting and other factors.

Cullen/Frost and Frost Bank are each required to comply with applicable capital adequacy standards established by the Federal Reserve Board (the "Basel III Capital Rules"). Quantitative measures established by the Basel III Capital Rules designed to ensure capital adequacy require the maintenance of minimum amounts and ratios (set forth below) of Common Equity Tier 1 capital, Tier 1 capital and Total capital (as defined in the regulations) to risk-weighted assets (as defined), and of Tier 1 capital to adjusted quarterly average assets (as defined).

Cullen/Frost's and Frost Bank's Common Equity Tier 1 capital includes common stock and related paid-in capital, net of treasury stock, and retained earnings. In connection with the adoption of the Basel III Capital Rules, we elected to opt-out of the requirement to include most components of accumulated other comprehensive income in Common Equity Tier 1. We also elected to delay, for a five-year transitional period, the effects of credit loss accounting under CECL from Common Equity Tier 1, as further discussed below. Common Equity Tier 1 for both Cullen/Frost and Frost Bank is reduced by goodwill and other intangible assets, net of associated deferred tax liabilities. Frost Bank's Common Equity Tier 1 is also reduced by its equity investment in its financial subsidiary, Frost Insurance Agency ("FIA").

Tier 1 capital includes Common Equity Tier 1 capital and additional Tier 1 capital. For Cullen/Frost, additional Tier 1 capital at December 31, 2021 and 2020 included $145.5 million of 4.450% non-cumulative perpetual preferred stock, the details of which is are further discussed below. Frost Bank did not have any additional Tier 1 capital beyond Common Equity Tier 1 at December 31, 2021 or 2020.

Total capital includes Tier 1 capital and Tier 2 capital. Tier 2 capital for both Cullen/Frost and Frost Bank includes a permissible portion of the allowance for credit losses on securities, loans and off-balance sheet exposures. Tier 2 capital for Cullen/Frost also includes trust preferred securities that were excluded from Tier 1 capital and qualified subordinated debt. At December 31, 2021 and 2020, Cullen/Frost's Tier 2 capital included $120.0 million and $133.0 million of trust preferred securities, respectively. The $13.0 million of trust preferred securities issued by WNB Capital Trust I were redeemed in October 2021. At both December 31, 2021 and 2020, Tier 2 Capital for Cullen/Frost also included $100.0 million related to the permissible portion of our aggregate $100 million of 4.50% subordinated notes. The permissible portion of qualified subordinated notes decreases 20% per year during the final five years of the term of the notes.

The Common Equity Tier 1, Tier 1 and Total capital ratios are calculated by dividing the respective capital amounts by risk-weighted assets. Risk-weighted assets are calculated based on regulatory requirements and include total assets, with certain exclusions, allocated by risk weight category, and certain off-balance-sheet items, among other things. The leverage ratio is calculated by dividing Tier 1 capital by adjusted quarterly average total assets, which exclude goodwill and other intangible assets, among other things.

The Basel III Capital Rules require Cullen/Frost and Frost Bank to maintain (i) a minimum ratio of Common Equity Tier 1 capital to risk-weighted assets of at least 4.5%, plus a 2.5% "capital conservation buffer" (which is added to the 4.5% Common Equity Tier 1 capital ratio, effectively resulting in a minimum ratio of Common Equity Tier 1 capital to risk-weighted assets of at least 7.0%), (ii) a minimum ratio of Tier 1 capital to risk-weighted assets of at least 6.0%, plus the capital conservation buffer (which is added to the 6.0% Tier 1 capital ratio, effectively resulting in a minimum Tier 1 capital ratio of 8.5%), (iii) a minimum ratio of Total capital (that is, Tier 1 plus Tier 2) to risk-weighted assets of at least 8.0%, plus the capital conservation buffer (which is added to the 8.0% total capital ratio, effectively resulting in a minimum total capital ratio of 10.5%) and (iv) a minimum leverage ratio of 4.0%, calculated as the ratio of Tier 1 capital to average quarterly assets.

The capital conservation buffer is designed to absorb losses during periods of economic stress and, as detailed above, effectively increases the minimum required risk-weighted capital ratios. Banking institutions with a ratio of Common Equity Tier 1 capital to risk-weighted assets below the effective minimum (4.5% plus the capital conservation buffer and, if applicable, the "countercyclical capital buffer," which is discussed below) will face constraints on dividends, equity repurchases and compensation based on the amount of the shortfall and the institution's "eligible retained income" (that is, four quarter trailing net income, net of distributions and tax effects not reflected in net income). The countercyclical capital buffer is applicable to only certain covered institutions and does not have any current applicability to Cullen/Frost or Frost Bank.

As discussed in Note 1 - Significant Accounting Policies, in connection with the adoption of ASC 326, we recognized an after-tax cumulative effect reduction to retained earnings totaling $29.3 million on January 1, 2020. In February 2019, the federal bank regulatory agencies issued a final rule (the "2019 CECL Rule") that revised certain capital regulations to account for changes to credit loss accounting under U.S. GAAP. The 2019 CECL Rule included a transition option that allows banking organizations to phase in, over a three-year period, the day-one adverse effects of CECL on their regulatory capital ratios (three-year transition option). In March 2020, the federal bank regulatory agencies issued an interim final rule that maintains the three-year transition option of the 2019 CECL Rule and also provides banking organizations that were required under U.S. GAAP (as of January 2020) to implement CECL before the end of 2020 the option to delay for two years an estimate of the effect of CECL on regulatory capital, relative to the incurred loss methodology's effect on regulatory capital, followed by a three-year transition period (five-year transition option). We elected to adopt the five-year transition option. Accordingly, a CECL transitional amount totaling $61.6 million has been added back to CET1 as of December 31, 2021. The CECL transitional amount includes $29.3 million related to cumulative effect of adopting CECL and $32.4 million related to the estimated incremental effect of CECL since adoption.

In April 2020, we began originating loans to qualified small businesses under the PPP administered by the SBA. Federal bank regulatory agencies have issued an interim final rule that permits banks to neutralize the regulatory capital effects of participating in the Paycheck Protection Program Lending Facility (the "PPP Facility") and clarify that PPP loans have a zero percent risk weight under applicable risk-based capital rules. Specifically, a bank may exclude all PPP loans pledged as collateral to the PPP Facility from its average total consolidated assets for the purposes of calculating its leverage ratio, while PPP loans that are not pledged as collateral to the PPP Facility will be included. Our PPP loans are included in the calculation of our leverage ratio as of December 31, 2021 as we did not utilize the PPP Facility for funding purposes.

The following table presents actual and required capital ratios as of December 31, 2021 and December 31, 2020 for Cullen/Frost and Frost Bank under the Basel III Capital Rules. Capital levels required to be considered well capitalized are based upon prompt corrective action regulations, as amended to reflect the changes under the Basel III Capital Rules.

	Actual		Minimum Capital Required - Basel III Fully Phased-In		Required to be Considered Well Capitalized	
	Capital Amount	Ratio	Capital Amount	Ratio	Capital Amount	Ratio
2021						
Common Equity Tier 1 to Risk-Weighted Assets						
Cullen/Frost	$ 3,371,043	13.13 %	$ 1,796,549	7.00 %	$ 1,668,224	6.50 %
Frost Bank	3,261,532	12.72	1,795,221	7.00	1,666,991	6.50
Tier 1 Capital to Risk-Weighted Assets						
Cullen/Frost	3,516,495	13.70	2,181,523	8.50	2,053,198	8.00
Frost Bank	3,261,532	12.72	2,179,911	8.50	2,051,681	8.00
Total Capital to Risk-Weighted Assets						
Cullen/Frost	3,966,244	15.45	2,694,823	10.50	2,566,498	10.00
Frost Bank	3,491,281	13.61	2,692,831	10.50	2,564,601	10.00
Leverage Ratio						
Cullen/Frost	3,516,495	7.34	1,917,533	4.00	2,396,917	5.00
Frost Bank	3,261,532	6.80	1,917,679	4.00	2,397,099	5.00
2020						
Common Equity Tier 1 to Risk-Weighted Assets						
Cullen/Frost	$ 3,058,447	12.86 %	$ 1,664,867	7.00 %	$ 1,545,948	6.50 %
Frost Bank	3,030,093	12.77	1,661,620	7.00	1,542,933	6.50
Tier 1 Capital to Risk-Weighted Assets						
Cullen/Frost	3,203,899	13.47	2,021,624	8.50	1,902,705	8.00
Frost Bank	3,030,093	12.77	2,017,682	8.50	1,898,995	8.00
Total Capital to Risk-Weighted Assets						
Cullen/Frost	3,672,912	15.44	2,497,300	10.50	2,378,381	10.00
Frost Bank	3,266,106	13.76	2,492,430	10.50	2,373,743	10.00
Leverage Ratio						
Cullen/Frost	3,203,899	8.07	1,589,004	4.00	1,986,255	5.00
Frost Bank	3,030,093	7.63	1,588,200	4.00	1,985,250	5.00

As of December 31, 2021, capital levels for Cullen/Frost and Frost Bank exceed all capital adequacy requirements under the Basel III Capital Rules. Based on the ratios presented above, capital levels as of December 31, 2021 for Cullen/Frost and Frost Bank exceed the minimum levels necessary to be considered "well capitalized."

Cullen/Frost and Frost Bank are subject to the regulatory capital requirements administered by the Federal Reserve Board and, for Frost Bank, the Federal Deposit Insurance Corporation ("FDIC"). Regulatory authorities can initiate certain mandatory actions if Cullen/Frost or Frost Bank fail to meet the minimum capital requirements, which could have a direct material effect on our financial statements. Management believes, as of December 31, 2021, that Cullen/Frost and Frost Bank meet all capital adequacy requirements to which they are subject.

Series B Preferred Stock. On November 19, 2020, we issued 150,000 shares, or $150.0 million in aggregate liquidation preference, of our 4.450% Non-Cumulative Perpetual Preferred Stock, Series B, par value $0.01 and liquidation preference $1,000 per share ("Series B Preferred Stock"). Each share of Series B Preferred Stock issued and outstanding is represented by 40 depositary shares, each representing a 1/40th ownership interest in a share of the Series B Preferred Stock (equivalent to a liquidation preference of $25 per share). Each holder of depositary shares will be entitled, in proportion to the applicable fraction of a share of Series B Preferred Stock represented by such depositary shares, to all rights and preferences of the Series B Preferred Stock represented thereby (including dividend, voting, redemption, and liquidation rights). Such rights must be exercised through the depositary. Dividends on the Series B Preferred Stock will be non-cumulative and, if declared, accrue and are payable quarterly, in arrears, at a rate of 4.450% per annum. The Series B Preferred Stock qualifies as Tier 1 capital for the purposes of the regulatory capital calculations. The net proceeds from the issuance and sale of the Series B Preferred Stock, after deducting $4.5 million of issuance costs including the underwriting discount and professional service fees, among other things, were approximately $145.5 million.

The Series B Preferred Stock is perpetual and has no maturity date. We may redeem the Series B Preferred Stock at our option (i) in whole or in part, from time to time, on any dividend payment date on or after December 15, 2025 or (ii) in whole but not in part, within 90 days following certain changes in laws or regulations impacting the regulatory capital treatment of the Series B Preferred Stock, in either case, at a redemption price equal to $1,000 per share of Series B Preferred Stock (equivalent to $25 per depositary share), plus any declared and unpaid dividends for prior dividend periods and accrued but unpaid dividends (whether or not declared) for the then-current dividend period prior to but excluding the redemption date. If we redeem the Series B Preferred Stock, the depositary is expected redeem a proportionate number of depositary shares. Neither the holders of Series B Preferred Stock nor holders of depositary shares will have the right to require the redemption or repurchase of the Series B Preferred Stock or the depositary shares.

Series A Preferred Stock. On February 15, 2013, we issued and sold 6,000,000 shares, or $150.0 million in aggregate liquidation preference, of our 5.375% Non-Cumulative Perpetual Preferred Stock, Series A, par value $0.01 and liquidation preference $25 per share ("Series A Preferred Stock"). On March 16, 2020, we redeemed all of the outstanding shares of our Series A Preferred Stock at a redemption price of $25 per share, or an aggregate redemption of $150.0 million. When issued, the net proceeds of the Series A Preferred Stock totaled $144.5 million after deducting $5.5 million of issuance costs including the underwriting discount and professional service fees, among other things. Upon redemption, these issuance costs were reclassified to retained earnings and reported as a reduction of net income available to common shareholders. Prior to redemption, dividends on the Series A Preferred Stock were paid quarterly, in arrears, at a rate of 5.375% per annum and the Series A Preferred Stock qualified as Tier 1 capital for the purposes of regulatory capital calculations.

