UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

Form 10-Q

☒ **QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the quarterly period ended June 30, 2020

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 No. 000-51399

FEDERAL HOME LOAN BANK OF CINCINNATI

(Exact name of registrant as specified in its charter)

Federally chartered corporation	**31-6000228**
(State or other jurisdiction of incorporation or organization)	*(I.R.S. Employer Identification No.)*
600 Atrium Two, P.O. Box 598,	
Cincinnati, OH	**45201-0598**
(Address of principal executive offices)	*(Zip Code)*

(513) 852-7500
(Registrant's telephone number, including area code)

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

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 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 is a shell company (as defined in Rule 12b-2 of the Exchange Act).

☐ Yes ☒ No

The capital stock of the registrant is not listed on any securities exchange or quoted on any automated quotation system, only may be owned by members and former members and is transferable only at its par value of $100 per share. As of July 31, 2020, the registrant had 36,941,953 shares of capital stock outstanding, which included stock classified as mandatorily redeemable.

Table of Contents

PART I - FINANCIAL INFORMATION

PART II - OTHER INFORMATION

PART I – FINANCIAL INFORMATION

Item 1. Financial Statements.

FEDERAL HOME LOAN BANK OF CINCINNATI
STATEMENTS OF CONDITION
(Unaudited)

(In thousands, except par value)

	June 30, 2020		December 31, 2019	
ASSETS				
Cash and due from banks	$	22,930	$	20,608
Interest-bearing deposits		905,037		550,160
Securities purchased under agreements to resell		963,844		2,348,584
Federal funds sold		3,525,000		4,833,000
Investment securities:				
Trading securities		11,977,641		11,615,693
Available-for-sale securities		293,582		1,542,185
Held-to-maturity securities (includes $0 and $0 pledged as collateral at June 30, 2020 and December 31, 2019, respectively, that may be repledged) [(a)]		11,868,005		13,499,319
Total investment securities		24,139,228		26,657,197
Advances (includes $5,415 and $5,238 at fair value under fair value option at June 30, 2020 and December 31, 2019, respectively)		48,912,975		47,369,573
Mortgage loans held for portfolio, net of allowance for credit losses of $264 and $711 at June 30, 2020 and December 31, 2019, respectively		11,703,351		11,235,353
Accrued interest receivable		145,910		182,252
Derivative assets		302,601		267,165
Other assets		23,803		27,667
TOTAL ASSETS	$	90,644,679	$	93,491,559
LIABILITIES				
Deposits	$	1,235,918	$	951,296
Consolidated Obligations:				
Discount Notes (includes $649,883 and $12,386,974 at fair value under fair value option at June 30, 2020 and December 31, 2019, respectively)		44,323,911		49,084,219
Bonds (includes $2,651,563 and $4,757,177 at fair value under fair value option at June 30, 2020 and December 31, 2019, respectively)		39,339,109		38,439,724
Total Consolidated Obligations		83,663,020		87,523,943
Mandatorily redeemable capital stock		19,050		21,669
Accrued interest payable		89,266		126,091
Affordable Housing Program payable		121,200		115,295
Derivative liabilities		1,622		1,310
Other liabilities		470,681		307,499
Total liabilities		85,600,757		89,047,103
Commitments and contingencies				
CAPITAL				
Capital stock Class B putable ($100 par value); issued and outstanding shares: 38,131 shares at June 30, 2020 and 33,664 shares at December 31, 2019		3,813,110		3,366,428
Retained earnings:				
Unrestricted		765,084		648,374
Restricted		481,861		446,048
Total retained earnings		1,246,945		1,094,422
Accumulated other comprehensive loss		(16,133)		(16,394)
Total capital		5,043,922		4,444,456
TOTAL LIABILITIES AND CAPITAL	$	90,644,679	$	93,491,559

(a) Fair values: $12,023,183 and $13,501,207 at June 30, 2020 and December 31, 2019, respectively.

The accompanying notes are an integral part of these financial statements.

FEDERAL HOME LOAN BANK OF CINCINNATI
STATEMENTS OF INCOME
(Unaudited)

(In thousands)	Three Months Ended June 30, 2020	Three Months Ended June 30, 2019	Six Months Ended June 30, 2020	Six Months Ended June 30, 2019
INTEREST INCOME:				
Advances	$ 158,437	$ 320,763	$ 330,604	$ 723,540
Prepayment fees on Advances, net	13,320	165	17,594	180
Interest-bearing deposits	410	3,737	3,760	5,281
Securities purchased under agreements to resell	236	22,223	10,390	41,048
Federal funds sold	554	59,192	29,080	123,021
Investment securities:				
Trading securities	67,691	45,389	135,595	50,560
Available-for-sale securities	619	4,854	4,015	18,413
Held-to-maturity securities	48,379	103,979	116,683	210,452
Total investment securities	116,689	154,222	256,293	279,425
Mortgage loans held for portfolio	74,151	85,587	163,408	174,252
Loans to other FHLBanks	—	50	60	70
Total interest income	363,797	645,939	811,189	1,346,817
INTEREST EXPENSE:				
Consolidated Obligations:				
Discount Notes	83,332	244,185	259,456	555,895
Bonds	129,808	300,060	315,795	562,923
Total Consolidated Obligations	213,140	544,245	575,251	1,118,818
Deposits	198	3,973	3,174	7,671
Mandatorily redeemable capital stock	864	293	1,054	642
Total interest expense	214,202	548,511	579,479	1,127,131
NET INTEREST INCOME	149,595	97,428	231,710	219,686
NON-INTEREST INCOME (LOSS):				
Net gains (losses) on investment securities	(10,404)	171,461	362,002	193,587
Net gains (losses) on financial instruments held under fair value option	25,741	(24,753)	(25,089)	(41,934)
Net gains (losses) on derivatives and hedging activities	(33,972)	(152,126)	(327,938)	(178,085)
Other, net	3,610	2,759	6,689	5,374
Total non-interest income (loss)	(15,025)	(2,659)	15,664	(21,058)
NON-INTEREST EXPENSE:				
Compensation and benefits	11,951	11,376	25,291	24,035
Other operating expenses	4,968	5,468	11,071	10,945
Finance Agency	1,629	1,695	3,257	3,391
Office of Finance	1,445	1,114	2,703	2,480
Other	4,025	3,725	5,976	4,950
Total non-interest expense	24,018	23,378	48,298	45,801
INCOME BEFORE ASSESSMENTS	110,552	71,391	199,076	152,827
Affordable Housing Program assessments	11,142	7,168	20,013	15,347
NET INCOME	$ 99,410	$ 64,223	$ 179,063	$ 137,480

The accompanying notes are an integral part of these financial statements.

FEDERAL HOME LOAN BANK OF CINCINNATI
STATEMENTS OF COMPREHENSIVE INCOME
(Unaudited)

(In thousands)	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	2019	2020	2019
Net income	$ 99,410	$ 64,223	$ 179,063	$ 137,480
Other comprehensive income adjustments:				
Net unrealized gains (losses) on available-for-sale securities	22	(437)	(883)	(250)
Pension and postretirement benefits	581	516	1,144	917
Total other comprehensive income (loss) adjustments	603	79	261	667
Comprehensive income	$ 100,013	$ 64,302	$ 179,324	$ 138,147

The accompanying notes are an integral part of these financial statements.

FEDERAL HOME LOAN BANK OF CINCINNATI
STATEMENTS OF CAPITAL
(Unaudited)

(In thousands)	Capital Stock Class B - Putable		Retained Earnings			Accumulated Other Comprehensive	Total
	Shares	Par Value	Unrestricted	Restricted	Total	Loss	Capital
BALANCE, MARCH 31, 2019	40,590	$ 4,058,981	$ 625,103	$ 405,481	$ 1,030,584	$ (12,455)	$ 5,077,110
Comprehensive income (loss)			51,379	12,844	64,223	79	64,302
Proceeds from sale of capital stock	1,477	147,687					147,687
Repurchase of capital stock	(4,000)	(400,000)					(400,000)
Net shares reclassified to mandatorily redeemable capital stock	(2)	(138)					(138)
Cash dividends on capital stock			(57,848)		(57,848)		(57,848)
BALANCE, JUNE 30, 2019	38,065	$ 3,806,530	$ 618,634	$ 418,325	$ 1,036,959	$ (12,376)	$ 4,831,113
BALANCE, MARCH 31, 2020	47,394	$ 4,739,413	$ 690,615	$ 461,979	$ 1,152,594	$ (16,736)	$ 5,875,271
Comprehensive income (loss)			79,528	19,882	99,410	603	100,013
Proceeds from sale of capital stock	313	31,339					31,339
Repurchase of capital stock	(9,500)	(950,000)					(950,000)
Net shares reclassified to mandatorily redeemable capital stock	(76)	(7,642)					(7,642)
Partial recovery of prior capital distribution to Financing Corporation			16,533		16,533		16,533
Cash dividends on capital stock			(21,592)		(21,592)		(21,592)
BALANCE, JUNE 30, 2020	38,131	$ 3,813,110	$ 765,084	$ 481,861	$ 1,246,945	$ (16,133)	$ 5,043,922

(In thousands)	Capital Stock Class B - Putable		Retained Earnings			Accumulated Other Comprehensive	Total
	Shares	Par Value	Unrestricted	Restricted	Total	Loss	Capital
BALANCE, DECEMBER 31, 2018	43,205	$ 4,320,459	$ 631,971	$ 390,829	$ 1,022,800	$ (13,043)	$ 5,330,216
Comprehensive income (loss)			109,984	27,496	137,480	667	138,147
Proceeds from sale of capital stock	3,758	375,793					375,793
Repurchase of capital stock	(8,886)	(888,544)					(888,544)
Net shares reclassified to mandatorily redeemable capital stock	(12)	(1,178)					(1,178)
Cash dividends on capital stock			(123,321)		(123,321)		(123,321)
BALANCE, JUNE 30, 2019	38,065	$ 3,806,530	$ 618,634	$ 418,325	$ 1,036,959	$ (12,376)	$ 4,831,113
BALANCE, DECEMBER 31, 2019	33,664	$ 3,366,428	$ 648,374	$ 446,048	$ 1,094,422	$ (16,394)	$ 4,444,456
Adjustment for cumulative effect of accounting change			366		366		366
Comprehensive income (loss)			143,250	35,813	179,063	261	179,324
Proceeds from sale of capital stock	21,042	2,104,201					2,104,201
Repurchase of capital stock	(11,000)	(1,100,000)					(1,100,000)
Net shares reclassified to mandatorily redeemable capital stock	(5,575)	(557,519)					(557,519)
Partial recovery of prior capital distribution to Financing Corporation			16,533		16,533		16,533
Cash dividends on capital stock			(43,439)		(43,439)		(43,439)
BALANCE, JUNE 30, 2020	38,131	$ 3,813,110	$ 765,084	$ 481,861	$ 1,246,945	$ (16,133)	$ 5,043,922

The accompanying notes are an integral part of these financial statements.

FEDERAL HOME LOAN BANK OF CINCINNATI
STATEMENTS OF CASH FLOWS
(Unaudited)

(In thousands)	Six Months Ended June 30, 2020	Six Months Ended June 30, 2019
OPERATING ACTIVITIES:		
Net income	$ 179,063	$ 137,480
Adjustments to reconcile net income to net cash provided by (used in) operating activities:		
Depreciation and amortization	40,466	23,241
Net change in derivative and hedging activities	(224,019)	(151,533)
Net change in fair value adjustments on trading securities	(362,002)	(193,587)
Net change in fair value adjustments on financial instruments held under fair value option	25,089	41,934
Other adjustments	569	386
Net change in:		
Accrued interest receivable	36,565	(31,419)
Other assets	3,172	4,813
Accrued interest payable	(40,551)	29,128
Other liabilities	20,018	3,694
Total adjustments	(500,693)	(273,343)
Net cash provided by (used in) operating activities	(321,630)	(135,863)
INVESTING ACTIVITIES:		
Net change in:		
Interest-bearing deposits	(590,355)	(554,112)
Securities purchased under agreements to resell	1,384,740	1,101,023
Federal funds sold	1,308,000	(2,887,000)
Premises, software, and equipment	(863)	(1,244)
Trading securities:		
Proceeds from maturities	54	74
Purchases	—	(8,344,204)
Available-for-sale securities:		
Proceeds from maturities	1,810,000	3,300,000
Purchases	(400,000)	(1,886,000)
Held-to-maturity securities:		
Proceeds from maturities	1,659,909	1,385,566
Purchases	(34,234)	(945,214)
Advances:		
Repaid	359,827,848	756,877,187
Originated	(360,969,150)	(744,759,498)
Mortgage loans held for portfolio:		
Principal collected	1,667,502	653,475
Purchases	(2,161,320)	(801,061)
Net cash provided by (used in) investing activities	3,502,131	3,138,992

The accompanying notes are an integral part of these financial statements.

(continued from previous page)

FEDERAL HOME LOAN BANK OF CINCINNATI
STATEMENTS OF CASH FLOWS
(Unaudited)

(In thousands)	Six Months Ended June 30, 2020	Six Months Ended June 30, 2019
FINANCING ACTIVITIES:		
Net change in deposits and pass-through reserves	$ 281,252	$ 39,939
Net proceeds (payments) on derivative contracts with financing elements	(689)	(221)
Net proceeds from issuance of Consolidated Obligations:		
Discount Notes	180,208,634	295,761,694
Bonds	20,341,399	19,473,745
Payments for maturing and retiring Consolidated Obligations:		
Discount Notes	(184,963,367)	(301,226,879)
Bonds	(19,462,565)	(16,401,800)
Proceeds from issuance of capital stock	2,104,201	375,793
Payments for repurchase of capital stock	(1,100,000)	(888,544)
Payments for repurchase/redemption of mandatorily redeemable capital stock	(560,138)	(1,801)
Cash dividends paid	(43,439)	(123,321)
Partial recovery of prior capital distribution to Financing Corporation	16,533	—
Net cash provided by (used in) financing activities	(3,178,179)	(2,991,395)
Net increase (decrease) in cash and due from banks	2,322	11,734
Cash and due from banks at beginning of the period	20,608	10,037
Cash and due from banks at end of the period	$ 22,930	$ 21,771
Supplemental Disclosures:		
Interest paid	$ 643,599	$ 1,096,849
Affordable Housing Program payments, net	$ 14,108	$ 14,277

The accompanying notes are an integral part of these financial statements.

FEDERAL HOME LOAN BANK OF CINCINNATI

NOTES TO UNAUDITED FINANCIAL STATEMENTS

Background Information

The Federal Home Loan Bank of Cincinnati (the FHLB), a federally chartered corporation, is one of 11 District Federal Home Loan Banks (FHLBanks). The FHLBanks are government-sponsored enterprises (GSEs) that serve the public by enhancing the availability of credit for residential mortgages and targeted community development. The FHLB is regulated by the Federal Housing Finance Agency (Finance Agency).

Note 1 - Summary of Significant Accounting Policies

Basis of Presentation

The accompanying interim financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America (GAAP). The preparation of financial statements in accordance with GAAP requires management to make assumptions and estimates. These assumptions and estimates affect the reported amount of assets and liabilities, the disclosure of contingent assets and liabilities, and the reported amounts of income and expenses. Actual results could differ from these estimates. The interim financial statements presented are unaudited, but they include all adjustments (consisting of only normal recurring adjustments) which are, in the opinion of management, necessary for a fair statement of the financial condition, results of operations, and cash flows for such periods. These financial statements do not include all disclosures associated with annual financial statements and accordingly should be read in conjunction with the audited financial statements and notes included in the FHLB's Annual Report on Form 10-K for the year ended December 31, 2019 filed with the Securities and Exchange Commission (SEC). Results for the six months ended June 30, 2020 are not necessarily indicative of operating results for the full year.