Stock Repurchase Plans. From time to time, our board of directors has authorized stock repurchase plans. In general, stock repurchase plans allow us to proactively manage our capital position and return excess capital to shareholders. Shares purchased under such plans also provide us with shares of common stock necessary to satisfy obligations related to stock compensation awards. On January 26, 2022, our board of directors authorized a $100.0 million stock repurchase plan, allowing us to repurchase shares of our common stock over a one-year period from time to time at various prices in the open market or through private transactions. Under prior stock repurchase plans, we repurchased, 177,834 shares at a total cost of $13.7 million during 2020 and 699,031 shares at a total cost of $67.2 million during 2019. No shares were repurchased under a stock repurchase plan during 2021. In July 2019, the federal bank regulators adopted final rules (the "Capital Simplifications Rules") that, among other things, eliminated the standalone prior approval requirement in the Basel III Capital Rules for any repurchase of common stock. In certain circumstances, Cullen/Frost's repurchases of its common stock may be subject to a prior approval or notice requirement under other regulations, policies or supervisory expectations of the Federal Reserve Board. Any redemption or repurchase of preferred stock or subordinated debt remains subject to the prior approval of the Federal Reserve Board.

Dividend Restrictions. In the ordinary course of business, Cullen/Frost is dependent upon dividends from Frost Bank to provide funds for the payment of dividends to shareholders and to provide for other cash requirements, including to repurchase its common stock. Banking regulations may limit the amount of dividends that may be paid. Approval by regulatory authorities is required if the effect of dividends declared would cause the regulatory capital of Frost Bank to fall below specified minimum levels. Approval is also required if dividends declared exceed the net profits for that year combined with the retained net profits for the preceding two years. Under the foregoing dividend restrictions and while maintaining its "well capitalized" status, at December 31, 2021, Frost Bank could pay aggregate dividends of up to $494.1 million to Cullen/Frost without prior regulatory approval.

Under the terms of the junior subordinated deferrable interest debentures that Cullen/Frost has issued to Cullen/Frost Capital Trust II, Cullen/Frost has the right at any time during the term of the debentures to defer the payment of interest at any time or from time to time for an extension period not exceeding 20 consecutive quarterly periods with respect to each extension period. In the event that we have elected to defer interest on the debentures, we may not, with certain exceptions, declare or pay any dividends or distributions on our capital stock or purchase or acquire any of our capital stock.

Under the terms of the Series B Preferred Stock, in the event that we do not declare and pay dividends on the Series B Preferred Stock for the most recent dividend period, we may not, with certain exceptions, declare or pay dividends on, or purchase, redeem or otherwise acquire, shares of our common stock or any of our securities that rank junior to the Series B Preferred Stock.

Note 10 - Earnings Per Common Share

Earnings Per Common Share. Earnings per common share is computed using the two-class method. Basic earnings per common share is computed by dividing net earnings allocated to common stock by the weighted-average number of common shares outstanding during the applicable period, excluding outstanding participating securities. Participating securities include non-vested stock awards/stock units, deferred stock units and performance stock units (during the performance period), though no actual shares of common stock related to any type of stock unit have been issued. Non-vested stock awards/stock units and deferred stock units are considered participating securities because holders of these securities receive non-forfeitable dividends at the same rate as holders of our common stock. Holders of performance stock units receive dividend equivalent payments for dividends paid during the performance period at the vesting date of the award based upon the number of units that ultimately vest. Diluted earnings per common share is computed using the weighted-average number of shares determined for the basic earnings per common share computation plus the dilutive effect of stock compensation using the treasury stock method.

The following table presents a reconciliation of net income available to common shareholders, net earnings allocated to common stock and the number of shares used in the calculation of basic and diluted earnings per common share.

	2021	2020	2019
Net Income	$ 443,079	$ 331,151	$ 443,599
Less: Preferred stock dividends	7,157	2,016	8,063
Redemption of preferred stock	—	5,514	—
Net income available to common shareholders	435,922	323,621	435,536
Less: Earnings allocated to participating securities	3,881	3,136	3,687
Net earnings allocated to common stock	$ 432,041	$ 320,485	$ 431,849
Distributed earnings allocated to common stock	$ 187,202	$ 178,863	$ 175,540
Undistributed earnings allocated to common stock	244,839	141,622	256,309
Net earnings allocated to common stock	$ 432,041	$ 320,485	$ 431,849
Weighted-average shares outstanding for basic earnings per common share	63,612,658	62,727,053	62,741,769
Dilutive effect of stock compensation	489,462	276,784	700,101
Weighted-average shares outstanding for diluted earnings per common share	64,102,120	63,003,837	63,441,870

Note 11 - Employee Benefit Plans

Retirement Plans

Profit Sharing Plan. Prior to 2019, we maintained a qualified defined contribution profit sharing plan that covered employees who had completed at least one year of service and were age 21 or older. The Plan was merged with and into our 401(k) plan effective January 1, 2019. We continue to maintain a separate non-qualified profit sharing plan for certain employees whose participation in the qualified profit sharing plan was limited. The plan offers such employees an alternative means of receiving comparable benefits. Expense related to this plan was not significant during 2021, 2020 and 2019.

Retirement Plan and Restoration Plan. We maintain a non-contributory defined benefit plan (the "Retirement Plan") that was frozen as of December 31, 2001. The plan provides pension and death benefits to substantially all employees who were at least 21 years of age and had completed at least one year of service prior to December 31, 2001. Defined benefits are provided based on an employee's final average compensation and years of service at the time the plan was frozen and age at retirement. The freezing of the plan provides that future salary increases will not be considered. Our funding policy is to contribute yearly, at least the amount necessary to satisfy the funding standards of the Employee Retirement Income Security Act (“ERISA”).

Our Restoration of Retirement Income Plan (the “Restoration Plan”) provides benefits for eligible employees that are in excess of the limits under Section 415 of the Internal Revenue Code of 1986, as amended, that apply to the Retirement Plan. The Restoration Plan is designed to comply with the requirements of ERISA. The entire cost of the plan, which was also frozen as of December 31, 2001, is supported by our contributions.

We use a December 31 measurement date for our defined benefit plans. Combined activity in our defined benefit pension plans was as follows:

	2021	2020	2019
Change in plan assets:			
Fair value of plan assets at beginning of year	$ 182,088	$ 174,173	$ 152,820
Actual return on plan assets	24,908	16,599	29,945
Employer contributions	1,236	1,201	1,163
Benefits paid	(10,485)	(9,885)	(9,755)
Fair value of plan assets at end of year	197,747	182,088	174,173
Change in benefit obligation:			
Benefit obligation at beginning of year	197,593	186,641	167,107
Interest cost	3,341	5,010	6,472
Actuarial (gain) loss	(4,524)	15,827	22,817
Benefits paid	(10,485)	(9,885)	(9,755)
Benefit obligation at end of year	185,925	197,593	186,641
Funded status of the plan at end of year and accrued benefit (liability) recognized	$ 11,822	$ (15,505)	$ (12,468)
Accumulated benefit obligation at end of year	$ 185,925	$ 197,593	$ 186,641

Certain disaggregated information related to our defined benefit pension plans as of year-end was as follows:

	Retirement Plan		Restoration Plan	
	2021	2020	2021	2020
Projected benefit obligation	$ 170,389	$ 180,986	$ 15,536	$ 16,607
Accumulated benefit obligation	170,389	180,986	15,536	16,607
Fair value of plan assets	197,747	182,088	—	—
Funded status of the plan at end of year and accrued benefit (liability) recognized	27,358	1,102	(15,536)	(16,607)

The components of the combined net periodic cost (benefit) for our defined benefit pension plans are presented in the table below.

	2021	2020	2019
Expected return on plan assets, net of expenses	$ (12,839)	$ (12,289)	$ (10,772)
Interest cost on projected benefit obligation	3,341	5,010	6,472
Net amortization and deferral	6,116	5,319	5,623
Net periodic expense (benefit)	$ (3,382)	$ (1,960)	$ 1,323

Amounts related to our defined benefit pension plans recognized as a component of other comprehensive income were as follows:

	2021	2020	2019
Net actuarial gain (loss)	$ 22,709	$ (6,199)	$ 1,979
Deferred tax (expense) benefit	(4,769)	1,302	(416)
Other comprehensive income (loss), net of tax	$ 17,940	$ (4,897)	$ 1,563

Amounts recognized as a component of accumulated other comprehensive loss as of year-end that have not been recognized as a component of the combined net periodic benefit cost of our defined benefit pension plans are presented in the following table.

	2021	2020
Net actuarial loss	$ (41,634)	$ (64,343)
Deferred tax benefit	8,743	13,512
Amounts included in accumulated other comprehensive income/loss, net of tax	(32,891)	(50,831)

The weighted-average assumptions used to determine the benefit obligations as of the end of the years indicated and the net periodic benefit cost for the years indicated are presented in the table below. Because the plans were frozen, increases in compensation are not considered after 2001.

	2021	2020	2019
Benefit obligations:			
Discount rate	2.79 %	2.43 %	3.20 %
Net periodic benefit cost:			
Discount rate	2.43 %	3.20 %	4.36 %
Expected return on plan assets	7.25	7.25	7.25

Management uses an asset allocation optimization model to analyze the potential risks and rewards associated with various asset allocation strategies on a quarterly basis. As of December 31, 2021, management's investment objective for our defined benefit plans is to achieve long-term growth. This strategy provides for a target asset allocation of approximately 62% invested in equity securities, approximately 36% invested in fixed income debt securities with any remainder invested in cash or short-term cash equivalents. The asset allocation optimization process provides portfolio allocations which best represent the potential risk associated with a given asset allocation over a full market cycle. This is used to help management determine an appropriate mix of assets in order to achieve the plan's long term investment goals. The plan assets are reviewed annually to determine if the obligations can be met with the current investment mix and funding strategy.

The major categories of assets in our Retirement Plan as of year-end are presented in the following table. Assets are segregated by the level of the valuation inputs within the fair value hierarchy established by ASC Topic 820 "Fair Value Measurements and Disclosures," utilized to measure fair value (see Note 17 - Fair Value Measurements). Our Restoration Plan is unfunded.

	2021	2020
Level 1:		
Mutual funds	$ 195,452	$ 180,693
Cash and cash equivalents	2,295	1,395
Total fair value of plan assets	$ 197,747	$ 182,088

Mutual funds include various equity, fixed-income and blended funds with varying investment strategies. Approximately 68% of mutual fund investments consist of equity investments as of December 31, 2021. The investment objective of equity funds is long-term capital appreciation with current income. The remaining mutual fund investments consist of U.S. fixed-income securities, including investment-grade U.S. Treasury securities, U.S. government agency securities and mortgage-backed securities, corporate bonds and notes and collateralized mortgage obligations. The investment objective of fixed-income funds is to maximize investment return while preserving investment principal. Our investment strategies prohibit selling assets short and the use of derivatives. Additionally, our defined benefit plans do not directly invest in real estate, commodities, or private investments.

The asset allocation optimization model is used to estimate the expected long-term rate of return for a given asset allocation strategy. Expectations of returns for each asset class are based on comprehensive reviews of historical data and economic/financial market theory. During periods with volatile interest rates and equity security prices, the model may call for changes in the allocation of plan investments to achieve desired returns. Management assumed a long-term rate of return of 7.25% in the determination of the net periodic benefit cost for 2021. The expected long-term rate of return on assets was selected from within the reasonable range of rates determined by historical real returns, net of inflation, for the asset classes covered by the plan's investment policy and projections of inflation over the long-term period during which benefits are payable to plan participants.

As of December 31, 2021, expected future benefit payments related to our defined benefit plans were as follows:

2022	$ 11,592
2023	11,805
2024	11,975
2025	11,982
2026	12,018
2027 through 2031	56,494
	$ 115,866

We expect to contribute $1.2 million to the defined benefit plans during 2022.

Savings Plans

401(k) Plan and Thrift Incentive Plan. We maintain a 401(k) stock purchase plan that permits each participant to make before-tax contributions in an amount not less than 2% and not exceeding 50% of eligible compensation and subject to dollar limits from Internal Revenue Service regulations. We match 100% of the employee's contributions to the plan based on the amount of each participant's contributions up to a maximum of 6% of eligible compensation. Eligible employees must complete 30 days of service in order to enroll and vest in our matching contributions immediately. Our matching contribution is initially invested in the common stock of Cullen/Frost. Employees may immediately reallocate our matching portion, as well as invest their individual contribution, to any of a variety of investment alternatives offered under the 401(k) Plan. We may also make discretionary profit sharing contributions to eligible participants.

All profit contributions to the plan are made at our discretion and may be made without regard to current or accumulated profits. Contributions are generally allocated to eligible participants uniformly, based upon compensation, age and/or other factors. Plan participants self-direct the investment of allocated contributions by choosing from a menu of investment options. Profit sharing contributions are subject to withdrawal restrictions and participants vest in their allocated contributions after three years of service. Expense related to the plan totaled $23.8 million in 2021, $17.9 million in 2020 and $28.9 million in 2019.

We maintain a thrift incentive stock purchase plan to offer certain employees whose participation in the 401(k) plan is limited an alternative means of receiving comparable benefits. Expense related to this plan was not significant during 2021, 2020 and 2019.