The FHLB presents certain financial instruments, including derivative instruments and securities purchased under agreements to resell, on a net basis when it has a legal right of offset and all other requirements for netting are met (collectively referred to as the netting requirements). For these instruments, the FHLB has elected to offset its asset and liability positions, as well as cash collateral received or pledged, when it has met the netting requirements. The FHLB did not have any offsetting liabilities related to its securities purchased under agreements to resell for the periods presented.

The net exposure for these financial instruments can change on a daily basis; therefore, there may be a delay between the time this exposure change is identified and additional collateral is requested, and the time this collateral is received or pledged. Likewise, there may be a delay for excess collateral to be returned. For derivative instruments that meet the requirements for netting, any excess cash collateral received or pledged is recognized as a derivative liability or derivative asset. Additional information regarding these agreements is provided in Note 6. Based on the fair value of the related collateral held, the securities purchased under agreements to resell were fully collateralized for the periods presented. For more information about the FHLB's investments in securities purchased under agreements to resell, see “Item 8. Financial Statements and Supplementary Data - Note 1 - Summary of Significant Accounting Policies” in the FHLB's 2019 Annual Report on Form 10-K.

The FHLB did not hold any equity securities as of June 30, 2020 and December 31, 2019.

Subsequent Events

The FHLB has evaluated subsequent events for potential recognition or disclosure through the issuance of these financial statements and believes there have been no material subsequent events requiring additional disclosure or recognition in these financial statements.

Significant Accounting Policies

Beginning January 1, 2020, the FHLB adopted new accounting guidance related to the measurement of credit losses on financial instruments, which requires a financial asset or group of financial assets measured at amortized cost to be presented at the net amount expected to be collected. The new guidance also requires credit losses relating to these financial instruments and available-for-sale securities to be recorded through the allowance for credit losses. Key changes from prior accounting guidance are detailed below. Consistent with the modified retrospective method of adoption, the prior period has not been revised to conform to the new basis of accounting. See "Item 8. Financial Statements and Supplementary Data - Note 1 - Summary of Significant Accounting Policies" in the FHLB's 2019 Annual Report on Form 10-K for information on the prior accounting treatment.

Interest-Bearing Deposits, Securities Purchased under Agreements to Resell, and Federal Funds Sold. These investments provide short-term liquidity and are carried at amortized cost. Accrued interest receivable is recorded separately on the Statements of Condition.

These investments are evaluated quarterly for expected credit losses. If applicable, an allowance for credit losses is recorded with a corresponding adjustment to the provision (reversal) for credit losses. The FHLB applies the collateral maintenance provision practical expedient when evaluating securities purchased under agreements to resell for credit losses. Consequently, a credit loss would be recognized if there is a collateral shortfall which the FHLB does not believe the counterparty will replenish in accordance with its contractual terms. The credit loss would be limited to the difference between the fair value of the collateral and the investment's amortized cost.

See Note 3 - Investments for details on the allowance methodologies relating to these investments.

Investment Securities.

Available for Sale. For securities classified as available-for-sale, the FHLB evaluates an individual security for impairment on a quarterly basis by comparing the security's fair value to its amortized cost. Accrued interest receivable is recorded separately on the Statements of Condition. Impairment exists when the fair value of the investment is less than its amortized cost (i.e., in an unrealized loss position). In assessing whether a credit loss exists on an impaired security, the FHLB considers whether there would be a shortfall in receiving all cash flows contractually due. When a shortfall is considered possible, the FHLB compares the present value of cash flows to be collected from the security with the amortized cost basis of the security. If the present value of cash flows is less than amortized cost, an allowance for credit losses is recorded with a corresponding adjustment to the provision (reversal) for credit losses. The allowance is limited by the amount of the unrealized loss. The allowance for credit losses excludes uncollectible accrued interest receivable, which is measured separately.

If management intends to sell an impaired security classified as available-for-sale, or more likely than not will be required to sell the security before expected recovery of its amortized cost basis, any allowance for credit losses is written off and the amortized cost basis is written down to the security's fair value at the reporting date with any incremental impairment reported in earnings as net gains (losses) on investment securities. If management does not intend to sell an impaired security classified as available-for-sale and it is not more likely than not that management will be required to sell the debt security, then the credit portion of the difference is recognized as an allowance for credit losses and any remaining difference between the security's fair value and amortized cost is recorded to net unrealized gains (losses) on available-for-sale securities within other comprehensive income (loss).

Prior to January 1, 2020, credit losses were recorded as a direct write-down of the available-for-sale security carrying value. As of December 31, 2019, the FHLB had not recorded any direct write-downs to the carrying value of its available-for-sale securities.

Held-to-Maturity. Securities that the FHLB has both the ability and intent to hold to maturity are classified as held-to-maturity and are carried at amortized cost, which is original cost net of periodic principal repayments and amortization of premiums and accretion of discounts. Accrued interest receivable is recorded separately on the Statements of Condition.

Held-to-maturity securities are evaluated quarterly for expected credit losses on a pool basis unless an individual assessment is deemed necessary because the securities do not possess similar risk characteristics. An allowance for credit losses is recorded with a corresponding adjustment to the provision (reversal) for credit losses. The allowance for credit losses excludes uncollectible accrued interest receivable, which is measured separately. Prior to January 1, 2020, credit losses were recorded as a direct write-down of the held-to-maturity security carrying value. As of December 31, 2019, the FHLB had not recorded any direct write-downs to the carrying value of its held-to-maturity securities.

See Note 3 - Investments for details on the allowance methodologies relating to available-for-sale and held-to-maturity securities.

Advances. Advances (loans to members, former members, or housing associates) are carried at amortized cost, or at fair value, when the fair value option has been elected. Advances recorded at amortized cost are carried at original cost net of periodic principal repayments and amortization of premiums and accretion of discounts (including discounts related to the Affordable Housing Program), unearned commitment fees, and fair value hedge adjustments. Accrued interest receivable is recorded separately on the Statements of Condition. The Advances carried at amortized cost are evaluated quarterly for expected credit losses. If deemed necessary, an allowance for credit losses is recorded with a corresponding adjustment to the provision (reversal) for credit losses. See Note 4 - Advances for details on the allowance methodology relating to Advances.

Mortgage Loans Held for Portfolio. Mortgage loans held for portfolio are recorded at amortized cost, which is original cost, net of periodic principal repayments and amortization of premiums and accretion of discounts, hedging basis adjustments on loans initially classified as mortgage loan commitments, and direct write-downs. The FHLB has the intent and ability to hold these mortgage loans to maturity. Accrued interest receivable is recorded separately on the Statements of Condition. The FHLB performs a quarterly assessment of its mortgage loans held for portfolio to estimate expected credit losses. An allowance for credit losses is recorded with a corresponding adjustment to the provision (reversal) for credit losses.

The FHLB measures expected credit losses on mortgage loans on a collective basis, pooling loans with similar risk characteristics. If a mortgage loan no longer shares risk characteristics with other loans, it is removed from the pool and evaluated for expected credit losses on an individual basis.

When developing the allowance for credit losses, the FHLB measures the expected loss over the estimated remaining life of a mortgage loan, which also considers how the FHLB’s credit enhancements mitigate credit losses. If a loan is purchased at a discount, the discount does not offset the allowance for credit losses. The FHLB’s measurement of expected credit losses takes into consideration any accrued interest that may be lost as a result of a default.

The FHLB does not purchase mortgage loans with credit deterioration present at the time of purchase. The FHLB includes estimates of expected recoveries within the allowance for credit losses. See Note 5 - Mortgage Loans for details on the allowance methodologies relating to mortgage loans.

Off-Balance Sheet Credit Exposures. The FHLB evaluates its off-balance sheet credit exposures on a quarterly basis for expected credit losses. If deemed necessary, an allowance for expected credit losses on these off-balance sheet exposures is recorded in other liabilities with a corresponding adjustment to the provision (reversal) for credit losses.

Note 2 - Recently Issued Accounting Standards and Interpretations

Troubled Debt Restructuring Relief. On March 27, 2020, the Coronavirus Aid, Relief, and Economic Security (CARES) Act providing optional, temporary relief from accounting for certain loan modifications as troubled debt restructurings (TDRs) was signed into law. Under the CARES Act, TDR relief is available to banks for loan modifications related to the adverse effects of the coronavirus pandemic (COVID-19) granted to borrowers that were current as of December 31, 2019. TDR relief applies to COVID-19 related modifications made from March 1, 2020, until the earlier of December 31, 2020, or 60 days following the termination of the national emergency declared by the President of the United States. The FHLB elected to apply the TDR relief provided by the CARES Act.

Facilitation of the Effects of Reference Rate Reform on Financial Reporting. On March 12, 2020, the Financial Accounting Standards Board (FASB) issued temporary, optional guidance to ease the potential burden in accounting for reference rate reform. The new guidance provides optional expedients and exceptions for applying GAAP to transactions affected by reference rate reform if certain criteria are met. The transactions primarily include (1) contract modifications, (2) hedging relationships, and (3) sale and/or transfer of debt securities classified as held-to-maturity. This guidance is effective immediately for the FHLB, and the amendments may be applied prospectively through December 31, 2022. The FHLB has assessed the guidance and plans to elect the majority of the optional expedients and exceptions provided; however, the effect on the FHLB's financial condition, results of operations and cash flows has not yet been determined.

Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract. On August 29, 2018, the FASB issued amended guidance that 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). This guidance became effective for the FHLB for the interim and annual periods beginning on January 1, 2020. The guidance did not have a material impact on the FHLB’s financial condition, results of operations, and cash flows.

Changes to the Disclosure Requirements for Defined Benefit Plans. On August 28, 2018, the FASB issued amended guidance that modifies the disclosure requirements for employers that sponsor defined benefit pension or other postretirement plans to improve disclosure effectiveness. This guidance becomes effective for annual periods ending after December 15, 2020 (December 31, 2020 for the FHLB) and will be applied retrospectively for all comparative periods presented. Early adoption is permitted. The FHLB will adopt this guidance for the year ending December 31, 2020. The adoption of this guidance will affect the FHLB's disclosures, but will not have any effect on the FHLB's financial condition, results of operations, or cash flows.

Changes to the Disclosure Requirements for Fair Value Measurement. On August 28, 2018, the FASB issued amended guidance that modifies the disclosure requirements for fair value measurements to improve disclosure effectiveness. This guidance became effective for the FHLB for the interim and annual periods beginning on January 1, 2020. The adoption of this guidance affected the FHLB's disclosures, but did not have any effect on the FHLB's financial condition, results of operations, or cash flows.

Measurement of Credit Losses on Financial Instruments. On June 16, 2016, the FASB issued amended guidance for the accounting of credit losses on financial instruments. The amendments require entities to immediately record the full amount of expected credit losses in their loan portfolios. The measurement of expected credit losses is based on relevant information about past events, including historical experience, current conditions, and reasonable and supportable forecasts that affect the collectability of the reported amount. The guidance also requires, among other things, credit losses relating to available-for-sale debt securities to be recorded through an allowance for credit losses and expanded disclosure requirements. The guidance became effective for the FHLB for the interim and annual periods beginning on January 1, 2020. The guidance was applied using a modified-retrospective approach, through a cumulative-effect adjustment to retained earnings as of the beginning of the first reporting period in which the guidance was effective. The adoption of this guidance did not result in an allowance for credit losses for certain financial instruments including Advances, U.S. obligation/GSE investments, securities purchased under agreement to resell and other short-term investments given the specific terms, issuer guarantees, and/or collateralized/secured nature of the instruments. For mortgage loans held for portfolio, the adoption of this guidance did not have a material impact on the FHLB's financial condition, results of operations, or cash flows.

Note 3 - Investments

The FHLB makes short-term investments in interest-bearing deposits, securities purchased under agreements to resell, and Federal funds sold and may make other investments in debt securities, which are classified as either trading, available-for-sale, or held-to-maturity.

Interest-Bearing Deposits, Securities Purchased under Agreements to Resell, and Federal Funds Sold

The FHLB invests in interest-bearing deposits, securities purchased under agreements to resell, and Federal funds sold to provide short-term liquidity. These investments are transacted with counterparties that have received a credit rating of single-A or greater by a nationally recognized statistical rating organization (NRSRO). The FHLB’s internal ratings of these counterparties may differ from those issued by an NRSRO.

Federal funds sold are unsecured loans that are generally transacted on an overnight term. FHFA regulations include a limit on the amount of unsecured credit the FHLB may extend to a counterparty. At June 30, 2020 and December 31, 2019, all investments in interest-bearing deposits and Federal funds sold were repaid or expected to be repaid according to the contractual terms. No allowance for credit losses was recorded for these assets at June 30, 2020 and December 31, 2019. Carrying values of interest-bearing deposits and Federal funds sold exclude accrued interest receivable of (in thousands) $124 and $8 as of June 30, 2020, and $1,162 and $210 as of December 31, 2019.

Securities purchased under agreements to resell are short-term and are structured such that they are evaluated regularly to determine if the market value of the underlying securities decreases below the market value required as collateral (i.e., subject to collateral maintenance provisions). If so, the counterparty must place an equivalent amount of additional securities as collateral or remit an equivalent amount of cash, generally by the next business day. Based upon the collateral held as security and collateral maintenance provisions with counterparties, the FHLB determined that no allowance for credit losses was needed for its securities purchased under agreements to resell at June 30, 2020 and December 31, 2019. The carrying value of securities purchased under agreements to resell excludes accrued interest receivable of (in thousands) $14 and $3,503 as of June 30, 2020 and December 31, 2019.

Debt Securities

The FHLB invests in debt securities, which are classified as either trading, available-for-sale, or held-to-maturity. The FHLB is prohibited by Finance Agency regulations from purchasing certain higher-risk securities, such as equity securities and debt instruments that are not investment quality, other than certain investments targeted at low-income persons or communities and instruments that experienced credit deterioration after their purchase by the FHLB.

Trading Securities

Table 3.1 - Trading Securities by Major Security Types (in thousands)

Fair Value	June 30, 2020	December 31, 2019
Non-mortgage-backed securities (non-MBS):		
U.S. Treasury obligations	$ 9,828,791	$ 9,626,964
GSE obligations	2,148,433	1,988,259
Total non-MBS	11,977,224	11,615,223
Mortgage-backed securities (MBS):		
U.S. obligation single-family MBS	417	470
Total	$ 11,977,641	$ 11,615,693

Table 3.2 - Net Gains (Losses) on Trading Securities (in thousands)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	2019	2020	2019
Net gains (losses) on trading securities held at period end	$ (10,404)	$ 171,461	$ 362,002	$ 193,587
Net gains (losses) on trading securities	$ (10,404)	$ 171,461	$ 362,002	$ 193,587

Available-for-Sale Securities

Table 3.3 - Available-for-Sale Securities by Major Security Types (in thousands)

	June 30, 2020			
	Amortized Cost (1)	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Non-MBS:				
GSE obligations	$ 143,285	$ 271	$ (572)	$ 142,984
Total non-MBS	143,285	271	(572)	142,984
MBS:				
GSE multi-family MBS	150,810	84	(296)	150,598
Total MBS	150,810	84	(296)	150,598
Total	$ 294,095	$ 355	$ (868)	$ 293,582

	December 31, 2019			
	Amortized Cost (1)	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Certificates of deposit	$ 1,410,000	$ 111	$ —	$ 1,410,111
GSE obligations	131,815	601	(342)	132,074
Total	$ 1,541,815	$ 712	$ (342)	$ 1,542,185

(1) Amortized cost of available-for-sale securities includes adjustments made to the cost basis of an investment for accretion, amortization, and/or fair value hedge accounting adjustments, and excludes accrued interest receivable of (in thousands) $1,083 and $5,149 at June 30, 2020 and December 31, 2019.