Stock Compensation Plans

We have three active stock compensation plans (the 2005 Omnibus Incentive Plan, the 2007 Outside Directors Incentive Plan and the 2015 Omnibus Incentive Plan). All of the plans have been approved by our shareholders. During 2015, the 2015 Omnibus Incentive Plan ("2015 Plan") was established to replace both the 2005 Omnibus Incentive Plan ("2005 Plan") and the 2007 Outside Directors Incentive Plan (the "2007 Directors Plan"). All remaining shares authorized for grant under the superseded 2005 Plan and 2007 Directors Plan were transferred to the 2015 Plan. Our stock compensation plans were established to (i) motivate superior performance by means of performance-related incentives, (ii) encourage and provide for the acquisition of an ownership interest in our company by employees and non-employee directors and (iii) enable us to attract and retain qualified and competent persons as employees and to serve as members of our board of directors.

Under the 2015 Plan, we may grant, among other things, nonqualified stock options, incentive stock options, stock awards, stock appreciation rights, restricted stock units, performance share units or any combination thereof to certain employees and non-employee directors. Any of the authorized shares may be used for any type of award allowable under the Plan. The Compensation and Benefits Committee ("Committee") of our Board of Directors has sole authority to (i) establish the awards to be issued, (ii) select the employees and non-employee directors to receive awards, and (iii) approve the terms and conditions of each award contract. Each award under the stock plans is evidenced by an award agreement that specifies the award price, the duration of the award, the number of shares to which the award pertains, and such other provisions as the Committee determines. For stock options, the option price for each grant is at least equal to the fair market value of a share of Cullen/Frost's common stock on the date of grant. Options granted expire at such time as the Committee determines at the date of grant and in no event does the exercise period exceed a maximum of ten years. As defined in the plans, outstanding awards may immediately vest upon a change-in-control of Cullen/Frost and, in the case of awards granted under the 2015 Plan, subsequent termination resulting from the change in control.

A combined summary of activity in our active stock plans is presented in the table. Performance stock units outstanding are presented assuming attainment of the maximum payout rate as set forth by the performance criteria. The target award level for performance stock units granted in 2021, 2020 and 2019 was 30,723, 48,409 and 34,317, respectively. As of December 31, 2021, there were 777,687 shares remaining available for grant for future awards.

	Director Deferred Stock Units Outstanding		Non-Vested Stock Awards/Stock Units Outstanding		Performance Stock Units Outstanding		Stock Options Outstanding	
	Number of Units	Weighted-Average Fair Value at Grant	Number of Shares/ Units	Weighted-Average Fair Value at Grant	Number of Units	Weighted-Average Fair Value at Grant	Number of Shares	Weighted-Average Exercise Price
January 1, 2019	48,910	$ 71.14	383,797	$ 85.59	125,809	$ 82.55	2,352,008	$ 63.55
Granted	7,592	102.70	127,091	93.46	51,479	85.74	—	—
Exercised/vested	(1,132)	106.03	(53,990)	65.11	—	—	(359,892)	57.71
Forfeited/expired	—	—	(16,251)	89.71	—	—	(11,250)	65.11
December 31, 2019	55,370	74.76	440,647	90.22	177,288	83.48	1,980,866	64.60
Granted	10,428	73.84	151,038	66.79	72,618	57.89	—	—
Exercised/vested	(12,938)	71.09	(117,990)	76.07	(41,755)	69.70	(235,880)	53.23
Forfeited/expired	—	—	(3,336)	91.07	(6,894)	81.33	(5,427)	75.74
December 31, 2020	52,860	75.47	470,359	86.24	201,257	77.18	1,739,559	66.11
Granted	5,940	117.90	95,258	130.36	46,086	121.46	—	—
Exercised/vested	(2,499)	92.03	(88,250)	98.90	(35,131)	92.27	(861,878)	63.14
Forfeited/expired	—	—	(28,030)	87.08	(9,752)	75.70	—	—
December 31, 2021	56,301	79.21	449,337	93.05	202,460	84.71	877,681	69.02

Options awarded to employees generally have a ten-year life and vest in equal annual installments over a four-year period. Non-vested stock awards/stock units awarded to employees generally have a three-year-cliff vesting period for awards granted in 2021 and a four-year-cliff vesting period for awards granted prior to 2021. Deferred stock units awarded to non-employee directors generally have immediate vesting. Upon retirement from our board of directors, non-employee directors will receive one share of our common stock for each deferred stock unit held. Outstanding non-vested stock units and deferred stock units receive equivalent dividend payments as such dividends are declared on our common stock.

Performance stock units represent shares potentially issuable in the future. For performance stock units granted in 2021, issuance is based upon the measure of our achievement of growth in adjusted net revenue, averaged over the three-year performance period, compared to the 2021 base-year amount. Adjusted net revenue for the three-year performance period is calculated as the sum of taxable-equivalent net interest income (excluding the effects of PPP lending) and non-interest income, reduced by non-interest expense (excluding the effects of PPP lending) and net charge-offs. The 2021 base-year adjusted net revenue amount of approximately $426.6 million was calculated as the sum of taxable-equivalent net interest income (excluding the effects of PPP lending) and non-interest income, reduced by non-interest expense (excluding the effects of PPP lending) and the product of average total loans (excluding PPP loans) and 0.30%. The ultimate number of shares issuable under each performance award is the product of the award target and the award payout percentage for the given level of achievement. The level of achievement is measured as the amount by which adjusted net revenue, averaged over a three-year performance period, exceeds the 2021 base-year amount, stated as an average growth percentage. The award payout percentages by level of achievement are as follows: (i) less than 13% average growth pays out at 0% of target, (ii) 13% average growth pays out at 50% of target, (iii) 19% average growth pays out at 100% of target and (iv) 25% average growth or more pays out at 150% of target. Achievement between the aforementioned average growth percentages will result in an award payout percentage determined based on straight-line interpolation between the percentages.

For performance stock units granted prior to 2021, issuance is based upon the measure of our achievement of relative return on assets over a three-year performance period compared to an identified peer group's achievement of relative return on assets over the same three-year performance period. The ultimate number of shares issuable under each performance award is the product of the award target and the award payout percentage for the given level of achievement. The level of achievement is measured as the percentile rank of relative return on assets among the peer group. The award payout percentages by level of achievement are as follows: (i) less than 25th percentile pays out at 0% of target, (ii) 25th percentile pays out at 50% of target, (iii) 50th percentile pays out at 100% of target and (iv) 75th percentile or more pays out at 150% of target. Achievement between the aforementioned percentiles will result in an award payout percentage determined based on straight-line interpolation between the percentiles.

Performance stock units are eligible to receive equivalent dividend payments as such dividends are declared on our common stock during the performance period. Equivalent dividend payments are based upon the ultimate number of shares issued under each performance award and are deferred until such time that the units vest and shares are issued.

Other information regarding options outstanding and exercisable as of December 31, 2021 is as follows:

Range of Exercise Prices	Options Outstanding: Number of Shares	Options Outstanding: Weighted-Average Exercise Price	Options Outstanding: Weighted-Average Remaining Contractual Life in Years	Options Exercisable: Number of Shares	Options Exercisable: Weighted-Average Exercise Price
$ 50.01 to $ 55.00	123,314	$ 54.56	0.81	123,314	$ 54.56
65.01 to 70.00	319,081	65.11	3.72	319,081	65.11
70.01 to 75.00	169,726	71.39	1.78	169,726	71.39
75.01 to 80.00	265,560	78.92	2.75	265,560	78.92
Total	877,681	69.02	2.64	877,681	69.02
Total intrinsic value	$ 50,070			$ 50,070	

Shares issued in connection with stock compensation awards are issued from available treasury shares. If no treasury shares are available, new shares are issued from available authorized shares. Shares issued in connection with stock compensation awards along with other related information were as follows:

	2021	2020	2019
Shares issued from available treasury stock	987,758	408,563	399,224
Proceeds from stock option exercises	$ 54,417	$ 12,557	$ 20,770
Intrinsic value of stock options exercised	43,904	5,365	13,713
Fair value of stock awards/units vested	15,751	12,773	5,192

Stock-based Compensation Expense. Stock-based compensation expense is recognized ratably over the requisite service period for all awards. For most stock option awards, the service period generally matches the vesting period. For stock options granted to certain executive officers and for non-vested stock units granted to all participants, the service period does not extend past the date the participant reaches 65 years of age. Deferred stock units granted to non-employee directors generally have immediate vesting and the related expense is fully recognized on the date of grant. For performance stock units, the service period generally matches the three-year performance period specified by the award, however, the service period does not extend past the date the participant reaches 65 years of age. Expense recognized each period is dependent upon our estimate of the number of shares that will ultimately be issued.

Stock-based compensation expense and the related income tax benefit is presented in the following table. The service period for performance stock units granted each year begins on January 1 of the following year.

	2021	2020	2019
Stock options	$ —	$ —	$ 1,185
Non-vested stock awards/stock units	9,977	10,240	9,339
Deferred stock-units	700	770	780
Performance stock units	2,076	2,908	4,642
Total	$ 12,753	$ 13,918	$ 15,946
Income tax benefit	$ 1,713	$ 2,142	$ 2,359

Unrecognized stock-based compensation expense and the weighted-average period over which the expense is expected to be recognized at December 31, 2021 is presented in the table below. Unrecognized stock-based compensation expense related to performance stock units is presented assuming attainment of the maximum payout rate as set forth by the performance criteria.

	Unrecognized Expense	Weighted-Average Number of Years for Expense Recognition
Non-vested stock awards/stock units	$ 18,431	2.07
Performance stock units	9,818	2.16
Total	$ 28,249	

Valuation of Stock-Based Compensation. For the purposes of recognizing stock-based compensation expense, the fair value of non-vested stock awards/stock units and deferred stock units is generally the market price of the stock on the measurement date, which, for us, is the date of the award. The fair value of performance stock units is determined in a similar manner except that the market price of the stock on the measurement date is discounted by the present value of the dividends expected to be paid on our common stock during the service period of the award because dividend equivalent payments on performance stock units are deferred until such time that the units vest and shares are issued. In applying this discount to the market price of our stock on the measurement date, we assumed we would pay a flat quarterly dividend during the service period equal to our most recent dividend payment, which was $0.75, $0.72 and $0.71 in 2021, 2020, and 2019, respectively, discounted at a weighted-average risk-free rate of 0.77%, 0.19% and 1.65% in 2021, 2020, and 2019, respectively.

The fair value of employee stock options granted is estimated on the measurement date, which, for us, is the date of grant. The fair value of stock options is estimated using a binomial lattice-based valuation model that takes into account employee exercise patterns based on changes in our stock price and other variables, and allows for the use of dynamic assumptions about interest rates and expected volatility. No stock options have been granted since 2015.

Note 12 - Other Non-Interest Income and Expense

Other non-interest income and expense totals are presented in the following table. Components of these totals exceeding 1% of the aggregate of total net interest income and total non-interest income for any of the years presented are stated separately.

	2021	2020	2019
Other non-interest income:			
Other	$ 48,528	$ 47,712	$ 43,563
Total	$ 48,528	$ 47,712	$ 43,563
Other non-interest expense:			
Professional services	$ 34,747	$ 37,253	$ 39,238
Advertising, promotions and public relations	34,539	34,390	38,001
Travel/meals and entertainment	4,946	7,109	16,459
Other	97,225	87,558	86,967
Total	$ 171,457	$ 166,310	$ 180,665

In the ordinary course of business, we transact with certain directors and/or their affiliates. Payments for services provided totaled $257 thousand in 2021, $551 thousand in 2020 and $567 thousand in 2019.

Note 13 - Income Taxes

Income tax expense was as follows:

	2021	2020	2019
Current income tax expense	$ 38,675	$ 36,002	$ 48,256
Deferred income tax expense (benefit)	7,784	(15,832)	7,614
Income tax expense, as reported	$ 46,459	$ 20,170	$ 55,870
Effective tax rate	9.5 %	5.7 %	11.2 %

A reconciliation between reported income tax expense and the amounts computed by applying the U.S. federal statutory income tax rate of 21% to income before income taxes is presented in the following table.

	2021	2020	2019
Income tax expense computed at the statutory rate	$ 102,803	$ 73,777	$ 104,888
Effect of tax-exempt interest	(50,740)	(51,624)	(49,166)
Tax benefit on dividends paid in our 401k plan	(1,764)	(1,851)	(1,743)
Bank owned life insurance income	(517)	(783)	(774)
Non-deductible FDIC premiums	2,629	1,790	1,267
Non-deductible compensation	1,773	1,123	1,708
Non-deductible meals and entertainment	625	786	1,299
Net tax benefit from stock-based compensation	(7,877)	(852)	(2,447)
Asset contribution to a charitable trust	—	(2,556)	—
Tax basis adjustment of premises and equipment	(1,026)	—	—
Other	553	360	838
Income tax expense, as reported	$ 46,459	$ 20,170	$ 55,870

There were no unrecognized tax benefits during any of the reported periods. Interest and/or penalties related to income taxes are reported as a component of income tax expense. Such amounts were not significant during the reported periods.

Year-end deferred taxes are presented in the table below. Deferred taxes are based on the U.S. statutory federal income tax rate of 21%.

	2021	2020
Deferred tax assets:		
Lease liabilities under operating leases	$ 65,815	$ 67,839
Allowance for credit losses	62,819	64,573
Net actuarial loss on defined benefit post-retirement benefit plans	8,743	13,512
Stock-based compensation	6,989	10,033
Bonus accrual	7,506	3,961
Deferred loan and lease origination fees	3,118	10,252
Other	3,834	3,834
Total gross deferred tax assets	158,824	174,004
Deferred tax liabilities:		
Net unrealized gain on securities available for sale and transferred securities	(101,067)	(149,870)
Right-of-use assets under operating leases	(59,415)	(61,963)
Premises and equipment	(49,645)	(49,602)
Intangible assets	(16,595)	(14,596)
Defined benefit post-retirement benefit plans	(11,027)	(10,081)
Partnership interests	—	(2,913)
Leases	(712)	(1,090)
Other	(1,611)	(1,387)
Total gross deferred tax liabilities	(240,072)	(291,502)
Net deferred tax asset (liability)	$ (81,248)	$ (117,498)

No valuation allowance for deferred tax assets was recorded at December 31, 2021 and 2020 as management believes it is more likely than not that all of the deferred tax assets will be realized against deferred tax liabilities and projected future taxable income. There were no unrecognized tax benefits during any of the reported periods.

We file income tax returns in the U.S. federal jurisdiction. We are no longer subject to U.S. federal income tax examinations by tax authorities for years before 2018.

Note 14 - Other Comprehensive Income (Loss)

The tax effects allocated to each component of other comprehensive income (loss) were as follows:

	Before Tax Amount	Tax Expense, (Benefit)	Net of Tax Amount
2021			
Securities available for sale and transferred securities:			
Change in net unrealized gain/loss during the period	$(231,355)	$ (48,585)	$(182,770)
Change in net unrealized gain on securities transferred to held to maturity	(971)	(204)	(767)
Reclassification adjustment for net (gains) losses included in net income	(69)	(14)	(55)
Total securities available for sale and transferred securities	(232,395)	(48,803)	(183,592)
Defined-benefit post-retirement benefit plans:			
Change in the net actuarial gain/loss	16,593	3,485	13,108
Reclassification adjustment for net amortization of actuarial gain/loss included in net income as a component of net periodic cost (benefit)	6,116	1,284	4,832
Total defined-benefit post-retirement benefit plans	22,709	4,769	17,940
Total other comprehensive income (loss)	$(209,686)	$ (44,034)	$(165,652)
2020			
Securities available for sale and transferred securities:			
Change in net unrealized gain/loss during the period	$ 427,331	$ 89,741	$ 337,590
Change in net unrealized gain on securities transferred to held to maturity	(1,256)	(264)	(992)
Reclassification adjustment for net (gains) losses included in net income	(108,989)	(22,888)	(86,101)
Total securities available for sale and transferred securities	317,086	66,589	250,497
Defined-benefit post-retirement benefit plans:			
Change in the net actuarial gain/loss	(11,518)	(2,419)	(9,099)
Reclassification adjustment for net amortization of actuarial gain/loss included in net income as a component of net periodic cost (benefit)	5,319	1,117	4,202
Total defined-benefit post-retirement benefit plans	(6,199)	(1,302)	(4,897)
Total other comprehensive income (loss)	$ 310,887	$ 65,287	$ 245,600
2019			
Securities available for sale and transferred securities:			
Change in net unrealized gain/loss during the period	$ 418,556	$ 87,897	$ 330,659
Change in net unrealized gain on securities transferred to held to maturity	(1,292)	(271)	(1,021)
Reclassification adjustment for net (gains) losses included in net income	(293)	(62)	(231)
Total securities available for sale and transferred securities	416,971	87,564	329,407
Defined-benefit post-retirement benefit plans:			
Change in the net actuarial gain/loss	(3,644)	(765)	(2,879)
Reclassification adjustment for net amortization of actuarial gain/loss included in net income as a component of net periodic cost (benefit)	5,623	1,181	4,442
Total defined-benefit post-retirement benefit plans	1,979	416	1,563
Total other comprehensive income (loss)	$ 418,950	$ 87,980	$ 330,970

Activity in accumulated other comprehensive income, net of tax, was as follows:

	Securities Available For Sale	Defined Benefit Plans	Accumulated Other Comprehensive Income
Balance January 1, 2021	$ 563,801	$ (50,831)	$ 512,970
Other comprehensive income (loss) before reclassification	(183,537)	13,108	(170,429)
Reclassification of amounts included in net income	(55)	4,832	4,777
Net other comprehensive income (loss) during period	(183,592)	17,940	(165,652)
Balance December 31, 2021	$ 380,209	$ (32,891)	$ 347,318
Balance January 1, 2020	$ 313,304	$ (45,934)	$ 267,370
Other comprehensive income (loss) before reclassification	336,598	(9,099)	327,499
Reclassification of amounts included in net income	(86,101)	4,202	(81,899)
Net other comprehensive income (loss) during period	250,497	(4,897)	245,600
Balance December 31, 2020	$ 563,801	$ (50,831)	$ 512,970
Balance January 1, 2019	$ (16,103)	$ (47,497)	$ (63,600)
Other comprehensive income (loss) before reclassification	329,638	(2,879)	326,759
Reclassification of amounts included in net income	(231)	4,442	4,211
Net other comprehensive income (loss) during period	329,407	1,563	330,970
Balance December 31, 2019	$ 313,304	$ (45,934)	$ 267,370

Note 15 - Derivative Financial Instruments

The fair value of derivative positions outstanding is included in accrued interest receivable and other assets and accrued interest payable and other liabilities in the accompanying consolidated balance sheets and in the net change in each of these financial statement line items in the accompanying consolidated statements of cash flows.

Interest Rate Derivatives. We utilize interest rate swaps, caps and floors to mitigate exposure to interest rate risk and to facilitate the needs of our customers. Our objectives for utilizing these derivative instruments are described below:

We have entered into certain interest rate swap contracts that are matched to specific fixed-rate commercial loans or leases that we have entered into with our customers. These contracts have been designated as hedging instruments to hedge the risk of changes in the fair value of the underlying commercial loan/lease due to changes in interest rates. The related contracts are structured so that the notional amounts reduce over time to generally match the expected amortization of the underlying loan/lease.

We have entered into certain interest rate swap, cap and floor contracts that are not designated as hedging instruments. These derivative contracts relate to transactions in which we enter into an interest rate swap, cap and/or floor with a customer while at the same time entering into an offsetting interest rate swap, cap and/or floor with a third-party financial institution. In connection with each swap transaction, we agree to pay interest to the customer on a notional amount at a variable interest rate and receive interest from the customer on a similar notional amount at a fixed interest rate. At the same time, we agree to pay a third-party financial institution the same fixed interest rate on the same notional amount and receive the same variable interest rate on the same notional amount. The transaction allows our customer to effectively convert a variable rate loan to a fixed rate. Because we act as an intermediary for our customer, changes in the fair value of the underlying derivative contracts for the most part offset each other and do not significantly impact our results of operations.

The notional amounts and estimated fair values of interest rate derivative contracts outstanding at December 31, 2021 and 2020 are presented in the following table. The fair values of interest rate derivative contracts are estimated utilizing internal valuation methods with observable market data inputs, or as determined by the Chicago Mercantile Exchange ("CME") for centrally cleared derivative contracts. CME rules legally characterize variation margin payments for centrally cleared derivatives as settlements of the derivatives' exposure rather than collateral. As a result, the variation margin payment and the related derivative instruments are considered a single unit of account for accounting and financial reporting purposes. Variation margin, as determined by the CME, is settled daily. As a result, derivative contracts that clear through the CME have an estimated fair value of zero as of December 31, 2021 and 2020.

	December 31, 2021		December 31, 2020	
	Notional Amount	Estimated Fair Value	Notional Amount	Estimated Fair Value
Derivatives designated as hedges of fair value:				
Financial institution counterparties:				
Loan/lease interest rate swaps - liabilities	$ 2,426	$ (34)	$ 3,724	$ (134)
Non-hedging interest rate derivatives:				
Financial institution counterparties:				
Loan/lease interest rate swaps - assets	247,592	1,207	—	—
Loan/lease interest rate swaps - liabilities	928,756	(19,142)	1,173,173	(33,812)
Loan/lease interest rate caps - assets	270,431	3,239	356,601	1,241
Customer counterparties:				
Loan/lease interest rate swaps - assets	928,756	39,864	1,173,173	84,424
Loan/lease interest rate swaps - liabilities	247,592	(2,846)	—	—
Loan/lease interest rate caps - liabilities	270,431	(3,239)	356,601	(1,241)

The weighted-average rates paid and received for interest rate swaps outstanding at December 31, 2021 were as follows:

	Weighted-Average	
	Interest Rate Paid	Interest Rate Received
Interest rate swaps:		
Fair value hedge loan/lease interest rate swaps	2.48 %	0.10 %
Non-hedging interest rate swaps - financial institution counterparties	3.73	1.90
Non-hedging interest rate swaps - customer counterparties	1.90	3.73

The weighted-average strike rate for outstanding interest rate caps was 3.26% at December 31, 2021.

Commodity Derivatives. We enter into commodity swaps and option contracts that are not designated as hedging instruments primarily to accommodate the business needs of our customers. Upon the origination of a commodity swap or option contract with a customer, we simultaneously enter into an offsetting contract with a third-party financial institution to mitigate the exposure to fluctuations in commodity prices.

The notional amounts and estimated fair values of non-hedging commodity swap and option derivative positions outstanding are presented in the following table. We obtain dealer quotations and use internal valuation methods with observable market data inputs to value our commodity derivative positions.

		December 31, 2021		December 31, 2020	
	Notional Units	Notional Amount	Estimated Fair Value	Notional Amount	Estimated Fair Value
Financial institution counterparties:					
Oil - assets	Barrels	4,809	$ 14,721	3,056	$ 8,341
Oil - liabilities	Barrels	7,032	(73,594)	6,391	(32,112)
Natural gas - assets	MMBTUs	15,947	4,143	9,281	1,529
Natural gas - liabilities	MMBTUs	29,446	(21,249)	15,079	(3,265)
Customer counterparties:					
Oil - assets	Barrels	7,046	74,437	6,391	32,670
Oil - liabilities	Barrels	4,796	(14,294)	3,056	(8,264)
Natural gas - assets	MMBTUs	29,446	21,456	17,636	3,451
Natural gas - liabilities	MMBTUs	15,947	(4,124)	6,724	(1,458)

Foreign Currency Derivatives. We enter into foreign currency forward contracts that are not designated as hedging instruments primarily to accommodate the business needs of our customers. Upon the origination of a foreign currency denominated transaction with a customer, we simultaneously enter into an offsetting contract with a third-party financial institution to negate the exposure to fluctuations in foreign currency exchange rates. We also utilize foreign currency forward contracts that are not designated as hedging instruments to mitigate the economic effect of fluctuations in foreign currency exchange rates on foreign currency holdings and certain short-term, non-U.S. dollar denominated loans. The notional amounts and fair values of open foreign currency forward contracts were as follows:

		December 31, 2021		December 31, 2020	
	Notional Currency	Notional Amount	Estimated Fair Value	Notional Amount	Estimated Fair Value
Financial institution counterparties:					
Forward contracts - assets	EUR	1,900	$ 29	—	$ —
Forward contracts - assets	CAD	658	—	—	—
Customer counterparties:					
Forward contracts - assets	EUR	—	—	—	—
Forward contracts - assets	CAD	658	4	—	—
Forward contracts - liabilities	EUR	1,900	(55)	—	—

Gains, Losses and Derivative Cash Flows. For fair value hedges, the changes in the fair value of both the derivative hedging instrument and the hedged item are included in other non-interest income or other non-interest expense. The extent that such changes in fair value do not offset represents hedge ineffectiveness. Net cash flows from interest rate swaps on commercial loans/leases designated as hedging instruments in effective hedges of fair value are included in interest income on loans. For non-hedging derivative instruments, gains and losses due to changes in fair value and all cash flows are included in other non-interest income and other non-interest expense.

Amounts included in the consolidated statements of income related to interest rate derivatives designated as hedges of fair value were as follows:

	2021	2020	2019
Commercial loan/lease interest rate swaps:			
Amount of gain (loss) included in interest income on loans	$ (91)	$ (111)	$ 86
Amount of (gain) loss included in other non-interest expense	10	9	—

As stated above, we enter into non-hedge related derivative positions primarily to accommodate the business needs of our customers. Upon the origination of a derivative contract with a customer, we simultaneously enter into an offsetting derivative contract with a third-party financial institution. We recognize immediate income based upon the difference in the bid/ask spread of the underlying transactions with our customers and the third party. Because we act only as an intermediary for our customer, subsequent changes in the fair value of the underlying derivative contracts for the most part offset each other and do not significantly impact our results of operations.

Amounts included in the consolidated statements of income related to non-hedging interest rate, commodity, foreign currency and other derivative instruments are presented in the table below.