Table 3.4 summarizes the available-for-sale securities with unrealized losses, which are aggregated by major security type and length of time that individual securities have been in a continuous unrealized loss position.

Table 3.4 - Available-for-Sale Securities in a Continuous Unrealized Loss Position (in thousands)

	June 30, 2020					
	Less than 12 Months		12 Months or more		Total	
	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses
Non-MBS:						
GSE obligations	$ 50,873	$ (451)	$ 16,658	$ (121)	$ 67,531	$ (572)
Total non-MBS	50,873	(451)	16,658	(121)	67,531	(572)
MBS:						
GSE multi-family MBS	116,466	(296)	—	—	116,466	(296)
Total MBS	116,466	(296)	—	—	116,466	(296)
Total	$ 167,339	$ (747)	$ 16,658	$ (121)	$ 183,997	$ (868)

	December 31, 2019					
	Less than 12 Months		12 Months or more		Total	
	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses
GSE obligations	$ 17,071	$ (126)	$ 21,574	$ (216)	$ 38,645	$ (342)
Total	$ 17,071	$ (126)	$ 21,574	$ (216)	$ 38,645	$ (342)

Table 3.5 - Available-for-Sale Securities by Contractual Maturity (in thousands)

	June 30, 2020		December 31, 2019	
Year of Maturity	Amortized Cost	Fair Value	Amortized Cost	Fair Value
Non-MBS:				
Due in 1 year or less	$ —	$ —	$ 1,410,000	$ 1,410,111
Due after 1 year through 5 years	—	—	—	—
Due after 5 years through 10 years	129,429	129,353	119,771	119,870
Due after 10 years	13,856	13,631	12,044	12,204
Total non-MBS	143,285	142,984	1,541,815	1,542,185
MBS (1)	150,810	150,598	—	—
Total	$ 294,095	$ 293,582	$ 1,541,815	$ 1,542,185

(1) MBS are not presented by contractual maturity because their expected maturities will likely differ from contractual maturities because borrowers may have the right to call or prepay obligations with or without call or prepayment fees.

Table 3.6 - Interest Rate Payment Terms of Available-for-Sale Securities (in thousands)

	June 30, 2020	December 31, 2019
Amortized cost of non-MBS:		
Fixed-rate	$ 143,285	$ 1,541,815
Total amortized cost of non-MBS	143,285	1,541,815
Amortized cost of MBS:		
Fixed-rate	150,810	—
Total amortized cost of MBS	150,810	—
Total	$ 294,095	$ 1,541,815

The FHLB had no sales of securities out of its available-for-sale portfolio for the six months ended June 30, 2020 or 2019.

Held-to-Maturity Securities

Table 3.7 - Held-to-Maturity Securities by Major Security Types (in thousands)

	June 30, 2020			
	Amortized Cost (1)	Gross Unrecognized Holding Gains	Gross Unrecognized Holding Losses	Fair Value
Non-MBS:				
U.S. Treasury obligations	$ 34,478	$ 20	$ —	$ 34,498
Total non-MBS	34,478	20	—	34,498
MBS:				
U.S. obligation single-family MBS	1,407,502	56,681	(337)	1,463,846
GSE single-family MBS	3,888,426	124,789	—	4,013,215
GSE multi-family MBS	6,537,599	1,468	(27,443)	6,511,624
Total MBS	11,833,527	182,938	(27,780)	11,988,685
Total	$ 11,868,005	$ 182,958	$ (27,780)	$ 12,023,183

	December 31, 2019			
	Amortized Cost (1)	Gross Unrecognized Holding Gains	Gross Unrecognized Holding Losses	Fair Value
Non-MBS:				
U.S. Treasury obligations	$ 35,171	$ 5	$ —	$ 35,176
Total non-MBS	35,171	5	—	35,176
MBS:				
U.S. obligation single-family MBS	1,670,783	13,499	(239)	1,684,043
GSE single-family MBS	4,500,471	40,386	(24,072)	4,516,785
GSE multi-family MBS	7,292,894	54	(27,745)	7,265,203
Total MBS	13,464,148	53,939	(52,056)	13,466,031
Total	$ 13,499,319	$ 53,944	$ (52,056)	$ 13,501,207

(1) Carrying value equals amortized cost. Amortized cost of held-to-maturity securities includes adjustments made to the cost basis of an investment for accretion and amortization and excludes accrued interest receivable of (in thousands) $12,131 and $20,365 as of June 30, 2020 and December 31, 2019.

Table 3.8 - Net Purchased Premiums Included in the Amortized Cost of MBS Classified as Held-to-Maturity (in thousands)

	June 30, 2020	December 31, 2019
Premiums	$ 21,816	$ 32,071
Discounts	(9,380)	(13,996)
Net purchased premiums	$ 12,436	$ 18,075

Table 3.9 - Held-to-Maturity Securities by Contractual Maturity (in thousands)

	June 30, 2020		December 31, 2019	
<u>Year of Maturity</u>	Amortized Cost [(1)]	Fair Value	Amortized Cost [(1)]	Fair Value
Non-MBS:				
Due in 1 year or less	$ 34,478	$ 34,498	$ 35,171	$ 35,176
Due after 1 year through 5 years	—	—	—	—
Due after 5 years through 10 years	—	—	—	—
Due after 10 years	—	—	—	—
Total non-MBS	34,478	34,498	35,171	35,176
MBS [(2)]	11,833,527	11,988,685	13,464,148	13,466,031
Total	$ 11,868,005	$ 12,023,183	$ 13,499,319	$ 13,501,207

(1) Carrying value equals amortized cost.
(2) MBS are not presented by contractual maturity because their expected maturities will likely differ from contractual maturities because borrowers may have the right to call or prepay obligations with or without call or prepayment fees.

Table 3.10 - Interest Rate Payment Terms of Held-to-Maturity Securities (in thousands)

	June 30, 2020	December 31, 2019
Amortized cost of non-MBS:		
Fixed-rate	$ 34,478	$ 35,171
Total amortized cost of non-MBS	34,478	35,171
Amortized cost of MBS:		
Fixed-rate	4,744,117	5,438,532
Variable-rate	7,089,410	8,025,616
Total amortized cost of MBS	11,833,527	13,464,148
Total	$ 11,868,005	$ 13,499,319

From time to time the FHLB may sell securities out of its held-to-maturity portfolio. These securities, generally, have less than 15 percent of the acquired principal outstanding at the time of the sale. These sales are considered maturities for the purposes of security classification. For the six months ended June 30, 2020 and 2019, the FHLB did not sell any held-to-maturity securities.

Allowance for Credit Losses on Available-for-Sale and Held-to-Maturity Securities

The FHLB evaluates available-for-sale and held-to-maturity investment securities for credit losses on a quarterly basis. The FHLB adopted new accounting guidance for the measurement of credit losses on financial instruments on January 1, 2020. See Note 1 - Summary of Significant Accounting Policies for additional information. See Note 1 - Summary of Significant Accounting Policies in the FHLB's 2019 Annual Report on Form 10-K for information on the prior methodology for evaluating credit losses. As of December 31, 2019, the FHLB did not record any credit losses for its available-for-sale or held-to-maturity securities.

The FHLB's available-for-sale and held-to-maturity securities are certificates of deposit, U.S. Treasury obligations, GSE obligations, and MBS issued by Fannie Mae, Freddie Mac, Ginnie Mae and the National Credit Union Administration (NCUA) that are backed by single-family or multi-family mortgage loans. The FHLB only purchases securities considered investment quality. At June 30, 2020, all available-for-sale and held-to-maturity securities were rated single-A, or above, by an NRSRO, based on the lowest long-term credit rating for each security used by the FHLB. The FHLB's internal ratings of these securities may differ from those obtained from an NRSRO.

The FHLB evaluates individual available-for-sale securities for impairment by comparing the security's fair value to its amortized cost. Impairment may exist when the fair value of the investment is less than its amortized cost (i.e., in an unrealized loss position). At June 30, 2020, certain available-for-sale securities were in an unrealized loss position. These losses are considered temporary as the FHLB expects to recover the entire amortized cost basis on these available-for-sale investment securities and does not intend to sell these securities nor considers it more likely than not that it will be required to sell these securities before its anticipated recovery of each security's remaining amortized cost basis. Further, the FHLB has not experienced any payment defaults on the instruments. In addition, (in thousands) $142,984 of these securities carry a government guarantee. As a result, no allowance for credit losses was recorded on these available-for-sale securities at June 30, 2020.

The FHLB evaluates its held-to-maturity securities for impairment on a collective, or pooled basis, unless an individual assessment is deemed necessary because the securities do not possess similar risk characteristics. As of June 30, 2020, the FHLB had not established an allowance for credit loss on any held-to-maturity securities because the securities: (1) were all highly-rated and/or had short remaining terms to maturity, (2) had not experienced, nor did the FHLB expect, any payment default on the instruments, and (3) in the case of U.S., GSE, or other agency obligations, carry an implicit or explicit government guarantee such that the FHLB considered the risk of nonpayment to be zero.

Note 4 - Advances

The FHLB offers a wide range of fixed- and variable-rate Advance products with different maturities, interest rates, payment characteristics and optionality. The following table presents Advance redemptions by contractual maturity, including index-amortizing Advances, which are presented according to their predetermined amortization schedules.

Table 4.1 - Advances by Redemption Term (dollars in thousands)

	June 30, 2020		December 31, 2019	
Redemption Term	**Amount**	**Weighted Average Interest Rate**	**Amount**	**Weighted Average Interest Rate**
Overdrawn demand deposit accounts	$ 215	0.30 %	$ —	— %
Due in 1 year or less	25,452,135	0.67	32,342,198	1.78
Due after 1 year through 2 years	10,623,710	0.79	4,477,497	2.19
Due after 2 years through 3 years	1,620,042	1.86	1,996,647	2.30
Due after 3 years through 4 years	2,073,313	2.31	1,408,948	2.50
Due after 4 years through 5 years	1,528,392	1.58	1,765,323	2.08
Thereafter	7,108,760	1.30	5,273,531	2.35
Total principal amount	48,406,567	0.93	47,264,144	1.94
Commitment fees	(207)		(281)	
Discount on Affordable Housing Program (AHP) Advances	(2,603)		(3,148)	
Premiums	1,073		1,221	
Discounts	(3,350)		(2,530)	
Hedging adjustments	511,080		109,929	
Fair value option valuation adjustments and accrued interest	415		238	
Total [(1)]	$ 48,912,975		$ 47,369,573	

(1) Carrying values exclude accrued interest receivable of (in thousands) $41,255 and $60,682 as of June 30, 2020 and December 31, 2019.

The FHLB offers certain fixed and variable-rate Advances to members that may be prepaid on specified dates (call dates) without incurring prepayment or termination fees (callable Advances). If the call option is exercised, replacement funding may be available to members. Other Advances may only be prepaid subject to a prepayment fee paid to the FHLB that makes the FHLB financially indifferent to the prepayment of the Advance.

Table 4.2 - Advances by Redemption Term or Next Call Date (in thousands)

Redemption Term or Next Call Date	June 30, 2020	December 31, 2019
Overdrawn demand deposit accounts	$ 215	$ —
Due in 1 year or less	37,283,636	35,366,608
Due after 1 year through 2 years	2,113,923	4,982,222
Due after 2 years through 3 years	1,326,959	1,724,647
Due after 3 years through 4 years	2,051,433	1,381,718
Due after 4 years through 5 years	1,521,641	1,535,418
Thereafter	4,108,760	2,273,531
Total principal amount	$ 48,406,567	$ 47,264,144

The FHLB also offers putable Advances. With a putable Advance, the FHLB effectively purchases put options from the member that allows the FHLB to terminate the Advance at predetermined dates. The FHLB normally would exercise its put option when interest rates increase relative to contractual rates.

Table 4.3 - Advances by Redemption Term or Next Put Date for Putable Advances (in thousands)

Redemption Term or Next Put Date	June 30, 2020	December 31, 2019
Overdrawn demand deposit accounts	$ 215	$ —
Due in 1 year or less	28,198,885	33,451,448
Due after 1 year through 2 years	10,866,210	4,777,497
Due after 2 years through 3 years	1,658,042	2,129,647
Due after 3 years through 4 years	1,748,313	1,238,948
Due after 4 years through 5 years	1,549,142	1,611,073
Thereafter	4,385,760	4,055,531
Total principal amount	$ 48,406,567	$ 47,264,144

Table 4.4 - Advances by Interest Rate Payment Terms (in thousands)

	June 30, 2020	December 31, 2019
Total fixed-rate (1)	$ 27,136,401	$ 36,113,108
Total variable-rate (1)	21,270,166	11,151,036
Total principal amount	$ 48,406,567	$ 47,264,144

(1) Payment terms based on current interest rate terms, which reflect any option exercises or rate conversions that have occurred subsequent to the related Advance issuance.

Credit Risk Exposure and Security Terms

The FHLB's Advances are made to member financial institutions. The FHLB manages its credit exposure to Advances through an integrated approach that includes establishing a credit limit for each borrower and ongoing review of each borrower's financial condition, coupled with collateral and lending policies to limit risk of loss while balancing borrowers' needs for a reliable source of funding.

In addition, the FHLB lends to eligible borrowers in accordance with federal law and Finance Agency regulations, which require the FHLB to obtain sufficient collateral to fully secure credit products. Collateral eligible to secure new or renewed Advances includes:

- one-to-four family and multi-family mortgage loans (delinquent for no more than 90 days) and securities representing such mortgages;
- loans and securities issued, insured, or guaranteed by the U.S. government or any U.S. government agency (for example, mortgage-backed securities issued or guaranteed by Fannie Mae, Freddie Mac, or Ginnie Mae);
- cash or deposits in the FHLB;

- certain other collateral that is real estate-related, provided that the collateral has a readily ascertainable value and that the FHLB can perfect a security interest in it; and
- certain qualifying securities representing undivided equity interests in eligible Advance collateral.

Residential mortgage loans are the principal form of collateral for Advances. The estimated value of the collateral required to secure each member's credit products is calculated by applying collateral discounts, or haircuts, to the value of the collateral. In addition, community financial institutions are eligible to utilize expanded statutory collateral provisions for small business and agribusiness loans. The FHLB's capital stock owned by its member borrowers is also pledged as collateral. Collateral arrangements and a member's borrowing capacity vary based on the financial condition and performance of the institution, the types of collateral pledged and the overall quality of those assets. The FHLB can also require additional or substitute collateral to protect its security interest. The FHLB also has policies and procedures for validating the reasonableness of its collateral valuations and makes changes to its collateral guidelines, as necessary, based on current market conditions. In addition, collateral verifications and on-site reviews are performed by the FHLB based on the risk profile of the borrower. Management of the FHLB believes that these policies effectively manage the FHLB's credit risk from Advances.

Members experiencing financial difficulties are subject to FHLB-performed "stress tests" of the impact of poorly performing assets on the member's capital and loss reserve positions. Depending on the results of these tests and the level of over-collateralization, a member may be allowed to maintain pledged loan assets in its custody, may be required to deliver those loans into the custody of the FHLB or its agent, or may be required to provide details on those loans to facilitate an estimate of their fair value. The FHLB perfects its security interest in all pledged collateral. The FHLBank Act affords any security interest granted to the FHLB by a member priority over the claims or rights of any other party except for claims or rights of a third party that would otherwise be entitled to priority under applicable law and that are held by a bona fide purchaser for value or by a secured party holding a prior perfected security interest.

Using a risk-based approach, the FHLB considers the payment status, collateralization levels, and borrower's financial condition to be indicators of credit quality for its credit products. At June 30, 2020 and December 31, 2019, the FHLB did not have any Advances that were past due, in non-accrual status or considered impaired. In addition, there were no troubled debt restructurings related to Advances of the FHLB during the six months ended June 30, 2020 or 2019. At June 30, 2020 and December 31, 2019, the FHLB had rights to collateral on a member-by-member basis with an estimated value in excess of its outstanding extensions of credit.

Based upon the collateral held as security, its credit extension and collateral policies and the repayment history on Advances, the FHLB did not expect any credit losses on Advances as of June 30, 2020 and therefore, no allowance for credit losses on Advances was recorded. For the same reasons, the FHLB did not record any allowance for credit losses on Advances at December 31, 2019.

Table 4.5 - Borrowers Holding Five Percent or more of Total Advances, Including Any Known Affiliates that are Members of the FHLB (dollars in millions)

June 30, 2020			December 31, 2019		
	Principal	% of Total Principal Amount of Advances		Principal	% of Total Principal Amount of Advances
JPMorgan Chase Bank, N.A.	$ 15,000	31 %	U.S. Bank, N.A.	$ 13,874	29 %
U.S. Bank, N.A.	8,274	17	JPMorgan Chase Bank, N.A.	4,500	10
Third Federal Savings and Loan Association	3,757	8	Third Federal Savings and Loan Association	3,883	8
Total	$ 27,031	56 %	Total	$ 22,257	47 %

Note 5 - Mortgage Loans

Total mortgage loans held for portfolio represent residential mortgage loans under the Mortgage Purchase Program (MPP) that the FHLB's members originate, credit enhance, and then sell to the FHLB. The FHLB does not service any of these loans. The FHLB plans to retain its existing portfolio of mortgage loans.

Table 5.1 - Mortgage Loans Held for Portfolio (in thousands)

	June 30, 2020	December 31, 2019
Fixed rate medium-term single-family mortgage loans (1)	$ 762,760	$ 773,575
Fixed rate long-term single-family mortgage loans	10,661,024	10,207,367
Total unpaid principal balance	11,423,784	10,980,942
Premiums	253,270	241,356
Discounts	(2,038)	(2,166)
Hedging basis adjustments (2)	28,599	15,932
Total mortgage loans held for portfolio (3)	11,703,615	11,236,064
Allowance for credit losses on mortgage loans	(264)	(711)
Mortgage loans held for portfolio, net	$ 11,703,351	$ 11,235,353

(1) Medium-term is defined as a term of 15 years or less.
(2) Represents the unamortized balance of the mortgage purchase commitments' market values at the time of settlement. The market value of the commitment is included in the basis of the mortgage loan and amortized accordingly.
(3) Excludes accrued interest receivable of (in thousands) $37,293 and $36,739 at June 30, 2020 and December 31, 2019.

Table 5.2 - Mortgage Loans Held for Portfolio by Collateral/Guarantee Type (in thousands)

	June 30, 2020	December 31, 2019
Conventional mortgage loans	$ 11,212,076	$ 10,750,526
FHA mortgage loans	211,708	230,416
Total unpaid principal balance	$ 11,423,784	$ 10,980,942

Table 5.3 - Members, Including Any Known Affiliates that are Members of the FHLB, and Former Members Selling Five Percent or more of Total Unpaid Principal (dollars in millions)

	June 30, 2020			December 31, 2019	
	Principal	% of Total		Principal	% of Total
Union Savings Bank	$ 3,733	33 %	Union Savings Bank	$ 3,574	33 %
Guardian Savings Bank FSB	1,014	9	Guardian Savings Bank FSB	1,004	9
FirstBank	703	6	FirstBank	714	7
The Huntington National Bank	579	5			

Credit Risk Exposure

The FHLB manages credit risk exposure for conventional mortgage loans primarily though conservative underwriting and purchasing loans with characteristics consistent with favorable expected credit performance and by applying various credit enhancements.

Credit Enhancements. The conventional mortgage loans under the MPP are supported by some combination of credit enhancements (primary mortgage insurance (PMI), supplemental mortgage insurance (SMI) and the Lender Risk Account (LRA), including pooled LRA for those members participating in an aggregated MPP pool). These credit enhancements apply after a homeowner's equity is exhausted. Beginning in February 2011, the FHLB discontinued the use of SMI for all new loan purchases and replaced it with expanded use of the LRA. The LRA is funded by the FHLB upfront as a portion of the purchase proceeds. The LRA is recorded in other liabilities in the Statement of Condition. Excess funds from the LRA are released to the member in accordance with the terms of the Master Commitment Contract, which is typically after five years, subject to performance of the related loan pool. The LRA established for a pool of loans is limited to only covering losses of that specific pool of loans. Because the FHA makes an explicit guarantee on FHA mortgage loans, the FHLB does not require any credit enhancements on these loans beyond primary mortgage insurance.

Table 5.4 - Changes in the LRA (in thousands)

	Six Months Ended June 30, 2020
LRA at beginning of year	$ 233,476
Additions	23,420
Claims	(79)
Scheduled distributions	(8,083)
LRA at end of period	$ 248,734

Mortgage Loans Forbearance Plans. In response to the COVID-19 pandemic, which has caused economic strain on many home loan borrowers, the FHLB's mortgage loan servicers may grant a forbearance period to borrowers who have had COVID-19 related hardships regardless of the payment status of the loan at the time of the request. As of June 30, 2020, there was approximately (in thousands) $124,868 in unpaid principal balance of conventional mortgage loans under a forbearance plan as a result of COVID-19, which represented one percent of conventional mortgage loans held for portfolio. As of June 30, 2020, none of the loans under a forbearance plan were on nonaccrual status as these loans were either current or less than 90 days past due or well secured and in the process of collection.

Payment Status of Mortgage Loans. The key credit quality indicator for conventional mortgage loans is payment status, which allows the FHLB to monitor the migration of past due loans. Past due loans are those where the borrower has failed to make timely payments of principal and/or interest in accordance with the terms of the loan. Although certain loans have been granted a forbearance period as noted above, there has been no change in the terms of the loan. Accordingly, when a borrower fails to make timely payments of principal and/or interest for loans under forbearance, they are considered past due. Table 5.5 presents the payment status of conventional mortgage loans. As of June 30, 2020, (in thousands) $32,136 in unpaid principal balance of conventional loans under forbearance had a current payment status, (in thousands) $38,982 was 30 to 59 days past due, (in thousands) $51,213 was 60 to 89 days past due, and (in thousands) $2,537 was greater than 90 days past due.

Table 5.5 - Credit Quality Indicator of Conventional Mortgage Loans (in thousands)

	June 30, 2020		
	Origination Year		
Payment status, at amortized cost [1]:	Prior to 2016	2016 to June 30, 2020	Total
Past due 30-59 days	$ 30,532	$ 50,186	$ 80,718
Past due 60-89 days	23,293	39,483	62,776
Past due 90 days or more	10,235	2,357	12,592
Total past due mortgage loans	64,060	92,026	156,086
Current mortgage loans	3,252,517	8,081,467	11,333,984
Total conventional mortgage loans	$ 3,316,577	$ 8,173,493	$ 11,490,070

	December 31, 2019
Payment status, at recorded investment [1]:	Conventional Loans
Past due 30-59 days	$ 35,416
Past due 60-89 days	5,572
Past due 90 days or more	12,421
Total past due mortgage loans	53,409
Current mortgage loans	10,985,818
Total conventional mortgage loans	$ 11,039,227

(1) The recorded investment at December 31, 2019 includes accrued interest receivable whereas the amortized cost at June 30, 2020 excludes accrued interest receivable.

Other delinquency statistics include loans in process of foreclosure, serious delinquency rates, loans past due 90 days or more and still accruing interest, and non-accrual loans. Table 5.6 presents other delinquency statistics of mortgage loans.

Table 5.6 - Other Delinquency Statistics (dollars in thousands)

	June 30, 2020		
Amortized Cost:	Conventional MPP Loans	FHA Loans	Total
In process of foreclosure (1)	$ 6,909	$ 2,323	$ 9,232
Serious delinquency rate (2)	0.11 %	2.52 %	0.16 %
Past due 90 days or more still accruing interest (3)	$ 11,970	$ 5,374	$ 17,344
Loans on non-accrual status	$ 1,862	$ —	$ 1,862

	December 31, 2019		
Recorded Investment:	Conventional MPP Loans	FHA Loans	Total
In process of foreclosure (1)	$ 8,311	$ 2,515	$ 10,826
Serious delinquency rate (2)	0.11 %	2.49 %	0.16 %
Past due 90 days or more still accruing interest (3)	$ 11,935	$ 5,805	$ 17,740
Loans on non-accrual status	$ 1,902	$ —	$ 1,902

(1) Includes loans where the decision of foreclosure or a similar alternative such as pursuit of deed-in-lieu has been reported.

(2) Loans that are 90 days or more past due or in the process of foreclosure (including past due or current loans in the process of foreclosure) expressed as a percentage of the total loan portfolio class.

(3) Each conventional loan past due 90 days or more still accruing interest is on a schedule/scheduled monthly settlement basis and contains one or more credit enhancements. Loans that are well secured and in the process of collection as a result of remaining credit enhancements and schedule/scheduled settlement are not placed on non-accrual status.

The FHLB did not have any real estate owned at June 30, 2020 or December 31, 2019.

Evaluation of Current Expected Credit Losses

See *Note 10 - Allowance for Credit Losses* in the FHLB's 2019 Annual Report on Form 10-K, for information on the prior methodology for evaluating credit losses.

Mortgage Loans - FHA. The FHLB invests in fixed-rate mortgage loans secured by one-to-four family residential properties insured by the FHA. The FHLB expects to recover any losses from such loans from the FHA. Any losses from these loans that are not recovered from the FHA would be due to a claim rejection by the FHA and, as such, would be recoverable from the selling participating financial institutions. Therefore, the FHLB only has credit risk for these loans if the seller or servicer fails to pay for losses not covered by the FHA insurance. As a result, the FHLB did not record an allowance for credit losses on its FHA insured mortgage loans. Furthermore, due to the insurance, none of these mortgage loans have been placed on non-accrual status.

Mortgage Loans - Conventional MPP. Conventional loans are evaluated collectively when similar risk characteristics exist. Conventional loans that do not share risk characteristics with other pools are removed from the collective evaluation and evaluated for expected credit losses on an individual basis. For loans with similar risk characteristics, the FHLB determines the allowance for credit losses through analyses that include consideration of various loan portfolio and collateral-related characteristics, such as past performance, current conditions, and reasonable and supportable forecasts of expected economic conditions. The FHLB uses a model that employs a variety of methods, such as projected cash flows to estimate expected credit losses over the life of the loans. This model relies on a number of inputs, such as both current and forecasted property values and interest rates as well as historical borrower behavior experience. The FHLB’s calculation of expected credit losses includes a forecast of home prices over the entire contractual terms of its conventional loans rather than a reversion to historical home price trends after an initial forecast period. The FHLB also incorporates associated credit enhancements to determine estimated expected credit losses.

If a loan is required to be evaluated on an individual basis, the FHLB estimates the present value of expected cash flows, the loan's observable market price, or the fair value of the collateral if the loan is collateral dependent.

Certain conventional loans may be evaluated for credit losses by using the practical expedient for collateral dependent assets. A mortgage loan is considered collateral dependent if repayment is expected to be provided by the sale of the underlying property, that is, if it is considered likely that the borrower will default. The FHLB may estimate the fair value of this collateral by either applying an appropriate loss severity rate, using third-party estimates, or using a property valuation model. The expected credit loss of a collateral dependent mortgage loan is equal to the difference between the amortized cost of the loan and the estimated fair value of the collateral, less estimated selling costs. The FHLB will either reserve for these estimated losses or record a direct charge-off of the loan balance, if certain triggering criteria are met. Expected recoveries of prior charge-offs, if any, are included in the allowance for credit losses.

The FHLB also assesses other qualitative factors in its estimation of loan losses for the collectively evaluated population. This amount represents a subjective management judgment, based on facts and circumstances that exist as of the reporting date, which is intended to cover other expected losses that may not otherwise be captured in the methodology described above.

Allowance for Credit Losses on Conventional Mortgage Loans. The FHLB established an allowance for credit losses on its conventional mortgage loans held for portfolio. The following table presents a rollforward of the allowance for credit losses on conventional mortgage loans.

Table 5.7 - Allowance for Credit Losses on Conventional Mortgage Loans (in thousands)

	Three Months Ended June 30,	
	2020	**2019**
Balance, beginning of period	$ 297	$ 779
Net (charge offs) recoveries	(33)	5
Balance, end of period	$ 264	$ 784

	Six Months Ended June 30,	
	2020	**2019**
Balance, beginning of period	$ 711	$ 840
Adjustment for cumulative effect of accounting changes	(366)	—
Net charge offs	(81)	(56)
Balance, end of period	$ 264	$ 784

Note 6 - Derivatives and Hedging Activities

Nature of Business Activity

The FHLB is exposed to interest rate risk primarily from the effect of interest rate changes on its interest-earning assets and on the interest-bearing liabilities that finance these assets. The goal of the FHLB's interest-rate risk management strategy is not to eliminate interest-rate risk, but to manage it within appropriate limits. To mitigate the risk of loss, the FHLB has established policies and procedures, which include guidelines on the amount of exposure to interest rate changes it is willing to accept. In addition, the FHLB monitors the risk to its interest income, net interest margin and average maturity of interest-earning assets and interest-bearing liabilities. The FHLB uses derivatives when they are considered to be the most cost-effective alternative to achieve the FHLB's financial and risk management objectives. See Note 11 - Derivatives and Hedging Activities in the FHLB's 2019 Annual Report on Form 10-K for additional information on the FHLB's derivative transactions.

The FHLB transacts its derivatives with large banks and major broker-dealers. Some of these banks and broker-dealers or their affiliates buy, sell, and distribute Consolidated Obligations. Derivative transactions may be executed either with a counterparty (uncleared derivatives) or cleared through a Futures Commission Merchant (i.e., clearing agent) with a Derivative Clearing Organization (cleared derivatives). Once a derivative transaction has been accepted for clearing by a Derivative Clearing Organization (Clearinghouse), the executing counterparty is replaced with the Clearinghouse. The FHLB is not a derivative dealer and does not trade derivatives for short-term profit.