	2021	2020	2019
Non-hedging interest rate derivatives:			
Other non-interest income	$ 4,285	$ 3,413	$ 2,005
Other non-interest expense	(1)	1	(1)
Non-hedging commodity derivatives:			
Other non-interest income	4,052	1,768	503
Non-hedging foreign currency derivatives:			
Other non-interest income	39	28	51
Non-hedging other derivatives:			
Other non-interest income	—	5,992	750

During 2020, we sold certain non-hedge related, short-term put options on U.S. Treasury securities and realized gains totaling approximately $6.0 million in connection with the sales. The put options expired without being exercised. Gains realized from similar transactions totaled $750 thousand in 2019. These gains are included in the table above as a component of non-hedging other derivatives.

Counterparty Credit Risk. Derivative contracts involve the risk of dealing with both bank customers and institutional derivative counterparties and their ability to meet contractual terms. Institutional counterparties must have an investment grade credit rating and be approved by our Asset/Liability Management Committee. Our credit exposure on interest rate swaps is limited to the net favorable value and interest payments of all swaps by each counterparty, while our credit exposure on commodity swaps/options and foreign currency forward contracts is limited to the net favorable value of all contracts by each counterparty. Credit exposure may be reduced by the amount of collateral pledged by the counterparty. There are no credit-risk-related contingent features associated with any of our derivative contracts. Certain derivative contracts with upstream financial institution counterparties may be terminated with respect to a party in the transaction, if such party does not have at least a minimum level rating assigned to either its senior unsecured long-term debt or its deposit obligations by certain third-party rating agencies.

Our credit exposure relating to interest rate swaps, commodity swaps/options and foreign currency forward contracts with bank customers was approximately $118.3 million at December 31, 2021. This credit exposure is partly mitigated as transactions with customers are generally secured by the collateral, if any, securing the underlying transaction being hedged. Our credit exposure, net of collateral pledged, relating to interest rate swaps, commodity swaps/options and foreign currency forward contracts with upstream financial institution counterparties was approximately $19.7 million at December 31, 2021. This amount was primarily related to excess collateral we posted to counterparties. Collateral levels for upstream financial institution counterparties are monitored and adjusted as necessary. See Note 16 – Balance Sheet Offsetting and Repurchase Agreements for additional information regarding our credit exposure with upstream financial institution counterparties. At December 31, 2021 we had $110.3 million in cash collateral related to derivative contracts on deposit with other financial institution counterparties.

Note 16 - Balance Sheet Offsetting and Repurchase Agreements

Balance Sheet Offsetting. Certain financial instruments, including resell and repurchase agreements and derivatives, may be eligible for offset in the consolidated balance sheet and/or subject to master netting arrangements or similar agreements. Our derivative transactions with upstream financial institution counterparties are generally executed under International Swaps and Derivative Association ("ISDA") master agreements which include "right of set-off" provisions. In such cases there is generally a legally enforceable right to offset recognized amounts and there may be an intention to settle such amounts on a net basis. Nonetheless, we do not generally offset such financial instruments for financial reporting purposes.

Information about financial instruments that are eligible for offset in the consolidated balance sheet as of December 31, 2021 is presented in the following tables.

	Gross Amount Recognized	Gross Amount Offset	Net Amount Recognized
December 31, 2021			
Financial assets:			
Derivatives:			
Loan/lease interest rate swaps and caps	$ 4,446	$ —	$ 4,446
Commodity swaps and options	18,864	—	18,864
Foreign currency forward contracts	29	—	29
Total derivatives	23,339	—	23,339
Resell agreements	7,903	—	7,903
Total	$ 31,242	$ —	$ 31,242
Financial liabilities:			
Derivatives:			
Loan/lease interest rate swaps	$ 19,176	$ —	$ 19,176
Commodity swaps and options	94,843	—	94,843
Total derivatives	114,019	—	114,019
Repurchase agreements	2,740,799	—	2,740,799
Total	$ 2,854,818	$ —	$ 2,854,818

		Gross Amounts Not Offset		
	Net Amount Recognized	Financial Instruments	Collateral	Net Amount
December 31, 2021				
Financial assets:				
Derivatives:				
Counterparty A	$ 6	$ (6)	$ —	$ —
Counterparty B	7,655	(7,655)	—	—
Other counterparties	15,678	(15,678)	—	—
Total derivatives	23,339	(23,339)	—	—
Resell agreements	7,903	—	(7,903)	—
Total	$ 31,242	$ (23,339)	$ (7,903)	$ —
Financial liabilities:				
Derivatives:				
Counterparty A	$ 3,870	$ (6)	$ (3,864)	$ —
Counterparty B	28,130	(7,655)	(20,475)	—
Counterparty C	9	—	(9)	—
Other counterparties	82,010	(15,678)	(66,225)	107
Total derivatives	114,019	(23,339)	(90,573)	107
Repurchase agreements	2,740,799	—	(2,740,799)	—
Total	$ 2,854,818	$ (23,339)	$ (2,831,372)	$ 107

Information about financial instruments that are eligible for offset in the consolidated balance sheet as of December 31, 2020 is presented in the following tables.

	Gross Amount Recognized	Gross Amount Offset	Net Amount Recognized
December 31, 2020			
Financial assets:			
Derivatives:			
Loan/lease interest rate swaps and caps	$ 1,241	$ —	$ 1,241
Commodity swaps and options	9,870	—	9,870
Total derivatives	11,111	—	11,111
Resell agreements	—	—	—
Total	$ 11,111	$ —	$ 11,111
Financial liabilities:			
Derivatives:			
Loan/lease interest rate swaps	$ 33,946	$ —	$ 33,946
Commodity swaps and options	35,377	—	35,377
Foreign currency forward contracts	—	—	—
Total derivatives	69,323	—	69,323
Repurchase agreements	2,068,147	—	2,068,147
Total	$ 2,137,470	$ —	$ 2,137,470

		Gross Amounts Not Offset		
	Net Amount Recognized	Financial Instruments	Collateral	Net Amount
December 31, 2020				
Financial assets:				
Derivatives:				
Counterparty A	$ 2	$ (2)	$ —	$ —
Counterparty B	5,838	(5,838)	—	—
Other counterparties	5,271	(5,271)	—	—
Total derivatives	11,111	(11,111)	—	—
Resell agreements	—	—	—	—
Total	$ 11,111	$ (11,111)	$ —	$ —
Financial liabilities:				
Derivatives:				
Counterparty A	$ 6,430	$ (2)	$ (6,428)	$ —
Counterparty B	20,722	(5,838)	(14,700)	184
Counterparty C	71	—	(71)	—
Other counterparties	42,100	(5,271)	(35,832)	997
Total derivatives	69,323	(11,111)	(57,031)	1,181
Repurchase agreements	2,068,147	—	(2,068,147)	—
Total	$ 2,137,470	$ (11,111)	$ (2,125,178)	$ 1,181

Repurchase Agreements. We utilize securities sold under agreements to repurchase to facilitate the needs of our customers and to facilitate secured short-term funding needs. Securities sold under agreements to repurchase are stated at the amount of cash received in connection with the transaction. We monitor collateral levels on a continuous basis. We may be required to provide additional collateral based on the fair value of the underlying securities. Securities pledged as collateral under repurchase agreements are maintained with our safekeeping agents.

The remaining contractual maturity of repurchase agreements in the consolidated balance sheets as of December 31, 2021 and December 31, 2020 is presented in the following tables.

	Remaining Contractual Maturity of the Agreements				
	Overnight and Continuous	Up to 30 Days	30-90 Days	Greater than 90 Days	Total
December 31, 2021					
Repurchase agreements:					
U.S. Treasury	$ 1,342,591	$ —	$ —	$ —	$ 1,342,591
Residential mortgage-backed securities	1,398,208	—	—	—	1,398,208
Total borrowings	$ 2,740,799	$ —	$ —	$ —	$ 2,740,799
Gross amount of recognized liabilities for repurchase agreements					$ 2,740,799
Amounts related to agreements not included in offsetting disclosures above					$ —
December 31, 2020					
Repurchase agreements:					
U.S. Treasury	$ 692,860	$ —	$ —	$ —	$ 692,860
Residential mortgage-backed securities	1,375,287	—	—	—	1,375,287
Total borrowings	$ 2,068,147	$ —	$ —	$ —	$ 2,068,147
Gross amount of recognized liabilities for repurchase agreements					$ 2,068,147
Amounts related to agreements not included in offsetting disclosures above					$ —

Note 17 - Fair Value Measurements

The fair value of an asset or liability is the price that would be received to sell that asset or paid to transfer that liability in an orderly transaction occurring in the principal market (or most advantageous market in the absence of a principal market) for such asset or liability. In estimating fair value, we utilize valuation techniques that are consistent with the market approach, the income approach and/or the cost approach. Such valuation techniques are consistently applied. Inputs to valuation techniques include the assumptions that market participants would use in pricing an asset or liability. ASC Topic 820 establishes a fair value hierarchy for valuation inputs that gives the highest priority to quoted prices in active markets for identical assets or liabilities and the lowest priority to unobservable inputs. The fair value hierarchy is as follows:

- *Level 1 Inputs* - Unadjusted quoted prices in active markets for identical assets or liabilities that the reporting entity has the ability to access at the measurement date.
- *Level 2 Inputs* - Inputs other than quoted prices included in Level 1 that are observable for the asset or liability, either directly or indirectly. These might include quoted prices for similar assets or liabilities in active markets, quoted prices for identical or similar assets or liabilities in markets that are not active, inputs other than quoted prices that are observable for the asset or liability (such as interest rates, volatilities, prepayment speeds, credit risks, etc.) or inputs that are derived principally from or corroborated by market data by correlation or other means.
- *Level 3 Inputs* - Unobservable inputs for determining the fair values of assets or liabilities that reflect an entity's own assumptions about the assumptions that market participants would use in pricing the assets or liabilities.

In general, fair value is based upon quoted market prices, where available. If such quoted market prices are not available, fair value is based upon internally developed models that primarily use, as inputs, observable market-based parameters. Valuation adjustments may be made to ensure that financial instruments are recorded at fair value. These adjustments may include amounts to reflect counterparty credit quality and our creditworthiness, among other things, as well as unobservable parameters. Any such valuation adjustments are applied consistently over time. Our valuation methodologies may produce a fair value calculation that may not be indicative of net realizable value or reflective of future fair values. While management believes our valuation methodologies are appropriate and consistent with other market participants, the use of different methodologies or assumptions to determine the fair value of certain financial instruments could result in a different estimate of fair value at the reporting date. Furthermore, the reported fair value amounts have not been comprehensively revalued since the presentation dates, and therefore, estimates of fair value after the balance sheet date may differ significantly from the amounts presented herein. A more detailed description of the valuation methodologies used for assets and liabilities measured at fair value is set forth below. Transfers between levels of the fair value hierarchy are recognized on the actual date of the event or circumstances that caused the transfer, which generally coincides with our monthly and/or quarterly valuation process.

Financial Assets and Financial Liabilities: Financial assets and financial liabilities measured at fair value on a recurring basis include the following:

Securities Available for Sale. U.S. Treasury securities are reported at fair value utilizing Level 1 inputs. Other securities classified as available for sale are reported at fair value utilizing Level 2 inputs. For these securities, we obtain fair value measurements from an independent pricing service. The fair value measurements consider observable data that may include dealer quotes, market spreads, cash flows, the U.S. Treasury yield curve, live trading levels, trade execution data, market consensus prepayment speeds, credit information and the bond's terms and conditions, among other things.

We review the prices supplied by the independent pricing service, as well as their underlying pricing methodologies, for reasonableness and to ensure such prices are aligned with traditional pricing matrices. In general, we do not purchase investment portfolio securities that are esoteric or that have a complicated structure. Our entire portfolio consists of traditional investments, nearly all of which are U.S. Treasury obligations, federal agency bullet or mortgage pass-through securities, or general obligation or revenue based municipal bonds. Pricing for such instruments is fairly generic and is easily obtained. From time to time, we will validate prices supplied by the independent pricing service by comparison to prices obtained from third-party sources or derived using internal models.

Trading Securities. U.S. Treasury securities and exchange-listed common stock are reported at fair value utilizing Level 1 inputs. Other securities classified as trading are reported at fair value utilizing Level 2 inputs in the same manner as described above for securities available for sale.

Derivatives. Derivatives are generally reported at fair value utilizing Level 2 inputs, except for foreign currency contracts, which are reported at fair value utilizing Level 1 inputs. We obtain dealer quotations and utilize internally developed valuation models to value commodity swaps/options. We utilize internally developed valuation models and/or third-party models with observable market data inputs to validate the valuations provided by the dealers. Though there has never been a significant discrepancy in the valuations, should such a significant discrepancy arise, we would obtain price verification from a third-party dealer. We utilize internal valuation methods with observable market data inputs to estimate fair values of customer interest rate swaps, caps and floors. We also obtain dealer quotations for these derivatives for comparative purposes to assess the reasonableness of the model valuations. In cases where significant credit valuation adjustments are incorporated into the estimation of fair value, reported amounts are considered to have been derived utilizing Level 3 inputs.