Financial Statement Effect and Additional Financial Information

The notional amount of derivatives serves as a factor in determining periodic interest payments or cash flows received and paid. The notional amount reflects the FHLB's involvement in the various classes of financial instruments and represents neither the actual amounts exchanged nor the overall exposure of the FHLB to credit and market risk; the overall risk is much smaller. The risks of derivatives only can be measured meaningfully on a portfolio basis that takes into account the counterparties, the types of derivatives, the items being hedged and any offsets between the derivatives and the items being hedged.

Table 6.1 summarizes the notional amount and fair value of derivative instruments and total derivative assets and liabilities. Total derivative assets and liabilities include the effect of netting adjustments and cash collateral. For purposes of this disclosure, the derivative values include the fair value of derivatives and the related accrued interest.

Table 6.1 - Fair Value of Derivative Instruments (in thousands)

	June 30, 2020		
	Notional Amount of Derivatives	Derivative Assets	Derivative Liabilities
Derivatives designated as fair value hedging instruments:			
Interest rate swaps	$ 11,642,587	$ 2,734	$ 229,982
Derivatives not designated as hedging instruments:			
Interest rate swaps	14,623,604	3,766	8,284
Interest rate swaptions	2,657,000	4,385	—
Mortgage delivery commitments	133,264	1,218	—
Total derivatives not designated as hedging instruments	17,413,868	9,369	8,284
Total derivatives before adjustments	$ 29,056,455	12,103	238,266
Netting adjustments and cash collateral [(1)]		290,498	(236,644)
Total derivative assets and total derivative liabilities		$ 302,601	$ 1,622

	December 31, 2019		
	Notional Amount of Derivatives	Derivative Assets	Derivative Liabilities
Derivatives designated as fair value hedging instruments:			
Interest rate swaps	$ 9,310,089	$ 7,227	$ 53,641
Derivatives not designated as hedging instruments:			
Interest rate swaps	28,501,469	9,685	363
Interest rate swaptions	6,000,000	12,464	—
Forward rate agreements	849,000	21	782
Mortgage delivery commitments	936,269	2,798	64
Total derivatives not designated as hedging instruments	36,286,738	24,968	1,209
Total derivatives before adjustments	$ 45,596,827	32,195	54,850
Netting adjustments and cash collateral [(1)]		234,970	(53,540)
Total derivative assets and total derivative liabilities		$ 267,165	$ 1,310

(1) Amounts represent the application of the netting requirements that allow the FHLB to settle positive and negative positions, and also cash collateral and related accrued interest held or placed by the FHLB with the same clearing agent and/or counterparty. Cash collateral posted and related accrued interest was (in thousands) $528,402 and $293,148 at June 30, 2020 and December 31, 2019. Cash collateral received and related accrued interest was (in thousands) $1,260 and $4,638 at June 30, 2020 and December 31, 2019.

Table 6.2 presents the impact of qualifying fair value hedging relationships on net interest income as well as the total interest income (expense) by product.

Table 6.2 - Impact of Fair Value Hedging Relationships on Net Interest Income (in thousands)

	Three Months Ended June 30, 2020		
	Advances	Available-for-sale Securities	Consolidated Bonds
Total interest income (expense) recorded in the Statements of Income	$ 158,437	$ 619	$ (129,808)
Impact of Fair Value Hedging Relationships on the Statements of Income (1)			
Interest income/expense:			
Net interest settlements	$ (19,243)	$ (524)	$ 429
Gain (loss) on derivatives	(7,608)	(1,019)	17
Gain (loss) on hedged items	9,736	1,218	103
Effect on net interest income	$ (17,115)	$ (325)	$ 549

	Three Months Ended June 30, 2019		
	Advances	Available-for-sale securities	Consolidated Bonds
Total interest income (expense) recorded in the Statements of Income	$ 320,763	$ 4,854	$ (300,060)
Impact of Fair Value Hedging Relationships on the Statements of Income (1)			
Interest income/expense:			
Net interest settlements	$ 11,852	$ (29)	$ 357
Gain (loss) on derivatives	(113,343)	(4,275)	832
Gain (loss) on hedged items	111,791	4,085	(838)
Effect on net interest income	$ 10,300	$ (219)	$ 351

	Six Months Ended June 30, 2020		
	Advances	Available-for-sale Securities	Consolidated Bonds
Total interest income (expense) recorded in the Statements of Income	$ 330,604	$ 4,015	$ (315,795)
Impact of Fair Value Hedging Relationships on the Statements of Income (1)			
Interest income/expense:			
Net interest settlements	$ (20,957)	$ (798)	$ 813
Gain (loss) on derivatives	(411,919)	(12,202)	2,540
Gain (loss) on hedged items	400,200	12,013	(2,443)
Effect on net interest income	$ (32,676)	$ (987)	$ 910

	Six Months Ended June 30, 2019		
	Advances	Available-for-sale securities	Consolidated Bonds
Total interest income (expense) recorded in the Statements of Income	$ 723,540	$ 18,413	$ (562,923)
Impact of Fair Value Hedging Relationships on the Statements of Income (1)			
Interest income/expense:			
Net interest settlements	$ 25,528	$ (44)	$ 552
Gain (loss) on derivatives	(165,937)	(6,503)	1,874
Gain (loss) on hedged items	163,412	6,297	(1,999)
Effect on net interest income	$ 23,003	$ (250)	$ 427

(1) Includes interest rate swaps.

Table 6.3 presents the cumulative basis adjustments on hedged items designated as fair value hedges and the related amortized cost of the hedged items.

Table 6.3 - Cumulative Basis Adjustments for Fair Value Hedges (in thousands)

	June 30, 2020			
Hedged Item	Amortized Cost of Hedged Asset/ Liability (1)	Basis Adjustment for Active Hedging Relationships Included in Amortized Cost	Basis Adjustments for Discontinued Hedging Relationships Included in Amortized Cost	Cumulative Amount of Fair Value Hedging Basis Adjustments
Advances	$ 11,815,622	$ 509,483	$ 1,597	$ 511,080
Available-for-sale securities	294,095	19,328	—	19,328
Consolidated Bonds	121,938	3,152	—	3,152

	December 31, 2019			
Hedged Item	Amortized Cost of Hedged Asset/ Liability (1)	Basis Adjustment for Active Hedging Relationships Included in Amortized Cost	Basis Adjustments for Discontinued Hedging Relationships Included in Amortized Cost	Cumulative Amount of Fair Value Hedging Basis Adjustments
Advances	$ 9,160,841	$ 109,078	$ 851	$ 109,929
Available-for-sale securities	131,814	7,314	—	7,314
Consolidated Bonds	210,696	708	—	708

(1) Includes only the portion of amortized cost representing the hedged items in fair value hedging relationships.

Table 6.4 presents net gains (losses) recorded in non-interest income (loss) on derivatives not designated as hedging instruments.

Table 6.4 - Net Gains (Losses) Recorded in Non-interest Income (Loss) on Derivatives Not Designated as Hedging Instruments (in thousands)

	Three Months Ended June 30,	
	2020	**2019**
Derivatives not designated as hedging instruments:		
Economic hedges:		
Interest rate swaps	$ 769	$ (147,873)
Interest rate swaptions	(1,561)	(3,024)
Forward rate agreements	(6,051)	(4,532)
Net interest settlements	(26,715)	(3,219)
Mortgage delivery commitments	(500)	5,863
Total net gains (losses) related to derivatives not designated as hedging instruments	(34,058)	(152,785)
Price alignment amount (1)	86	659
Net gains (losses) on derivatives and hedging activities	$ (33,972)	$ (152,126)

	Six Months Ended June 30,	
	2020	**2019**
Derivatives not designated as hedging instruments:		
Economic hedges:		
Interest rate swaps	$ (366,232)	$ (154,403)
Interest rate swaptions	90,516	(15,500)
Forward rate agreements	(31,935)	(6,699)
Net interest settlements	(37,997)	(11,386)
Mortgage delivery commitments	16,594	9,219
Total net gains (losses) related to derivatives not designated as hedging instruments	(329,054)	(178,769)
Price alignment amount (1)	1,116	684
Net gains (losses) on derivatives and hedging activities	$ (327,938)	$ (178,085)

(1) This amount is for derivatives for which variation margin is characterized as a daily settled contract.

Credit Risk on Derivatives

The FHLB is subject to credit risk due to the risk of non-performance by counterparties to its derivative transactions, and manages credit risk through credit analysis, collateral requirements and adherence to the requirements set forth in its policies, U.S. Commodity Futures Trading Commission regulations, and Finance Agency regulations.

For uncleared derivatives, the degree of credit risk depends on the extent to which master netting arrangements are included in these contracts to mitigate the risk. The FHLB requires collateral agreements on its uncleared derivatives with the collateral delivery threshold set to zero.

For cleared derivatives, the Clearinghouse is the FHLB's counterparty. The Clearinghouse notifies the clearing agent of the required initial and variation margin and the clearing agent in turn notifies the FHLB. The FHLB utilizes two Clearinghouses for all cleared derivative transactions, LCH Ltd. and CME Clearing. At both Clearinghouses, variation margin is characterized as daily settlement payments, while initial margin is considered to be collateral. The requirement that the FHLB post initial and variation margin through the clearing agent, to the Clearinghouse, exposes the FHLB to credit risk if the clearing agent or the Clearinghouse fails to meet its obligations. The use of cleared derivatives is intended to mitigate credit risk exposure because a central counterparty is substituted for individual counterparties and collateral/payments for changes in the value of cleared derivatives is posted daily through a clearing agent.

For cleared derivatives, the Clearinghouse determines initial margin requirements and generally credit ratings are not factored into the initial margin. However, clearing agents may require additional initial margin to be posted based on credit considerations, including, but not limited to, credit rating downgrades. At June 30, 2020, the FHLB was not required to post additional initial margin by its clearing agents based on credit considerations.

Offsetting of Derivative Assets and Derivative Liabilities

The FHLB presents derivative instruments, related cash collateral received or pledged, and associated accrued interest, on a net basis by clearing agent and/or by counterparty when it has met the netting requirements.

The FHLB has analyzed the enforceability of offsetting rights incorporated in its cleared derivative transactions, and it expects that the exercise of those offsetting rights by a non-defaulting party under these transactions would be upheld under applicable law upon an event of default including bankruptcy, insolvency, or similar proceeding involving the Clearinghouse or the FHLB's clearing agent, or both. Based on this analysis, the FHLB presents a net derivative receivable or payable for all of its transactions through a particular clearing agent with a particular Clearinghouse.

Table 6.5 presents separately the fair value of derivative instruments meeting or not meeting netting requirements, including the related collateral. At June 30, 2020 and December 31, 2019, the FHLB did not receive or pledge any non-cash collateral. Any over-collateralization under an individual clearing agent and/or counterparty level is not included in the determination of the net unsecured amount.

Table 6.5 - Offsetting of Derivative Assets and Derivative Liabilities (in thousands)

	June 30, 2020			
	Derivative Instruments Meeting Netting Requirements			
	Gross Recognized Amount	Gross Amount of Netting Adjustments and Cash Collateral	Derivative Instruments Not Meeting Netting Requirements (1)	Total Derivative Assets and Total Derivative Liabilities
Derivative Assets:				
Uncleared	$ 4,904	$ (3,356)	$ 1,218	$ 2,766
Cleared	5,981	293,854	—	299,835
Total				$ 302,601
Derivative Liabilities:				
Uncleared	$ 236,762	$ (235,140)	$ —	$ 1,622
Cleared	1,504	(1,504)	—	—
Total				$ 1,622

	December 31, 2019			
	Derivative Instruments Meeting Netting Requirements			
	Gross Recognized Amount	Gross Amount of Netting Adjustments and Cash Collateral	Derivative Instruments Not Meeting Netting Requirements (1)	Total Derivative Assets and Total Derivative Liabilities
Derivative Assets:				
Uncleared	$ 16,637	$ (13,903)	$ 2,819	$ 5,553
Cleared	12,739	248,873	—	261,612
Total				$ 267,165
Derivative Liabilities:				
Uncleared	$ 53,533	$ (53,069)	$ 846	$ 1,310
Cleared	471	(471)	—	—
Total				$ 1,310

(1) Represents mortgage delivery commitments and forward rate agreements that are not subject to an enforceable netting agreement.

Note 7 - Deposits

Table 7.1 - Deposits (in thousands)

	June 30, 2020	December 31, 2019
Interest-bearing:		
Demand and overnight	$ 1,159,775	$ 906,028
Term	66,175	27,850
Other	9,968	7,179
Total interest-bearing	1,235,918	941,057
Non-interest bearing:		
Other	—	10,239
Total non-interest bearing	—	10,239
Total deposits	$ 1,235,918	$ 951,296

Note 8 - Consolidated Obligations

Table 8.1 - Consolidated Discount Notes Outstanding (dollars in thousands)

	Book Value	Principal Amount	Weighted Average Interest Rate (1)
June 30, 2020	$ 44,323,911	$ 44,347,995	0.37 %
December 31, 2019	$ 49,084,219	$ 49,176,985	1.56 %

(1) Represents an implied rate without consideration of concessions.

Table 8.2 - Consolidated Bonds Outstanding by Original Contractual Maturity (dollars in thousands)

	June 30, 2020		December 31, 2019	
Year of Original Contractual Maturity	Amount	Weighted Average Interest Rate	Amount	Weighted Average Interest Rate
Due in 1 year or less	$ 26,057,000	0.54 %	$ 18,259,565	1.77 %
Due after 1 year through 2 years	3,835,345	2.44	8,293,595	1.96
Due after 2 years through 3 years	2,255,080	2.50	3,024,885	2.41
Due after 3 years through 4 years	1,894,580	2.99	3,123,120	2.62
Due after 4 years through 5 years	1,458,000	2.52	1,540,405	2.73
Thereafter	3,765,000	2.80	4,139,000	2.97
Total principal amount	39,265,005	1.24	38,380,570	2.10
Premiums	53,080		64,604	
Discounts	(21,691)		(24,335)	
Hedging adjustments	3,152		708	
Fair value option valuation adjustment and accrued interest	39,563		18,177	
Total	$ 39,339,109		$ 38,439,724	

Table 8.3 - Consolidated Bonds Outstanding by Call Features (in thousands)

	June 30, 2020	December 31, 2019
Principal Amount of Consolidated Bonds:		
Non-callable	$ 36,796,005	$ 32,953,570
Callable	2,469,000	5,427,000
Total principal amount	$ 39,265,005	$ 38,380,570

Table 8.4 - Consolidated Bonds Outstanding by Original Contractual Maturity or Next Call Date (in thousands)

Year of Original Contractual Maturity or Next Call Date	June 30, 2020	December 31, 2019
Due in 1 year or less	$ 27,776,000	$ 22,631,565
Due after 1 year through 2 years	4,085,345	7,130,595
Due after 2 years through 3 years	2,225,080	2,662,885
Due after 3 years through 4 years	1,875,580	2,343,120
Due after 4 years through 5 years	1,209,000	1,253,405
Thereafter	2,094,000	2,359,000
Total principal amount	$ 39,265,005	$ 38,380,570

Table 8.5 - Consolidated Bonds by Interest-rate Payment Type (in thousands)

	June 30, 2020	December 31, 2019
Principal Amount of Consolidated Bonds:		
Fixed-rate	$ 23,703,005	$ 27,368,570
Variable-rate	15,562,000	11,012,000
Total principal amount	$ 39,265,005	$ 38,380,570

Note 9 - Affordable Housing Program (AHP)

The FHLBank Act requires each FHLBank to establish an AHP. Each FHLBank provides subsidies in the form of direct grants and below-market interest rate AHP Advances to members who use the funds to assist in the purchase, construction, or rehabilitation of housing for very low-, low-, and moderate-income households. Each FHLBank is required to contribute to its AHP the greater of 10 percent of its previous year's income subject to assessment, or the prorated sum required to ensure the aggregate contribution by the FHLBanks is no less than $100 million for each year. For purposes of the AHP calculation, income subject to assessment is defined as net income before assessments, plus interest expense related to mandatorily redeemable capital stock. The FHLB accrues AHP expense monthly based on its income subject to assessment. The FHLB reduces the AHP liability as members use subsidies.

Table 9.1 - Analysis of AHP Liability (in thousands)

Balance at December 31, 2019	$ 115,295
Assessments (current year additions)	20,013
Subsidy uses, net	(14,108)
Balance at June 30, 2020	$ 121,200

Note 10 - Capital

Table 10.1 - Capital Requirements (dollars in thousands)

	June 30, 2020		December 31, 2019	
	Minimum Requirement	Actual	Minimum Requirement	Actual
Risk-based capital	$ 500,162	$ 5,079,105	$ 820,635	$ 4,482,519
Capital-to-assets ratio (regulatory)	4.00 %	5.60 %	4.00 %	4.79 %
Regulatory capital	$ 3,625,787	$ 5,079,105	$ 3,739,662	$ 4,482,519
Leverage capital-to-assets ratio (regulatory)	5.00 %	8.40 %	5.00 %	7.19 %
Leverage capital	$ 4,532,234	$ 7,618,658	$ 4,674,578	$ 6,723,779

Restricted Retained Earnings. At June 30, 2020 and December 31, 2019 the FHLB had (in thousands) $481,861 and $446,048 in restricted retained earnings. These restricted retained earnings are not available to pay dividends but are available to absorb unexpected losses, if any, that an FHLBank may experience.

Table 10.2 - Mandatorily Redeemable Capital Stock Rollforward (in thousands)

Balance, December 31, 2019	$	21,669
Capital stock subject to mandatory redemption reclassified from equity		557,642
Capital stock previously subject to mandatory redemption reclassified to capital		(123)
Repurchase/redemption of mandatorily redeemable capital stock		(560,138)
Balance, June 30, 2020	$	19,050

Table 10.3 - Mandatorily Redeemable Capital Stock by Contractual Year of Redemption (in thousands)

Contractual Year of Redemption		June 30, 2020		December 31, 2019
Year 1	$	—	$	371
Year 2		1,414		298
Year 3		1,291		1,129
Year 4		1,354		2,955
Year 5		982		1,931
Thereafter (1)		650		650
Past contractual redemption date due to remaining activity (2)		13,359		14,335
Total	$	19,050	$	21,669

(1) Represents mandatorily redeemable capital stock resulting from a Finance Agency rule effective February 19, 2016, that made captive insurance companies ineligible for FHLB membership. Captive insurance companies that were admitted as FHLB members prior to September 12, 2014, will have their membership terminated no later than February 19, 2021. The related mandatorily redeemable capital stock is not required to be redeemed until five years after the member's termination.

(2) Represents mandatorily redeemable capital stock that is past the end of the contractual redemption period because there is activity outstanding to which the mandatorily redeemable capital stock relates.

Partial recovery of prior capital distribution to Financing Corporation. The Competitive Equality Banking Act of 1987 was enacted in August 1987, which, among other things, provided for the recapitalization of the Federal Savings and Loan Insurance Corporation through a newly-chartered entity, the Financing Corporation (FICO). The capitalization of FICO was provided by capital distributions from the FHLBanks to FICO in exchange for FICO nonvoting capital stock. Capital distributions were made by the FHLBanks in 1987, 1988 and 1989 that aggregated to $680 million. Upon passage of Financial Institutions Reform, Recovery and Enforcement Act of 1989, the FHLBanks' previous investment in capital stock of FICO was determined to be non-redeemable and the FHLBanks charged-off their prior capital distributions to FICO directly against retained earnings.

In accordance with the dissolution of FICO in 2020, FICO determined that excess funds aggregating to $200 million were available for distribution to its stockholders, the FHLBanks. Specifically, the FHLB's partial recovery of prior capital distribution was $16.5 million, which was determined based on its share of the $680 million originally contributed. The FHLB treated the receipt of these funds as a return of the investment in FICO capital stock, and therefore as a partial recovery of the prior capital distributions made by the FHLBanks to FICO in 1987, 1988, and 1989. These funds have been credited to unrestricted retained earnings.

Note 11 - Accumulated Other Comprehensive Income (Loss)

The following tables summarize the changes in accumulated other comprehensive income (loss) for the three and six months ended June 30, 2020 and 2019.

Table 11.1 - Accumulated Other Comprehensive Income (Loss) (in thousands)

	Net unrealized gains (losses) on available-for-sale securities	Pension and postretirement benefits	Total accumulated other comprehensive income (loss)
BALANCE, MARCH 31, 2019	$ 77	$ (12,532)	$ (12,455)
Other comprehensive income before reclassification:			
Net unrealized gains (losses)	(437)	—	(437)
Reclassifications from other comprehensive income (loss) to net income:			
Amortization - pension and postretirement benefits	—	516	516
Net current period other comprehensive income (loss)	(437)	516	79
BALANCE, JUNE 30, 2019	$ (360)	$ (12,016)	$ (12,376)
BALANCE, MARCH 31, 2020	$ (535)	$ (16,201)	$ (16,736)
Other comprehensive income before reclassification:			
Net unrealized gains (losses)	22	—	22
Reclassifications from other comprehensive income (loss) to net income:			
Amortization - pension and postretirement benefits	—	581	581
Net current period other comprehensive income (loss)	22	581	603
BALANCE, JUNE 30, 2020	$ (513)	$ (15,620)	$ (16,133)

	Net unrealized gains (losses) on available-for-sale securities	Pension and postretirement benefits	Total accumulated other comprehensive income (loss)
BALANCE, DECEMBER 31, 2018	$ (110)	$ (12,933)	$ (13,043)
Other comprehensive income before reclassification:			
Net unrealized gains (losses)	(250)	—	(250)
Reclassifications from other comprehensive income (loss) to net income:			
Amortization - pension and postretirement benefits	—	917	917
Net current period other comprehensive income (loss)	(250)	917	667
BALANCE, JUNE 30, 2019	$ (360)	$ (12,016)	$ (12,376)
BALANCE, DECEMBER 31, 2019	$ 370	$ (16,764)	$ (16,394)
Other comprehensive income before reclassification:			
Net unrealized gains (losses)	(883)	—	(883)
Reclassifications from other comprehensive income (loss) to net income:			
Amortization - pension and postretirement benefits	—	1,144	1,144
Net current period other comprehensive income (loss)	(883)	1,144	261
BALANCE, JUNE 30, 2020	$ (513)	$ (15,620)	$ (16,133)

Note 12 - Pension and Postretirement Benefit Plans

Qualified Defined Benefit Multi-employer Plan. The FHLB participates in the Pentegra Defined Benefit Plan for Financial Institutions (Pentegra Defined Benefit Plan), a tax-qualified defined benefit pension plan. Under the Pentegra Defined Benefit Plan, contributions made by one participating employer may be used to provide benefits to employees of other participating employers because assets contributed by an employer are not segregated in a separate account or restricted to provide benefits only to employees of that employer. Also, in the event a participating employer is unable to meet its contribution requirements, the required contributions for the other participating employers could increase proportionately. The Pentegra Defined Benefit Plan covers all officers and employees of the FHLB who meet certain eligibility requirements. Contributions to the Pentegra Defined Benefit Plan charged to compensation and benefit expense were $1,518,000 and $1,969,000 in the three months ended June 30, 2020 and 2019, respectively, and $3,036,000 and $3,937,000 in the six months ended June 30, 2020 and 2019.

Qualified Defined Contribution Plan. The FHLB also participates in the Pentegra Defined Contribution Plan for Financial Institutions, a tax-qualified, defined contribution plan. The FHLB contributes a percentage of the participants' compensation by making a matching contribution equal to a percentage of voluntary employee contributions, subject to certain IRS limitations. The FHLB contributed $324,000 and $309,000 in the three months ended June 30, 2020 and 2019, respectively, and $862,000 and $806,000 in the six months ended June 30, 2020 and 2019.

Nonqualified Supplemental Defined Benefit Retirement Plan (Defined Benefit Retirement Plan). The FHLB maintains a nonqualified, unfunded defined benefit plan. The plan ensures that participants receive the full amount of benefits to which they would have been entitled under the qualified defined benefit plan in the absence of limits on benefit levels imposed by the IRS. There are no funded plan assets. The FHLB has established a grantor trust, which is included in held-to-maturity securities on the Statements of Condition, to meet future benefit obligations and current payments to beneficiaries.

Postretirement Benefits Plan. The FHLB also sponsors a Postretirement Benefits Plan that includes health care and life insurance benefits for eligible retirees. Future retirees are eligible for the postretirement benefits plan if they were hired prior to August 1, 1990, are age 55 or older, and their age plus years of continuous service at retirement are greater than or equal to 80. Spouses are covered subject to required contributions. There are no funded plan assets that have been designated to provide postretirement benefits.

Table 12.1 - Net Periodic Benefit Cost (in thousands)

	Three Months Ended June 30,			
	Defined Benefit Retirement Plan		Postretirement Benefits Plan	
	2020	2019	2020	2019
Net Periodic Benefit Cost				
Service cost	$ 290	$ 234	$ 2	$ 3
Interest cost	331	392	35	45
Amortization of net loss	581	516	—	—
Net periodic benefit cost	$ 1,202	$ 1,142	$ 37	$ 48

	Six Months Ended June 30,			
	Defined Benefit Retirement Plan		Postretirement Benefits Plan	
	2020	2019	2020	2019
Net Periodic Benefit Cost				
Service cost	$ 565	$ 451	$ 4	$ 7
Interest cost	662	775	71	90
Amortization of net loss	1,144	917	—	—
Net periodic benefit cost	$ 2,371	$ 2,143	$ 75	$ 97

For the Defined Benefit Retirement Plan and the Postretirement Benefits Plan, the related service cost is recorded as part of Non-Interest Expense - Compensation and Benefits on the Statements of Income. The non-service related components of interest cost and amortization of net loss are recorded as Non-Interest Expense - Other in the Statements of Income.

Note 13 - Segment Information

The FHLB has identified two primary operating segments based on its method of internal reporting: Traditional Member Finance and the MPP. These segments reflect the FHLB's two primary Mission Asset Activities and the manner in which they are managed from the perspective of development, resource allocation, product delivery, pricing, credit risk and operational administration. The segments identify the principal ways the FHLB provides services to member stockholders.

Table 13.1 - Financial Performance by Operating Segment (in thousands)

	Three Months Ended June 30,		
	Traditional Member Finance	MPP	Total
2020			
Net interest income	$ 139,314	$ 10,281	$ 149,595
Non-interest income (loss)	(7,378)	(7,647)	(15,025)
Non-interest expense	21,354	2,664	24,018
Income (loss) before assessments	110,582	(30)	110,552
Affordable Housing Program assessments	11,145	(3)	11,142
Net income (loss)	$ 99,437	$ (27)	$ 99,410
2019			
Net interest income	$ 70,713	$ 26,715	$ 97,428
Non-interest income (loss)	(2,109)	(550)	(2,659)
Non-interest expense	20,602	2,776	23,378
Income before assessments	48,002	23,389	71,391
Affordable Housing Program assessments	4,829	2,339	7,168
Net income	$ 43,173	$ 21,050	$ 64,223

	Six Months Ended June 30,		
	Traditional Member Finance	MPP	Total
2020			
Net interest income	$ 203,963	$ 27,747	$ 231,710
Non-interest income (loss)	(30,958)	46,622	15,664
Non-interest expense	42,461	5,837	48,298
Income before assessments	130,544	68,532	199,076
Affordable Housing Program assessments	13,160	6,853	20,013
Net income	$ 117,384	$ 61,679	$ 179,063
2019			
Net interest income	$ 161,108	$ 58,578	$ 219,686
Non-interest income (loss)	(14,064)	(6,994)	(21,058)
Non-interest expense	39,992	5,809	45,801
Income before assessments	107,052	45,775	152,827
Affordable Housing Program assessments	10,769	4,578	15,347
Net income	$ 96,283	$ 41,197	$ 137,480

Table 13.2 - Asset Balances by Operating Segment (in thousands)

	Assets		
	Traditional Member Finance	MPP	Total
June 30, 2020	$ 78,903,688	$ 11,740,991	$ 90,644,679
December 31, 2019	81,064,206	12,427,353	93,491,559

Note 14 - Fair Value Disclosures

The fair value amounts recorded on the Statements of Condition and presented in the related note disclosures have been determined by the FHLB using available market information and the FHLB's best judgment of appropriate valuation methods. GAAP defines fair value as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date (i.e., an exit price). The fair values reflect the FHLB's judgment of how a market participant would estimate the fair values.

Fair Value Hierarchy. GAAP establishes a fair value hierarchy and requires an entity to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value. The inputs are evaluated and an overall level for the measurement is determined. This overall level is an indication of how market observable the fair value measurement is. An entity must disclose the level within the fair value hierarchy in which the measurements are classified.

The fair value hierarchy prioritizes the inputs used to measure fair value into three broad levels:

Level 1 Inputs - Quoted prices (unadjusted) for identical assets or liabilities in an active market that the reporting entity can access on the measurement date. An active market for the asset or liability is a market in which the transactions for the asset or liability occur with sufficient frequency and volume to provide pricing information on an ongoing basis.

Level 2 Inputs - Inputs other than quoted prices within Level 1 that are observable inputs for the asset or liability, either directly or indirectly. If the asset or liability has a specified (contractual) term, a Level 2 input must be observable for substantially the full term of the asset or liability. Level 2 inputs include the following: (1) quoted prices for similar assets or liabilities in active markets; (2) quoted prices for identical or similar assets or liabilities in markets that are not active; (3) inputs other than quoted prices that are observable for the asset or liability (e.g., interest rates and yield curves that are observable at commonly quoted intervals, and implied volatilities); and (4) inputs that are derived principally from or corroborated by observable market data by correlation or other means.

Level 3 Inputs - Unobservable inputs for the asset or liability.

The FHLB reviews the fair value hierarchy classifications on a quarterly basis. Changes in the observability of the valuation inputs may result in a reclassification of certain financial assets or liabilities. The FHLB did not have any transfers of assets or liabilities into or out of Level 3 of the fair value hierarchy during the six months ended June 30, 2020 or 2019.

Table 14.1 presents the net carrying value/carrying value, fair value, and fair value hierarchy of financial assets and liabilities of the FHLB. The FHLB records trading securities, available-for-sale securities, derivative assets, derivative liabilities, certain Advances and certain Consolidated Obligations at fair value on a recurring basis, and on occasion, certain mortgage loans held for portfolio on a nonrecurring basis. The FHLB records all other financial assets and liabilities at amortized cost. Refer to Table 14.2 for further details about the financial assets and liabilities held at fair value on either a recurring or nonrecurring basis.