For purposes of potential valuation adjustments to our derivative positions, we evaluate the credit risk of our counterparties as well as ours. Accordingly, we have considered factors such as the likelihood of our default and the default of our counterparties, our net exposures and remaining contractual life, among other things, in determining if any fair value adjustments related to credit risk are required. Counterparty exposure is evaluated by netting positions that are subject to master netting arrangements, as well as considering the amount of collateral securing the position. We review our counterparty exposure on a regular basis, and, when necessary, appropriate business actions are taken to adjust the exposure. We also utilize this approach to estimate our own credit risk on derivative liability positions. To date, we have not realized any significant losses due to a counterparty's inability to pay any net uncollateralized position. The change in value of derivative assets and derivative liabilities attributable to credit risk was not significant during the reported periods.

The following tables summarize financial assets and financial liabilities measured at fair value on a recurring basis as of December 31, 2021 and 2020, segregated by the level of the valuation inputs within the fair value hierarchy utilized to measure fair value:

	Level 1 Inputs	Level 2 Inputs	Level 3 Inputs	Total Fair Value
2021				
Securities available for sale:				
U.S. Treasury	$ 2,179,433	$ —	$ —	$ 2,179,433
Residential mortgage-backed securities	—	4,066,265	—	4,066,265
States and political subdivisions	—	7,636,571	—	7,636,571
Other	—	42,359	—	42,359
Trading account securities:				
U.S. Treasury	24,237	—	—	24,237
States and political subdivisions	—	925	—	925
Derivative assets:				
Interest rate swaps, caps and floors	—	44,310	—	44,310
Commodity swaps and options	—	114,757	—	114,757
Foreign currency forward contracts	33	—	—	33
Derivative liabilities:				
Interest rate swaps, caps and floors	—	25,261	—	25,261
Commodity swaps and options	—	113,261	—	113,261
Foreign currency forward contracts	55	—	—	55
2020				
Securities available for sale:				
U.S. Treasury	$ 1,119,633	$ —	$ —	$ 1,119,633
Residential mortgage-backed securities	—	1,987,679	—	1,987,679
States and political subdivisions	—	7,287,902	—	7,287,902
Other	—	42,351	—	42,351
Trading account securities:				
U.S. Treasury	23,996	—	—	23,996
States and political subdivisions	—	460	—	460
Derivative assets:				
Interest rate swaps, caps and floors	—	85,665	—	85,665
Commodity swaps and options	—	45,535	456	45,991
Derivative liabilities:				
Interest rate swaps, caps and floors	—	35,187	—	35,187
Commodity swaps and options	—	45,099	—	45,099

Derivative assets, measured at fair value on a recurring basis using significant unobservable (Level 3) inputs during the reported periods consist of commodity swaps sold to loan customers. The significant unobservable (Level 3) inputs used in the fair value measurement of these commodity swaps sold to loan customers primarily relate to the probability of default and loss severity in the event of default. The probability of default is determined by the underlying risk grade of the loan (see Note 3 – Loans) underlying the commodity swap in that the probability of default increases as a loan's risk grade deteriorates, while the loss severity is estimated through an analysis of the collateral supporting both the underlying loan and commodity swap. Generally, a change in the assumption used for the probability of default is accompanied by a directionally similar change in the assumption used for the loss severity. As of December 31, 2020, the weighted-average risk grade of loans underlying commodity swaps measured at fair value using significant unobservable (Level 3) inputs was 14.0. The weighted-average loss severity in the event of default on the commodity swaps was 10%. A reconciliation of the beginning and ending balances of derivative assets measured at fair value on a recurring basis using significant unobservable (Level 3) inputs is not presented as such amounts were not significant during the reported periods.

Certain financial assets and financial liabilities are measured at fair value on a nonrecurring basis; that is, the instruments are not measured at fair value on an ongoing basis but are subject to fair value adjustments in certain circumstances (for example, when there is evidence of impairment). Financial assets measured at fair value on a non-recurring basis during the reported periods include certain impaired loans reported at the fair value of the underlying collateral if repayment is expected solely from the collateral. Collateral values are estimated using Level 2 inputs based on observable market data, typically in the case of real estate collateral, or Level 3 inputs based on customized discounting criteria, typically in the case of non-real estate collateral such as inventory, oil and gas reserves, accounts receivable, equipment or other business assets.

The following table presents collateral dependent loans that were remeasured and reported at fair value through a specific allocation of the allowance for credit losses on loans based upon the fair value of the underlying collateral:

	2021	2020	2019
Level 2			
Carrying value before allocations	$ 1,333	$ 1,559	$ 2,354
Specific (allocations) reversals of prior allocations	214	(450)	(383)
Fair value	$ 1,547	$ 1,109	$ 1,971
Level 3			
Carrying value before allocations	$ 16,074	$ 34,302	$ 65,176
Specific (allocations) reversals of prior allocations	(5,178)	(11,151)	(18,019)
Fair value	$ 10,896	$ 23,151	$ 47,157

Non-Financial Assets and Non-Financial Liabilities: We do not have any non-financial assets or non-financial liabilities measured at fair value on a recurring basis. Certain non-financial assets measured at fair value on a non-recurring basis include foreclosed assets (upon initial recognition or subsequent impairment), non-financial assets and non-financial liabilities measured at fair value in the second step of a goodwill impairment test, and intangible assets and other non-financial long-lived assets measured at fair value for impairment assessment. Non-financial assets measured at fair value on a non-recurring basis during the reported periods include certain foreclosed assets which, upon initial recognition, were remeasured and reported at fair value through a charge-off to the allowance for credit losses on loans and certain foreclosed assets which, subsequent to their initial recognition, were remeasured at fair value through a write-down included in other non-interest expense. The fair value of a foreclosed asset is estimated using Level 2 inputs based on observable market data or Level 3 inputs based on customized discounting criteria. During the reported periods, all fair value measurements for foreclosed assets utilized Level 2 inputs.

The following table presents foreclosed assets that were remeasured and reported at fair value:

	2021	2020	2019
Foreclosed assets remeasured at initial recognition:			
Carrying value of foreclosed assets prior to remeasurement	$ —	$ —	$ 1,348
Charge-offs recognized in the allowance for credit losses on loans	—	—	(76)
Fair value	$ —	$ —	$ 1,272
Foreclosed assets remeasured subsequent to initial recognition:			
Carrying value of foreclosed assets prior to remeasurement	$ 14	$ 328	$ —
Write-downs included in other non-interest expense	(14)	(231)	—
Fair value	$ —	$ 97	$ —

Charge-offs recognized upon loan foreclosures are generally offset by general or specific allocations of the allowance for credit losses on loans and generally do not, and did not during the reported periods, significantly impact our credit loss expense. Regulatory guidelines require us to reevaluate the fair value of other real estate owned on at least an annual basis. While our policy is to comply with the regulatory guidelines, our general practice is to reevaluate the fair value of collateral supporting impaired collateral dependent loans on a quarterly basis. Thus, appraisals are generally not considered to be outdated, and we typically do not make any adjustments to the appraised values.

ASC Topic 825, "Financial Instruments," requires disclosure of the fair value of financial assets and financial liabilities, including those financial assets and financial liabilities that are not measured and reported at fair value on a recurring basis or non-recurring basis. The estimated fair value approximates carrying value for cash and cash equivalents, accrued interest and the cash surrender value of life insurance policies. The methodologies for other financial assets and financial liabilities that are not measured and reported at fair value on a recurring basis or non-recurring basis are discussed below:

Loans. The estimated fair value approximates carrying value for variable-rate loans that reprice frequently and with no significant change in credit risk. The fair value of fixed-rate loans and variable-rate loans which reprice on an infrequent basis is estimated by discounting future cash flows using the current interest rates at which similar loans with similar terms would be made to borrowers of similar credit quality. An overall valuation adjustment is made for specific credit risks as well as general portfolio credit risk.

Deposits. The estimated fair value approximates carrying value for demand deposits. The fair value of fixed-rate deposit liabilities with defined maturities is estimated by discounting future cash flows using the interest rates currently offered for deposits of similar remaining maturities. The estimated fair value of deposits does not take into account the value of our long-term relationships with depositors, commonly known as core deposit intangibles, which are separate intangible assets, and not considered financial instruments. Nonetheless, we would likely realize a core deposit premium if our deposit portfolio were sold in the principal market for such deposits.

Borrowed Funds. The estimated fair value approximates carrying value for short-term borrowings. The fair value of long-term fixed-rate borrowings is estimated using quoted market prices, if available, or by discounting future cash flows using current interest rates for similar financial instruments. The estimated fair value approximates carrying value for variable-rate junior subordinated deferrable interest debentures that reprice quarterly.

Loan Commitments, Standby and Commercial Letters of Credit. Our lending commitments have variable interest rates and "escape" clauses if the customer's credit quality deteriorates. Therefore, the fair values of these items are not significant and are not included in the following table.

The estimated fair values of financial instruments that are reported at amortized cost in our consolidated balance sheets, segregated by the level of valuation inputs within the fair value hierarchy utilized to measure fair value, were as follows:

	December 31, 2021		December 31, 2020	
	Carrying Amount	Estimated Fair Value	Carrying Amount	Estimated Fair Value
Financial assets:				
Level 2 inputs:				
Cash and cash equivalents	$ 16,583,000	$ 16,583,000	$ 10,288,853	$ 10,288,853
Securities held to maturity	1,749,179	1,809,143	1,945,673	2,052,896
Cash surrender value of life insurance policies	190,139	190,139	189,984	189,984
Accrued interest receivable	179,111	179,111	181,432	181,432
Level 3 inputs:				
Loans, net	16,087,731	16,079,454	17,218,132	17,390,683
Financial liabilities:				
Level 2 inputs:				
Deposits	42,695,696	41,343,426	35,015,761	35,018,185
Federal funds purchased	25,925	25,925	48,850	48,850
Repurchase agreements	2,740,799	2,740,799	2,068,147	2,068,147
Junior subordinated deferrable interest debentures	123,011	123,712	136,357	137,115
Subordinated notes	99,178	111,430	99,021	115,717
Accrued interest payable	3,026	3,026	8,127	8,127

Under ASC Topic 825, entities may choose to measure eligible financial instruments at fair value at specified election dates. The fair value measurement option (i) may be applied instrument by instrument, with certain exceptions, (ii) is generally irrevocable and (iii) is applied only to entire instruments and not to portions of instruments. Unrealized gains and losses on items for which the fair value measurement option has been elected must be reported in earnings at each subsequent reporting date. During the reported periods, we had no financial instruments measured at fair value under the fair value measurement option.

Note 18 - Operating Segments

We are managed under a matrix organizational structure whereby our two primary operating segments, Banking and Frost Wealth Advisors, overlap a regional reporting structure. The regions are primarily based upon geographic location and include Austin, Corpus Christi, Dallas, Fort Worth, Houston, Permian Basin, Rio Grande Valley, San Antonio and Statewide. We are primarily managed based on the line of business structure. In that regard, all regions have the same lines of business, which have the same product and service offerings, have similar types and classes of customers and utilize similar service delivery methods. Pricing guidelines for products and services are the same across all regions. The regional reporting structure is primarily a means to scale the lines of business to provide a local, community focus for customer relations and business development.

Banking and Frost Wealth Advisors are delineated by the products and services that each segment offers. The Banking operating segment includes both commercial and consumer banking services and Frost Insurance Agency. Commercial banking services are provided to corporations and other business clients and include a wide array of lending and cash management products. Consumer banking services include direct lending and depository services. Frost Insurance Agency provides insurance brokerage services to individuals and businesses covering corporate and personal property and casualty products, as well as group health and life insurance products. The Frost Wealth Advisors operating segment includes fee-based services within private trust, retirement services, and financial management services, including personal wealth management and securities brokerage services. A third operating segment, Non-Banks, is for the most part the parent holding company, as well as certain other insignificant non-bank subsidiaries of the parent that, for the most part, have little or no activity. The parent company's principal activities include the direct and indirect ownership of our banking and non-banking subsidiaries and the issuance of debt and equity. Our principal source of revenue is dividends from our subsidiaries.

The accounting policies of each reportable segment are the same as those of our consolidated entity except for the following items, which impact the Banking and Frost Wealth Advisors segments: (i) expenses for consolidated back-office operations and general overhead-type expenses such as executive administration, accounting and internal audit are allocated to operating segments based on estimated uses of those services, (ii) income tax expense for the individual segments is calculated essentially at the statutory rate, and (iii) the parent company records the tax expense or benefit necessary to reconcile to the consolidated total.

We use a match-funded transfer pricing process to assess operating segment performance. The process helps us to (i) identify the cost or opportunity value of funds within each business segment, (ii) measure the profitability of a particular business segment by relating appropriate costs to revenues, (iii) evaluate each business segment in a manner consistent with its economic impact on consolidated earnings, and (iv) enhance asset and liability pricing decisions.

Financial results by operating segment are detailed below. Certain prior period amounts have been reclassified to conform to the current presentation. Frost Wealth Advisors excludes off-balance-sheet managed and custody assets with a total fair value of $43.3 billion, $38.6 billion and $37.8 billion at December 31, 2021, 2020 and 2019.