Table 14.1 - Fair Value Summary (in thousands)

	June 30, 2020					
		Fair Value				
Financial Instruments	**Net Carrying Value**	**Total**	**Level 1**	**Level 2**	**Level 3**	**Netting Adjustments and Cash Collateral (1)**
Assets:						
Cash and due from banks	$ 22,930	$ 22,930	$ 22,930	$ —	$ —	$ —
Interest-bearing deposits	905,037	905,037	—	905,037	—	—
Securities purchased under agreements to resell	963,844	963,845	—	963,845	—	—
Federal funds sold	3,525,000	3,525,000	—	3,525,000	—	—
Trading securities	11,977,641	11,977,641	—	11,977,641	—	—
Available-for-sale securities	293,582	293,582	—	293,582	—	—
Held-to-maturity securities	11,868,005	12,023,183	—	12,023,183	—	—
Advances (2)	48,912,975	49,135,525	—	49,135,525	—	—
Mortgage loans held for portfolio	11,703,351	12,037,978	—	12,025,148	12,830	—
Accrued interest receivable	145,910	145,910	—	145,910	—	—
Derivative assets	302,601	302,601	—	12,103	—	290,498
Liabilities:						
Deposits	1,235,918	1,236,118	—	1,236,118	—	—
Consolidated Obligations:						
Discount Notes (3)	44,323,911	44,339,227	—	44,339,227	—	—
Bonds (4)	39,339,109	40,252,789	—	40,252,789	—	—
Mandatorily redeemable capital stock	19,050	19,050	19,050	—	—	—
Accrued interest payable	89,266	89,266	—	89,266	—	—
Derivative liabilities	1,622	1,622	—	238,266	—	(236,644)

(1) Amounts represent the application of the netting requirements that allow the FHLB to settle positive and negative positions and also cash collateral and related accrued interest held or placed by the FHLB with the same counterparty.

(2) Includes (in thousands) $5,415 of Advances recorded under the fair value option at June 30, 2020.

(3) Includes (in thousands) $649,883 of Consolidated Obligation Discount Notes recorded under the fair value option at June 30, 2020.

(4) Includes (in thousands) $2,651,563 of Consolidated Obligation Bonds recorded under the fair value option at June 30, 2020.

Financial Instruments	Carrying Value	Fair Value Total	Level 1	Level 2	Level 3	Netting Adjustments and Cash Collateral (1)
	December 31, 2019					
Assets:						
Cash and due from banks	$ 20,608	$ 20,608	$ 20,608	$ —	$ —	$ —
Interest-bearing deposits	550,160	550,160	—	550,160	—	—
Securities purchased under agreements to resell	2,348,584	2,348,607	—	2,348,607	—	—
Federal funds sold	4,833,000	4,833,000	—	4,833,000	—	—
Trading securities	11,615,693	11,615,693	—	11,615,693	—	—
Available-for-sale securities	1,542,185	1,542,185	—	1,542,185	—	—
Held-to-maturity securities	13,499,319	13,501,207	—	13,501,207	—	—
Advances (2)	47,369,573	47,458,028	—	47,458,028	—	—
Mortgage loans held for portfolio, net	11,235,353	11,437,180	—	11,424,857	12,323	—
Accrued interest receivable	182,252	182,252	—	182,252	—	—
Derivative assets	267,165	267,165	—	32,195	—	234,970
Liabilities:						
Deposits	951,296	951,343	—	951,343	—	—
Consolidated Obligations:						
Discount Notes (3)	49,084,219	49,086,723	—	49,086,723	—	—
Bonds (4)	38,439,724	38,832,230	—	38,832,230	—	—
Mandatorily redeemable capital stock	21,669	21,669	21,669	—	—	—
Accrued interest payable	126,091	126,091	—	126,091	—	—
Derivative liabilities	1,310	1,310	—	54,850	—	(53,540)

(1) Amounts represent the application of the netting requirements that allow the FHLB to settle positive and negative positions and also cash collateral and related accrued interest held or placed by the FHLB with the same counterparty.

(2) Includes (in thousands) $5,238 of Advances recorded under the fair value option at December 31, 2019.

(3) Includes (in thousands) $12,386,974 of Consolidated Obligation Discount Notes recorded under the fair value option at December 31, 2019.

(4) Includes (in thousands) $4,757,177 of Consolidated Obligation Bonds recorded under the fair value option at December 31, 2019.

Summary of Valuation Methodologies and Primary Inputs.

The valuation methodologies and primary inputs used to develop the measurement of fair value for assets and liabilities that are measured at fair value on a recurring or nonrecurring basis in the Statement of Condition are disclosed in Note 19 - Fair Value Disclosures in the FHLB's 2019 Annual Report on Form 10-K. There have been no significant changes in the valuation methodologies during 2020.

Fair Value Measurements.

Table 14.2 presents the fair value of financial assets and liabilities that are recorded on a recurring or nonrecurring basis at June 30, 2020 and December 31, 2019, by level within the fair value hierarchy. The FHLB records nonrecurring fair value adjustments to reflect partial write-downs on certain mortgage loans.

Table 14.2 - Fair Value Measurements (in thousands)

	Fair Value Measurements at June 30, 2020				
	Total	**Level 1**	**Level 2**	**Level 3**	**Netting Adjustments and Cash Collateral (1)**
Recurring fair value measurements - Assets					
Trading securities:					
U.S. Treasury obligations	$ 9,828,791	$ —	$ 9,828,791	$ —	$ —
GSE obligations	2,148,433	—	2,148,433	—	—
U.S. obligation single-family MBS	417	—	417	—	—
Total trading securities	11,977,641	—	11,977,641	—	—
Available-for-sale securities:					
GSE obligations	142,984	—	142,984	—	—
GSE multi-family MBS	150,598	—	150,598	—	—
Total available-for-sale securities	293,582	—	293,582	—	—
Advances	5,415	—	5,415	—	—
Derivative assets:					
Interest rate related	301,383	—	10,885	—	290,498
Mortgage delivery commitments	1,218	—	1,218	—	—
Total derivative assets	302,601	—	12,103	—	290,498
Total assets at fair value	$ 12,579,239	$ —	$ 12,288,741	$ —	$ 290,498
Recurring fair value measurements - Liabilities					
Consolidated Obligations:					
Discount Notes	$ 649,883	$ —	$ 649,883	$ —	$ —
Bonds	2,651,563	—	2,651,563	—	—
Total Consolidated Obligations	3,301,446	—	3,301,446	—	—
Derivative liabilities:					
Interest rate related	1,622	—	238,266	—	(236,644)
Total derivative liabilities	1,622	—	238,266	—	(236,644)
Total liabilities at fair value	$ 3,303,068	$ —	$ 3,539,712	$ —	$ (236,644)
Nonrecurring fair value measurements - Assets (2)					
Mortgage loans held for portfolio	$ 77	$ —	$ —	$ 77	

(1) Amounts represent the application of the netting requirements that allow the FHLB to settle positive and negative positions and also cash collateral and related accrued interest held or placed by the FHLB with the same counterparty.

(2) The fair value information presented is as of the date the fair value adjustment was recorded during the six months ended June 30, 2020.

	Fair Value Measurements at December 31, 2019				
	Total	Level 1	Level 2	Level 3	Netting Adjustments and Cash Collateral [(1)]
Recurring fair value measurements - Assets					
Trading securities:					
U.S. Treasury obligations	$ 9,626,964	$ —	$ 9,626,964	$ —	$ —
GSE obligations	1,988,259	—	1,988,259	—	—
U.S. obligation single-family MBS	470	—	470	—	—
Total trading securities	11,615,693	—	11,615,693	—	—
Available-for-sale securities:					
Certificates of deposit	1,410,111	—	1,410,111	—	—
GSE obligations	132,074	—	132,074	—	—
Total available-for-sale securities	1,542,185	—	1,542,185	—	—
Advances	5,238	—	5,238	—	—
Derivative assets:					
Interest rate related	264,346	—	29,376	—	234,970
Forward rate agreements	21	—	21	—	—
Mortgage delivery commitments	2,798	—	2,798	—	—
Total derivative assets	267,165	—	32,195	—	234,970
Total assets at fair value	$ 13,430,281	$ —	$ 13,195,311	$ —	$ 234,970
Recurring fair value measurements - Liabilities					
Consolidated Obligations:					
Discount Notes	$ 12,386,974	$ —	$ 12,386,974	$ —	$ —
Bonds	4,757,177	—	4,757,177	—	—
Total Consolidated Obligations	17,144,151	—	17,144,151	—	—
Derivative liabilities:					
Interest rate related	464	—	54,004	—	(53,540)
Forward rate agreements	782	—	782	—	—
Mortgage delivery commitments	64	—	64	—	—
Total derivative liabilities	1,310	—	54,850	—	(53,540)
Total liabilities at fair value	$ 17,145,461	$ —	$ 17,199,001	$ —	$ (53,540)

(1) Amounts represent the application of the netting requirements that allow the FHLB to settle positive and negative positions and also cash collateral and related accrued interest held or placed by the FHLB with the same counterparty.

Fair Value Option. The fair value option provides an irrevocable option to elect fair value as an alternative measurement for selected financial assets, financial liabilities, unrecognized firm commitments, and written loan commitments not previously carried at fair value. It requires a company to display the fair value of those assets and liabilities for which it has chosen to use fair value on the face of the Statements of Condition. Fair value is used for both the initial and subsequent measurement of the designated assets, liabilities and commitments, with the changes in fair value recognized in net income. If elected, interest income and interest expense on Advances and Consolidated Obligations carried at fair value are recognized based solely on the contractual amount of interest due or unpaid. Any transaction fees or costs are immediately recognized into other non-interest income or other non-interest expense.

The FHLB has elected the fair value option for certain financial instruments that either do not qualify for hedge accounting or may be at risk for not meeting hedge effectiveness requirements. These fair value elections were made primarily in an effort to mitigate the potential income statement volatility that can arise from economic hedging relationships in which the carrying value of the hedged item is not adjusted for changes in fair value.

Table 14.3 presents net gains (losses) recognized in earnings related to financial assets and liabilities in which the fair value option was elected during the three and six months ended June 30, 2020 and 2019.

Table 14.3 – Fair Value Option - Financial Assets and Liabilities (in thousands)

Net Gains (Losses) from Changes in Fair Value Recognized in Earnings	Three Months Ended June 30, 2020	Three Months Ended June 30, 2019	Six Months Ended June 30, 2020	Six Months Ended June 30, 2019
Advances	$ 31	$ 106	$ 178	$ 206
Consolidated Discount Notes	13,864	—	(162)	—
Consolidated Bonds	11,846	(24,859)	(25,105)	(42,140)
Total net gains (losses)	$ 25,741	$ (24,753)	$ (25,089)	$ (41,934)

For instruments recorded under the fair value option, the related contractual interest income and contractual interest expense are recorded as part of net interest income on the Statements of Income. The remaining changes in fair value for instruments in which the fair value option has been elected are recorded as “Net gains (losses) on financial instruments held under fair value option” in the Statements of Income, except for changes in fair value related to instrument specific credit risk, which are recorded in accumulated other comprehensive income in the Statement of Condition. The FHLB has determined that none of the remaining changes in fair value were related to instrument-specific credit risk for the six months ended June 30, 2020 or 2019. In determining that there has been no change in instrument-specific credit risk period to period, the FHLB primarily considered the following factors:

- The FHLB is a federally chartered GSE, and as a result of this status, the FHLB’s Consolidated Obligations have historically received the same credit ratings as the government bond credit rating of the United States, even though they are not obligations of the United States and are not guaranteed by the United States.

- The FHLB is jointly and severally liable with the other 10 FHLBanks for the payment of principal and interest on all Consolidated Obligations of each of the other FHLBanks.

The following table reflects the difference between the aggregate unpaid principal balance outstanding and the aggregate fair value for Advances and Consolidated Obligations for which the fair value option has been elected.

Table 14.4 – Aggregate Unpaid Balance and Aggregate Fair Value (in thousands)

	June 30, 2020			December 31, 2019		
	Aggregate Unpaid Principal Balance	Aggregate Fair Value	Aggregate Fair Value Over/ (Under) Aggregate Unpaid Principal Balance	Aggregate Unpaid Principal Balance	Aggregate Fair Value	Aggregate Fair Value Over/ (Under) Aggregate Unpaid Principal Balance
Advances (1)	$ 5,000	$ 5,415	$ 415	$ 5,000	$ 5,238	$ 238
Consolidated Discount Notes	650,000	649,883	(117)	12,400,865	12,386,974	(13,891)
Consolidated Bonds	2,612,000	2,651,563	39,563	4,739,000	4,757,177	18,177

(1) At June 30, 2020 and December 31, 2019, none of the Advances were 90 days or more past due or had been placed on non-accrual status.

Note 15 - Commitments and Contingencies

Table 15.1 - Off-Balance Sheet Commitments (in thousands)

	June 30, 2020			December 31, 2019		
Notional Amount	**Expire within one year**	**Expire after one year**	**Total**	**Expire within one year**	**Expire after one year**	**Total**
Standby Letters of Credit (1)	$ 21,237,775	$1,143,616	$22,381,391	$ 15,143,075	$1,062,105	$16,205,180
Commitments for standby bond purchases (1)	31,755	41,210	72,965	20,360	55,150	75,510
Commitments to purchase mortgage loans	133,264	—	133,264	936,269	—	936,269
Unsettled Consolidated Bonds, principal amount (2)	133,000	—	133,000	—	—	—
Unsettled Consolidated Discount Notes, principal amount (2)	427,466	—	427,466	—	—	—

(1) The FHLB has deemed it unnecessary to record any liability for credit losses on these agreements.
(2) Expiration is based on settlement period rather than underlying contractual maturity of Consolidated Obligations.

Legal Proceedings. From time to time, the FHLB is subject to legal proceedings arising in the normal course of business. The FHLB would record an accrual for a loss contingency when it is probable that a loss has been incurred and the amount could be reasonably estimated. After consultation with legal counsel, management does not anticipate that ultimate liability, if any, arising out of any matters will have a material effect on the FHLB's financial condition or results of operations.

Note 16 - Transactions with Other FHLBanks

The FHLB notes all transactions with other FHLBanks on the face of its financial statements. Occasionally, the FHLB loans short-term funds to and borrows short-term funds from other FHLBanks. These loans and borrowings are transacted at then current market rates when traded. There were no such loans or borrowings outstanding at June 30, 2020 or December 31, 2019. The following table details the average daily balance of lending and borrowing between the FHLB and other FHLBanks for the six months ended June 30, 2020 and 2019.

Table 16.1 - Lending and Borrowing Between the FHLB and Other FHLBanks (in thousands)

	Average Daily Balances for the Six Months Ended June 30,	
	2020	**2019**
Loans to other FHLBanks	$ 9,890	$ 5,801

In addition, the FHLB may, from time to time, assume the outstanding primary liability for Consolidated Obligations of another FHLBank (at then current market rates on the day when the transfer is traded) rather than issuing new debt for which the FHLB is the primary obligor. The FHLB then becomes the primary obligor on the transferred debt. There were no Consolidated Obligations transferred to the FHLB during the six months ended June 30, 2020, or 2019. The FHLB had no Consolidated Obligations transferred to other FHLBanks during these periods.