	Banking	Frost Wealth Advisors	Non-Banks	Consolidated
2021				
Net interest income (expense)	$ 989,870	$ 2,138	$ (7,141)	$ 984,867
Credit loss expense	54	9	—	63
Non-interest income	220,662	167,442	(1,376)	386,728
Non-interest expense	753,719	122,972	5,303	881,994
Income (loss) before income taxes	456,759	46,599	(13,820)	489,538
Income tax expense (benefit)	41,483	9,786	(4,810)	46,459
Net income (loss)	415,276	36,813	(9,010)	443,079
Preferred stock dividends	—	—	7,157	7,157
Net income (loss) available to common shareholders	$ 415,276	$ 36,813	$ (16,167)	$ 435,922
Revenues from (expenses to) external customers	$ 1,210,532	$ 169,580	$ (8,517)	$ 1,371,595
Average assets (in millions)	$ 45,903	$ 70	$ 10	$ 45,983

	Banking	Frost Wealth Advisors	Non-Banks	Consolidated
2020				
Net interest income (expense)	$ 981,441	$ 2,776	$ (8,216)	$ 976,001
Credit loss expense	241,230	—	—	241,230
Non-interest income	321,136	145,268	(950)	465,454
Non-interest expense	718,519	123,630	6,755	848,904
Income (loss) before income taxes	342,828	24,414	(15,921)	351,321
Income tax expense (benefit)	20,347	5,127	(5,304)	20,170
Net income (loss)	322,481	19,287	(10,617)	331,151
Preferred stock dividends	—	—	2,016	2,016
Redemption of preferred stock	—	—	5,514	5,514
Net income (loss) available to common shareholders	$ 322,481	$ 19,287	$ (18,147)	$ 323,621
Revenues from (expenses to) external customers	$ 1,302,577	$ 148,044	$ (9,166)	$ 1,441,455
Average assets (in millions)	$ 37,892	$ 59	$ 10	$ 37,961
2019				
Net interest income (expense)	$ 1,010,368	$ 4,001	$ (10,364)	$ 1,004,005
Credit loss expense	33,758	1	—	33,759
Non-interest income	218,447	145,905	(450)	363,902
Non-interest expense	703,121	124,622	6,936	834,679
Income (loss) before income taxes	491,936	25,283	(17,750)	499,469
Income tax expense (benefit)	55,520	5,308	(4,958)	55,870
Net income (loss)	436,416	19,975	(12,792)	443,599
Preferred stock dividends	—	—	8,063	8,063
Net income (loss) available to common shareholders	$ 436,416	$ 19,975	$ (20,855)	$ 435,536
Revenues from (expenses to) external customers	$ 1,228,815	$ 149,906	$ (10,814)	$ 1,367,907
Average assets (in millions)	$ 32,019	$ 56	$ 11	$ 32,086

Note 19 - Condensed Financial Statements of Parent Company

Condensed financial statements pertaining only to Cullen/Frost Bankers, Inc. are presented below. Investments in subsidiaries are stated using the equity method of accounting.

Condensed Balance Sheets

	December 31, 2021	December 31, 2020
Assets:		
Cash	$ 471,875	$ 381,240
Resell agreements	—	—
Total cash and cash equivalents	471,875	381,240
Investment in subsidiaries	4,222,288	4,155,619
Accrued interest receivable and other assets	2,228	2,164
Total assets	$ 4,696,391	$ 4,539,023
Liabilities:		
Junior subordinated deferrable interest debentures, net of unamortized issuance costs	$ 123,011	$ 136,357
Subordinated notes, net of unamortized issuance costs	99,178	99,021
Accrued interest payable and other liabilities	34,647	10,629
Total liabilities	256,836	246,007
Shareholders' Equity	4,439,555	4,293,016
Total liabilities and shareholders' equity	$ 4,696,391	$ 4,539,023

Condensed Statements of Income

	Year Ended December 31, 2021	2020	2019
Income:			
Dividend income paid by Frost Bank	$ 219,386	$ 298,884	$ 234,531
Dividend income paid by non-banks	473	736	1,822
Interest and other income	101	446	2,868
Total income	219,960	300,066	239,221
Expenses:			
Interest expense	7,141	8,216	10,363
Salaries and employee benefits	1,499	1,581	1,551
Other	5,867	6,833	7,033
Total expenses	14,507	16,630	18,947
Income before income taxes and equity in undistributed earnings of subsidiaries	205,453	283,436	220,274
Income tax benefit	4,899	5,406	5,135
Equity in undistributed earnings of subsidiaries	232,727	42,309	218,190
Net income	443,079	331,151	443,599
Preferred stock dividends	7,157	2,016	8,063
Redemption of preferred stock	—	5,514	—
Net income available to common shareholders	$ 435,922	$ 323,621	$ 435,536

Condensed Statements of Cash Flows

	Year Ended December 31,		
	2021	2020	2019
Operating Activities:			
Net income	$ 443,079	$ 331,151	$ 443,599
Adjustments to reconcile net income to net cash provided by operating activities:			
Equity in undistributed earnings of subsidiaries	(232,727)	(42,309)	(218,190)
Stock-based compensation	700	770	780
Net tax benefit from stock-based compensation	278	370	240
Net change in other assets and other liabilities	23,890	(8,937)	22,216
Net cash from operating activities	235,220	281,045	248,645
Investing Activities:			
Redemption of investment in non-bank subsidiary	406	—	—
Net cash from investing activities	406	—	—
Financing Activities:			
Principal payments on long-term borrowings	(13,403)	—	—
Redemption of Series A preferred stock	—	(150,000)	—
Proceeds from issuance of Series B preferred stock	—	145,452	—
Proceeds from stock option exercises	54,417	12,557	20,770
Proceeds from stock-based compensation activities of subsidiaries	12,053	13,148	15,166
Purchase of treasury stock	(3,864)	(15,785)	(68,793)
Treasury stock issued to 401(k) stock purchase plan	1,749	10,307	—
Cash dividends paid on preferred stock	(7,157)	(2,016)	(8,063)
Cash dividends paid on common stock	(188,786)	(180,584)	(177,006)
Net cash from financing activities	(144,991)	(166,921)	(217,926)
Net change in cash and cash equivalents	90,635	114,124	30,719
Cash and cash equivalents at beginning of year	381,240	267,116	236,397
Cash and cash equivalents at end of year	$ 471,875	$ 381,240	$ 267,116

Note 20 - Accounting Standards Updates

ASU 2016-02, "Leases (Topic 842)." ASU 2016-02 among other things, requires lessees to recognize a lease liability, which is a lessee's obligation to make lease payments arising from a lease, measured on a discounted basis; and a right-of-use asset, which is an asset that represents the lessee's right to use, or control the use of, a specified asset for the lease term. We adopted ASU 2016-02, along with several other subsequent codification updates related to lease accounting, as of January 1, 2019. See Note 1 - Summary of Significant Accounting Policies for additional information.

ASU 2016-13, "Financial Instruments - Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments." ASU 2016-13 requires the measurement of all expected credit losses for financial assets held at the reporting date based on historical experience, current conditions, and reasonable and supportable forecasts and requires enhanced disclosures related to the significant estimates and judgments used in estimating credit losses, as well as the credit quality and underwriting standards of an organization's portfolio. We adopted ASU 2016-13, as subsequently updated for certain clarifications, targeted relief and codification improvements, as of January 1, 2020 and recognized a cumulative effect adjustment reducing retained earnings by $29.3 million. See Note 1 - Summary of Significant Accounting Policies for additional information.

ASU 2017-04, "Intangibles - Goodwill and Other (Topic 350) - Simplifying the Test for Goodwill Impairment." ASU 2017-04 eliminates Step 2 from the goodwill impairment test which required entities to compute the implied fair value of goodwill. Under ASU 2017-04, an entity should perform its annual, or interim, goodwill impairment test by comparing the fair value of a reporting unit with its carrying amount. An entity should recognize an impairment charge for the amount by which the carrying amount exceeds the reporting unit's fair value; however, the loss recognized should not exceed the total amount of goodwill allocated to that reporting unit. ASU 2017-04 became effective for us on January 1, 2020 and did not have a significant impact on our financial statements.

ASU 2017-08, "Receivables - Nonrefundable Fees and Other Costs (Subtopic 310-20) - Premium Amortization on Purchased Callable Debt Securities." ASU 2017-08 shortens the amortization period for certain callable debt securities held at a premium to require such premiums to be amortized to the earliest call date unless applicable guidance related to certain pools of securities is applied to consider estimated prepayments. Under prior guidance, entities were generally required to amortize premiums on individual, non-pooled callable debt securities as a yield adjustment over the contractual life of the security. ASU 2017-08 does not change the accounting for callable debt securities held at a discount. We adopted ASU 2017-08 effective January 1, 2019 and recognized a cumulative effect adjustment reducing retained earnings by $14.7 million. See Note 1 - Summary of Significant Accounting Policies for additional information.

ASU 2017-12, "Derivatives and Hedging (Topic 815) - Targeted Improvements to Accounting for Hedging Activities." ASU 2017-12 amends the hedge accounting recognition and presentation requirements in ASC 815 to improve the transparency and understandability of information conveyed to financial statement users about an entity's risk management activities to better align the entity's financial reporting for hedging relationships with those risk management activities and to reduce the complexity of and simplify the application of hedge accounting. ASU 2017-12 became effective for us on January 1, 2019 and did not have a significant impact on our financial statements.

ASU 2018-13, "Fair Value Measurement (Topic 820) - Disclosure Framework-Changes to the Disclosure Requirements for Fair Value Measurement." ASU 2018-13 modifies the disclosure requirements on fair value measurements in Topic 820. The amendments in this update remove disclosures that no longer are considered cost beneficial, modify/clarify the specific requirements of certain disclosures, and add disclosure requirements identified as relevant. ASU 2018-13 became effective for us on January 1, 2020 and did not have a significant impact on our financial statements.

ASU 2018-14, "Compensation - Retirement Benefits-Defined Benefit Plans-General (Subtopic 715-20)." ASU 2018-14 amends and modifies the disclosure requirements for employers that sponsor defined benefit pension or other post-retirement plans. The amendments in this update remove disclosures that no longer are considered cost beneficial, clarify the specific requirements of disclosures, and add disclosure requirements identified as relevant. ASU 2018-14 became effective for the year ended December 31, 2020 and did not have a significant impact on our financial statements.

ASU 2018-15, "Intangibles - Goodwill and Other - Internal-Use Software (Subtopic 350-40) - Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract." ASU 2018-15 clarifies certain aspects of ASU 2015-05, "Customer's Accounting for Fees Paid in a Cloud Computing Arrangement," which was issued in April 2015. Specifically, ASU 2018-15 aligns the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software (and hosting arrangements that include an internal-use software license). ASU 2018-15 does not affect the accounting for the service element of a hosting arrangement that is a service contract. ASU 2018-15 became effective for us on January 1, 2020 and did not have a significant impact on our financial statements.

ASU 2018-16, "Derivatives and Hedging (Topic 815) - Inclusion of the Secured Overnight Financing Rate ("SOFR") Overnight Index Swap ("OIS") Rate as a Benchmark Interest Rate for Hedge Accounting Purposes." The amendments in this update permit use of the OIS rate based on SOFR as a U.S. benchmark interest rate for hedge accounting purposes under Topic 815 in addition to the interest rates on direct U.S. Treasury obligations, the LIBOR swap rate, the OIS rate based on the Fed Funds Effective Rate and the Securities Industry and Financial Markets Association ("SIFMA") Municipal Swap Rate. ASU 2018-16 became effective for us on January 1, 2019 and did not have a significant impact on our financial statements.

ASU 2019-12, "Income Taxes (Topic 740) - Simplifying the Accounting for Income Taxes." The guidance issued in this update simplifies the accounting for income taxes by eliminating certain exceptions to the guidance in ASC 740 related to the approach for intraperiod tax allocation, the methodology for calculating income taxes in an interim period and the recognition for deferred tax liabilities for outside basis differences. ASU 2019-12 also simplifies aspects of the accounting for franchise taxes and enacted changes in tax laws or rates and clarifies the accounting for transactions that result in a step-up in the tax basis of goodwill. ASU 2019-12 became effective for us on January 1, 2021 and did not have a significant impact on our financial statements.

ASU 2020-04, "Reference Rate Reform (Topic 848): Facilitation of the Effects of Reference Rate Reform on Financial Reporting." ASU 2020-04 provides optional expedients and exceptions for accounting related to contracts, hedging relationships and other transactions affected by reference rate reform if certain criteria are met. ASU 2020-04 applies only to contracts, hedging relationships, and other transactions that reference LIBOR or another reference rate expected to be discontinued because of reference rate reform and do not apply to contract modifications made and hedging relationships entered into or evaluated after December 31, 2022, except for hedging relationships existing as of December 31, 2022, that an entity has elected certain optional expedients for and that are retained through the end of the hedging relationship. ASU 2020-04 was effective upon issuance and generally can be applied through December 31, 2022. The adoption of ASU 2020-04 did not significantly impact our financial statements.

ASU 2020-08, "Codification Improvements to Subtopic 310-20, Receivables - Nonrefundable Fees and Other Costs." ASU 2020-08 clarifies the accounting for the amortization of purchase premiums for callable debt securities with multiple call dates. ASU 2020-8 became effective for us on January 1, 2021 and did not have a significant impact on our financial statements.

ASU 2020-09, "Debt (Topic 470): Amendments to SEC Paragraphs Pursuant to SEC Release No. 33-10762." ASU 2020-9 amends the ASC to reflect the issuance of an SEC rule related to financial disclosure requirements for subsidiary issuers and guarantors of registered debt securities and affiliates whose securities are pledged as collateral for registered securities. ASU 2020-09 became effective for us on January 4, 2021, concurrent with the effective date of the SEC release, and did not have a significant impact on our financial statements.

ASU 2021-01, "Reference Rate Reform (Topic 848): Scope." ASU 2021-01 clarifies that certain optional expedients and exceptions in ASC 848 for contract modifications and hedge accounting apply to derivatives that are affected by the discounting transition. ASU 2021-01 also amends the expedients and exceptions in ASC 848 to capture the incremental consequences of the scope clarification and to tailor the existing guidance to derivative instruments affected by the discounting transition. ASU 2021-01 was effective upon issuance and generally can be applied through December 31, 2022. The adoption of ASU 2021-01 did not significantly impact our financial statements.

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None

ITEM 9A. CONTROLS AND PROCEDURES

As of the end of the period covered by this Annual Report on Form 10-K, an evaluation was carried out by our management, with the participation of our Chief Executive Officer and Chief Financial Officer, of the effectiveness of our disclosure controls and procedures (as defined in Rule 13a-15(e) under the Securities Exchange Act of 1934). Based upon that evaluation, the Chief Executive Officer and Chief Financial Officer concluded that the disclosure controls and procedures were effective as of the end of the period covered by this report. No changes were made to our internal control over financial reporting (as defined in Rule 13a-15(f) under the Securities Exchange Act of 1934) during the last fiscal quarter that materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Management's Report on Internal Control Over Financial Reporting

The management of Cullen/Frost Bankers, Inc. is responsible for establishing and maintaining adequate internal control over financial reporting. Our internal control over financial reporting is a process designed under the supervision of our Chief Executive Officer and Chief Financial Officer to provide reasonable assurance regarding the reliability of financial reporting and the preparation of our financial statements for external purposes in accordance with generally accepted accounting principles.

As of December 31, 2021, management assessed the effectiveness of our internal control over financial reporting based on the criteria for effective internal control over financial reporting established in "Internal Control - Integrated Framework," issued by the Committee of Sponsoring Organizations ("COSO") of the Treadway Commission ("2013 framework"). Based on the assessment, management determined that we maintained effective internal control over financial reporting as of December 31, 2021, based on those criteria.

Ernst & Young LLP, San Antonio, Texas, (U.S. PCAOB Auditor Firm I.D.: 42), the independent registered public accounting firm that audited our consolidated financial statements included in this Annual Report on Form 10-K, has issued an attestation report on the effectiveness of our internal control over financial reporting as of December 31, 2021. The report, which expresses an unqualified opinion on the effectiveness of our internal control over financial reporting as of December 31, 2021, is included in this Item under the heading "Attestation Report of Independent Registered Public Accounting Firm."

Attestation Report of Independent Registered Public Accounting Firm

Report of Independent Registered Public Accounting Firm

To the Shareholders and the Board of Directors of Cullen/Frost Bankers, Inc.

Opinion on Internal Control over Financial Reporting

We have audited Cullen/Frost Bankers, Inc.'s internal control over financial reporting as of December 31, 2021, based on criteria established in Internal Control – Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (the COSO criteria). In our opinion, Cullen/Frost Bankers, Inc. (the Company) maintained, in all material respects, effective internal control over financial reporting as of December 31, 2021, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of December 31, 2021 and 2020, and the related consolidated statements of income, comprehensive income, changes in shareholders' equity and cash flows for each of the three years in the period ended December 31, 2021, and the related notes and our report dated February 4, 2022 expressed an unqualified opinion thereon.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting included in the accompanying Management's Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects.

Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Ernst + Young LLP

San Antonio, Texas
February 4, 2022

ITEM 9B. OTHER INFORMATION

None

ITEM 9C. DISCLOSURE REGARDING FOREIGN JURISDICTIONS THAT PREVENT INSPECTIONS

None

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

Certain information regarding executive officers is included under the section captioned “Executive Officers of the Registrant” in Part I, Item 1, elsewhere in this Annual Report on Form 10-K. Other information required by this Item is incorporated herein by reference to our Proxy Statement (Schedule 14A) for our 2022 Annual Meeting of Shareholders to be filed with the SEC within 120 days of our fiscal year-end.

ITEM 11. EXECUTIVE COMPENSATION

The information required by this Item is incorporated herein by reference to our Proxy Statement (Schedule 14A) for our 2022 Annual Meeting of Shareholders to be filed with the SEC within 120 days of our fiscal year-end.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

Certain information regarding securities authorized for issuance under our equity compensation plans is included under the section captioned “Stock-Based Compensation Plans” in Part II, Item 5, elsewhere in this Annual Report on Form 10-K. Other information required by this Item is incorporated herein by reference to our Proxy Statement (Schedule 14A) for our 2022 Annual Meeting of Shareholders to be filed with the SEC within 120 days of our fiscal year-end.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

The information required by this Item is incorporated herein by reference to our Proxy Statement (Schedule 14A) for our 2022 Annual Meeting of Shareholders to be filed with the SEC within 120 days of our fiscal year-end.

ITEM 14. PRINCIPAL ACCOUNTING FEES AND SERVICES

The information required by this Item is incorporated herein by reference to our Proxy Statement (Schedule 14A) for our 2022 Annual Meeting of Shareholders to be filed with the SEC within 120 days of our fiscal year-end.

PART IV

ITEM 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULES

(a) The following documents are filed as part of this Annual Report on Form 10-K:

1. *Consolidated Financial Statements.* Reference is made to Part II, Item 8, of this Annual Report on Form 10-K.
2. *Consolidated Financial Statement Schedules.* These schedules are omitted as the required information is inapplicable or the information is presented in the consolidated financial statements or related notes.
3. *Exhibits.* The exhibits to this Annual Report on Form 10-K listed below have been included only with the copy of this report filed with the Securities and Exchange Commission.

			Incorporated by Reference			
Exhibit Number	**Exhibit Description**	**Filed Herewith**	**Form**	**File No.**	**Exhibit**	**Filing Date**
3.1	Restated Articles of Incorporation of Cullen/Frost Bankers, Inc.		10-Q	001-13221	3.1	7/26/2006
3.2	Amended and Restated Bylaws of Cullen/Frost Bankers, Inc.		8-K	001-13221	3.1	7/31/2020
3.3	Certificate of Designations of 4.450% Non-Cumulative Perpetual Perpetual Preferred Stock, Series B		8-A	001-13221	3.3	11/19/2020
4.1	Description of Registrant's Securities		10-K	001-13221	4.1	2/5/2021
4.2P[1]	Instruments Defining the Rights of Holders of Long-Term Debt					
10.1[2]	Cullen/Frost Bankers, Inc. Restoration Plan		10-K	001-13221	10.1	2/6/2019
10.2[2]	Amendment No. 1 to the Cullen/Frost Bankers, Inc. Restoration Plan		10-K	001-13221	10.2	2/6/2019
10.3[2]	Thrift Incentive Stock Purchase Plan for Certain Employees of Cullen/ Frost Bankers, Inc.		10-K	001-13221	10.3	2/6/2019
10.4[2]	Cullen/Frost Restoration Profit Sharing Plan		10-K	001-13221	10.7	2/6/2019
10.5[2]	Amendment No. 1 to the Cullen/Frost Restoration Profit Sharing Plan		10-K	001-13221	10.8	2/6/2019
10.6[2]	2005 Omnibus Incentive Plan		DEF 14A	001-13221	Annex A	3/20/2013
10.7[2]	2007 Outside Director Incentive Plan		S-8	333-143397	4.4	5/31/2007
10.8[2]	2015 Omnibus Incentive Plan		DEF 14A	001-13221	Annex A	3/23/2015
10.9[2]	Amendment to the 2015 Omnibus Incentive Plan		10-K	001-13221	10.12	2/3/2017
10.10[2]	Deferred Stock Unit Award Agreement with 10 Directors	X				
10.11[2]	Executive Change-in-Control Severance Plan		10-Q	001-13221	10.1	10/28/2021
21.1	Subsidiaries of Cullen/Frost Bankers, Inc.	X				
23.1	Consent of Independent Registered Public Accounting Firm	X				
24.1	Power of Attorney	X				
31.1	Rule 13a-14(a) Certification of the Chief Executive Officer	X				
31.2	Rule 13a-14(a) Certification of the Chief Financial Officer	X				
32.1[3]	Section 1350 Certification of the Chief Executive Officer	X				
32.2[3]	Section 1350 Certification of the Chief Financial Officer	X				
101.INS[4]	Inline XBRL Instance Document	X				
101.SCH	Inline XBRL Taxonomy Extension Schema Document	X				
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document	X				
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document	X				
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document	X				
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document	X				
104[5]	Cover Page Interactive Data File					

(1) We agree to furnish to the SEC, upon request, copies of any such instruments.

(2) Management contract or compensatory plan or arrangement.

(3) This exhibit shall not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, or otherwise subject to the liability of that section, and shall not be deemed to be incorporated by reference into any filing under the Securities Act of 1933 or the Securities Exchange Act of 1934.

(4) The instance document does not appear in the interactive data file because its XBRL tags are embedded within the Inline XBRL document.

(5) Formatted as Inline XBRL and contained within the Inline XBRL Instance Document in Exhibit 101.

(b) Exhibits - See exhibit index included in Item 15(a)3 of this Annual Report on Form 10-K.

(c) Financial Statement Schedules - See Item 15(a)2 of this Annual Report on Form 10-K.

ITEM 16. FORM 10-K SUMMARY

None

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

Date: February 4, 2022 CULLEN/FROST BANKERS, INC.
(Registrant)

By: /s/ JERRY SALINAS
Jerry Salinas
Group Executive Vice President and Chief Financial Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Signature	Title	Date
/s/ PHILLIP D. GREEN* **Phillip D. Green**	Chairman of the Board, Director and Chief Executive Officer (Principal Executive Officer)	February 4, 2022
/s/ JERRY SALINAS **Jerry Salinas**	Group Executive Vice President and Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)	February 4, 2022
/s/ CARLOS ALVAREZ* **Carlos Alvarez**	Director	February 4, 2022
/s/ CHRIS AVERY* **Chris Avery**	Director	February 4, 2022
/s/ ANTHONY R. CHASE* **Anthony R. Chase**	Director	February 4, 2022
/s/ CYNTHIA COMPARIN* **Cynthia Comparin**	Director	February 4, 2022
/s/ SAM DAWSON* **Sam Dawson**	Director	February 4, 2022
/s/ CRAWFORD H. EDWARDS* **Crawford H. Edwards**	Director	February 4, 2022
/s/ PATRICK B. FROST* **Patrick B. Frost**	Director and President of Frost Bank	February 4, 2022
/s/ DAVID J. HAEMISEGGER* **David J. Haemisegger**	Director	February 4, 2022
/s/ KAREN E. JENNINGS* **Karen E. Jennings**	Director	February 4, 2022
/s/ CHARLES W. MATTHEWS* **Charles W. Matthews**	Director	February 4, 2022
/s/ IDA CLEMENT STEEN* **Ida Clement Steen**	Director	February 4, 2022
*By: /s/ JERRY SALINAS **Jerry Salinas** As attorney-in-fact for the persons indicated	Group Executive Vice President and Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)	February 4, 2022

CULLEN/ FROST BANKERS, INC.

(NYSE: CFR)

is a financial holding company, headquartered in San Antonio, with $50.9 billion in assets at December 31, 2021. One of the 60 largest U.S. banks, Frost provides a wide range of banking, investments and insurance services to businesses and individuals across Texas in the Austin, Corpus Christi, Dallas, Fort Worth, Houston, Permian Basin, Rio Grande Valley and San Antonio regions. Founded in 1868, Frost has helped clients with their financial needs during three centuries. Additional information is available at frostbank.com.

CORPORATE HEADQUARTERS

111 West Houston Street
San Antonio, Texas 78205

(210) 220-4011
frostbank@frostbank.com

FROSTBANK.COM

CERTIFICATIONS

The certifications of the Chief Executive Officer and the Chief Financial Officer of Cullen/Frost Bankers, Inc., required under Section 302 of the Sarbanes-Oxley Act of 2002, have been filed as exhibits to Cullen/Frost's 2021 Annual Report on Form 10-K.
In addition, the certification of the Chief Executive Officer of Cullen/Frost, required under the rules of the New York Stock Exchange, Inc., has been filed with the Exchange.

INVESTOR INQUIRIES

Analysts, investors and others desiring additional information about Cullen/Frost Bankers, Inc., may contact AB Mendez, Senior Vice President, Director of Investor Relations, at (210) 220-5234. SEC filings and other helpful information for investors can be found at investor.frostbank.com

TRANSFER AGENT AND REGISTRAR

Computershare
P.O. Box 505000 / Louisville, KY 40233
(866) 252-0444

Cullen/Frost Bankers, Inc.