Note 17 - Transactions with Stockholders

As a cooperative, the FHLB's capital stock is owned by its members, by former members that retain the stock as provided in the FHLB's Capital Plan and by nonmember institutions that have acquired members and must retain the stock to support Advances or other activities with the FHLB. All Advances are issued to members and all mortgage loans held for portfolio are purchased from members. The FHLB also maintains demand deposit accounts for members, primarily to facilitate settlement activities that are directly related to Advances and mortgage loan purchases. Additionally, the FHLB may enter into interest rate swaps with its stockholders. The FHLB may not invest in any equity securities issued by its stockholders and it has not purchased any MBS securitized by, or other direct long-term investments in, its stockholders.

For financial statement purposes, the FHLB defines related parties as those members with more than 10 percent of the voting interests of the FHLB capital stock outstanding. Federal statute prescribes the voting rights of members in the election of both Member and Independent directors. For Member directorships, the Finance Agency designates the number of Member directorships in a given year and an eligible voting member may vote only for candidates seeking election in its respective state. For Independent directors, the FHLB's Board of Directors nominates candidates to be placed on the ballot in an at-large election. For both Member and Independent director elections, a member is entitled to vote one share of required capital stock, subject to a statutory limitation, for each applicable directorship. Under this limitation, the total number of votes that a member may cast is limited to the average number of shares of the FHLB's capital stock that were required to be held by all members in that state as of the record date for voting. Nonmember stockholders are not eligible to vote in director elections. Due to these statutory limitations, no member owned more than 10 percent of the voting interests of the FHLB at June 30, 2020 or December 31, 2019.

All transactions with stockholders are entered into in the ordinary course of business. Finance Agency regulations require the FHLB to offer the same pricing for Advances and other services to all members regardless of asset or transaction size, charter type, or geographic location. However, the FHLB may, in pricing its Advances, distinguish among members based upon its assessment of the credit and other risks to the FHLB of lending to any particular member or upon other reasonable criteria that may be applied equally to all members. The FHLB's policies and procedures require that such standards and criteria be applied consistently and without discrimination to all members applying for Advances.

Transactions with Directors' Financial Institutions. In the ordinary course of its business, the FHLB provides products and services to members whose officers or directors serve as directors of the FHLB (Directors' Financial Institutions). Finance Agency regulations require that transactions with Directors' Financial Institutions be made on the same terms as those with any other member. The following table reflects balances with Directors' Financial Institutions for the items indicated below. The FHLB had no MBS or derivatives transactions with Directors' Financial Institutions at June 30, 2020 or December 31, 2019.

Table 17.1 - Transactions with Directors' Financial Institutions (dollars in millions)

	June 30, 2020		December 31, 2019	
	Balance	% of Total [(1)]	Balance	% of Total [(1)]
Advances	$ 11,507	23.8 %	$ 3,428	7.3 %
MPP	157	1.4	122	1.1
Regulatory capital stock	857	22.4	176	5.2

(1) Percentage of total principal (Advances), unpaid principal balance (MPP), and regulatory capital stock.

Concentrations. The following table shows regulatory capital stock balances, outstanding Advance principal balances, and unpaid principal balances of mortgage loans held for portfolio of stockholders holding five percent or more of regulatory capital stock and includes any known affiliates that are members of the FHLB.

Table 17.2 - Stockholders Holding Five Percent or more of Regulatory Capital Stock (dollars in millions)

	Regulatory Capital Stock		Advance	MPP Unpaid
June 30, 2020	Balance	% of Total	Principal	Principal Balance
U.S. Bank, N.A.	$ 684	18 %	$ 8,274	$ 14
JPMorgan Chase Bank, N.A.	633	17	15,000	—

	Regulatory Capital Stock		Advance	MPP Unpaid
December 31, 2019	Balance	% of Total	Principal	Principal Balance
JPMorgan Chase Bank, N.A.	$ 675	20 %	$ 4,500	$ —
U.S. Bank, N.A.	485	14	13,874	17

Nonmember Affiliates. The FHLB has relationships with three nonmember affiliates, the Kentucky Housing Corporation, the Ohio Housing Finance Agency and the Tennessee Housing Development Agency. The FHLB had no investments in or borrowings to any of these nonmember affiliates at June 30, 2020 or December 31, 2019. The FHLB has executed standby bond purchase agreements with the Ohio Housing Finance Agency whereby the FHLB, for a fee, agrees as a liquidity provider if required, to purchase and hold the authority's bonds until the designated marketing agent can find a suitable investor or the housing authority repurchases the bond according to a schedule established by the standby agreement. During the first six months of 2020 and 2019, the FHLB was not required to purchase any bonds under these agreements.

Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations.

This document contains forward-looking statements that describe the objectives, expectations, estimates, and assessments of the Federal Home Loan Bank of Cincinnati (the FHLB). These statements use words such as “anticipates,” “expects,” “believes,” “could,” “estimates,” “may,” and “should.” By their nature, forward-looking statements relate to matters involving risks or uncertainties, some of which we may not be able to know, control, or completely manage. Actual future results could differ materially from those expressed or implied in forward-looking statements or could affect the extent to which we are able to realize an objective, expectation, estimate, or assessment. Some of the risks and uncertainties that could affect our forward-looking statements include the following:

- the effects of economic, financial, credit, market, and member conditions on our financial condition and results of operations, including changes in economic growth, general liquidity conditions, inflation and deflation, interest rates, interest rate spreads, interest rate volatility, mortgage originations, prepayment activity, housing prices, asset delinquencies, and members' mergers and consolidations, deposit flows, liquidity needs, and loan demand;

- political, national, or world events, including acts of war, terrorism, natural disasters, pandemics, including the current COVID-19 pandemic, or other catastrophic events, and legislative, regulatory, government, judicial or other developments that could affect us, our members, our counterparties, other Federal Home Loan Banks (FHLBanks) and other government-sponsored enterprises (GSEs), and/or investors in the Federal Home Loan Bank System's (FHLBank System) debt securities, which are called Consolidated Obligations or Obligations;

- competitive forces, including those related to other sources of funding available to members, to purchases of mortgage loans, and to our issuance of Consolidated Obligations;
- the financial results and actions of other FHLBanks that could affect our ability, in relation to the FHLBank System's joint and several liability for Consolidated Obligations, to access the capital markets on favorable terms or preserve our profitability, or could alter the regulations and legislation to which we are subject;
- changes in ratings assigned to FHLBank System Obligations or the FHLB that could raise our funding cost;
- changes in investor demand for Obligations;
- the volatility of market prices, interest rates, credit quality, and other indices that could affect the value of investments and collateral we hold as security for member obligations and/or for counterparty obligations;
- uncertainties relating to the phasing out of the London InterBank Offered Rate (LIBOR) that could impact our mortgage-backed securities (MBS) investments, Advances, Consolidated Obligations, derivatives, and collateral;
- the ability to attract and retain skilled management and other key employees;
- the ability to develop and support technology and information systems that effectively manage the risks we face (including cybersecurity risks);
- the risk of loss arising from failures or interruptions in our ongoing business operations, internal controls, information systems or other operating technologies;
- the ability to successfully manage new products and services; and
- the risk of loss arising from litigation filed against us or one or more other FHLBanks.

We do not undertake any obligation to update any forward-looking statements made in this document.

EXECUTIVE OVERVIEW

The following table presents selected Statement of Condition data, Statement of Income data and financial ratios for the periods indicated.

(Dollars in millions)	June 30, 2020	March 31, 2020	December 31, 2019	September 30, 2019	June 30, 2019
STATEMENT OF CONDITION DATA AT PERIOD END:					
Total assets	$ 90,645	$ 122,510	$ 93,492	$ 100,211	$ 96,424
Advances	48,913	80,425	47,370	46,358	42,869
Mortgage loans held for portfolio	11,704	11,923	11,236	10,885	10,640
Allowance for credit losses on mortgage loans (1)	—	—	1	1	1
Investments (2)	29,533	25,665	34,389	42,442	42,444
Consolidated Obligations, net:					
Discount Notes	44,324	79,660	49,084	49,553	41,493
Bonds	39,339	34,668	38,440	44,591	48,780
Total Consolidated Obligations, net	83,663	114,328	87,524	94,144	90,273
Mandatorily redeemable capital stock	19	572	22	26	23
Capital:					
Capital stock - putable	3,813	4,739	3,367	3,597	3,806
Retained earnings	1,247	1,153	1,094	1,055	1,037
Accumulated other comprehensive loss	(16)	(17)	(16)	(12)	(12)
Total capital	5,044	5,875	4,445	4,640	4,831
STATEMENT OF INCOME DATA FOR THE QUARTER:					
Net interest income	$ 149	$ 82	$ 99	$ 87	$ 97
Non-interest income (loss)	(15)	31	6	5	(3)
Non-interest expense	24	24	21	22	23
Affordable Housing Program assessments	11	9	8	7	7
Net income	$ 99	$ 80	$ 76	$ 63	$ 64
FINANCIAL RATIOS FOR THE QUARTER:					
Dividend payout ratio (3)	21.7 %	27.4 %	47.7 %	71.7 %	90.1 %
Weighted average dividend rate (4)	2.50	2.50	4.00	4.50	5.50
Return on average equity	7.12	6.94	6.64	5.36	5.09
Return on average assets	0.37	0.34	0.34	0.26	0.26
Net interest margin (5)	0.58	0.36	0.44	0.36	0.40
Average equity to average assets	5.22	4.95	5.06	4.86	5.15
Regulatory capital ratio (6)	5.60	5.28	4.79	4.67	5.05
Operating expense to average assets (7)	0.063	0.084	0.071	0.069	0.069

(1) The methodology for determining the allowance for credit losses on mortgage loans changed on January 1, 2020 with the adoption of new accounting guidance on the measurement of credit losses on financial instruments. Consistent with the modified retrospective method of adoption, the prior periods have not been revised to conform to the new basis of accounting.
(2) Investments include interest bearing deposits in banks, securities purchased under agreements to resell, Federal funds sold, trading securities, available-for-sale securities, and held-to-maturity securities.
(3) Dividend payout ratio is dividends declared in the period as a percentage of net income.
(4) Weighted average dividend rates are dividends paid divided by the average number of shares of capital stock eligible for dividends.
(5) Net interest margin is net interest income as a percentage of average earning assets.
(6) Regulatory capital ratio is period-end regulatory capital (capital stock, mandatorily redeemable capital stock and retained earnings) as a percentage of period-end total assets.
(7) Operating expenses comprise compensation and benefits and other operating expenses, which are included in non-interest expense.

Recent Developments

Coronavirus Pandemic (COVID-19)

The global outbreak of COVID-19 has impacted communities and businesses worldwide, including those in the Fifth District. The effects of COVID-19 are evolving, and the full impact and duration of the virus are unknown. We continued to fulfill our mission of providing robust access to a key source of readily available and competitively priced wholesale funding to member financial institutions and supporting our commitment to affordable housing and community investment, while maintaining strong capital and liquidity positions.

We have been engaging with our members to develop programs to assist them during this unprecedented time. In support of our members, beginning in April 2020, we temporarily modified our existing discounted Advance programs and, effective May 1, 2020, created a new Advance program that offers up to $2 billion in six-month Advances at zero percent interest to members. These Advances can be used to support COVID-19 related assistance made by all Fifth District members.

In order to assist homeowners affected by COVID-19 within our Mortgage Purchase Program (MPP), we are allowing various relief options, such as forbearance plans to help with short-term hardships such as illness, unemployment or loss of income when homeowners meet certain eligibility requirements. Additionally, we have asked servicers of the mortgage loans we own to temporarily suspend all foreclosure sales and evictions, unless a home is vacant, in order to allow homeowners to stay in their homes during this period.

We have also remained focused on the health and safety of our employees while maintaining full business operations. To the extent possible, employees are working from home with only a limited number of employees voluntarily working from our downtown Cincinnati location. Although there is no definitive date on when employees will return to the office, we are preparing health and safety policies and procedures, as well as procuring the necessary supplies, to ensure our employees are able to return safely.

At this time, we cannot predict the ultimate impact of COVID-19 on our members, counterparties, vendors, and other third parties we rely upon to conduct our business. To date, we have met our members' needs in stressed market conditions and have not experienced significant operational difficulties or disruptions; however, this possibility exists, which could impair our ability to conduct and manage our business effectively. For additional information on the risks associated with the COVID-19 pandemic, see Part II, Item 1A. "Risk Factors."

Financial Condition

Mission Asset Activity

Mission Assets, which we define as Advances, Letters of Credit, and total MPP are the primary means by which we fulfill our mission with direct connections to members. We regularly monitor our balance sheet concentration of Mission Asset Activity. One measure we use to assess mission achievement is our Primary Mission Asset ratio, which measures the sum of average Advances and mortgage loans as a percentage of average Consolidated Obligations (adjusted for certain high-quality liquid assets, as permitted by regulation). In the first six months of 2020, the Primary Mission Asset ratio averaged 77 percent, which exceeded the Finance Agency's preferred ratio of 70 percent. In assessing overall mission achievement, we also consider supplemental sources of Mission Asset Activity, the most significant of which is Letters of Credit issued to members.

The following table summarizes our Mission Asset Activity.

	Ending Balances			Average Balances		
	June 30,		December 31,	Six Months Ended June 30,		Year Ended December 31,
(In millions)	2020	2019	2019	2020	2019	2019
Mission Asset Activity:						
Advances (principal)	$ 48,407	$ 42,755	$ 47,264	$ 52,515	$ 55,087	$ 47,894
Mortgage Purchase Program (MPP):						
Mortgage loans held for portfolio (principal)	11,424	10,403	10,981	11,584	10,303	10,499
Mandatory Delivery Contracts (notional)	133	426	936	539	301	516
Total MPP	11,557	10,829	11,917	12,123	10,604	11,015
Letters of Credit (notional)	22,381	15,697	16,205	17,102	14,470	15,150
Total Mission Asset Activity	$ 82,345	$ 69,281	$ 75,386	$ 81,740	$ 80,161	$ 74,059

The balance of Mission Asset Activity was $82.3 billion at June 30, 2020, an increase of $7.0 billion (nine percent) from year-end 2019, which was primarily driven by higher Letters of Credit balances. Advance principal balances increased $1.1 billion (two percent) from year-end 2019. The average balance of Advances for the three months ended June 30, 2020 increased $13.5 billion compared to the same period of 2019 due to the Advance growth across our membership at the end of the first quarter as the financial markets reacted to the COVID-19 pandemic. Most of these Advances matured or prepaid in the second quarter of 2020, resulting in Advance balances comparable to those at year-end 2019. Advance balances are often volatile due to members' ability to quickly, normally on the same day, increase or decrease their amount of Advances. We believe providing members flexibility in their funding levels helps support their asset-liability management needs and is a key benefit of membership. At June 30, 2020, 67 percent of members held Mission Asset Activity, which was relatively stable compared to prior periods.

The MPP principal balance rose $0.4 billion (four percent) from year-end 2019. During the first six months of 2020, we purchased $2.1 billion of mortgage loans, while principal reductions totaled $1.7 billion.

Based on earnings in the first six months of 2020, we accrued $20 million for the Affordable Housing Program (AHP) pool of funds to be available to members in 2021. In addition to the required AHP assessment, we continued our voluntary sponsorship of two other housing programs and announced one new voluntary housing program in April 2020. The two existing programs provide resources to pay for accessibility rehabilitation and emergency repairs for special needs and elderly homeowners and to help members aid their communities following natural disasters. The new program provides up to $2 billion of zero percent interest rate Advances in response to the COVID-19 pandemic, as noted above.

Investments

The balance of investments at June 30, 2020 was $29.5 billion, a decrease of $4.9 billion (14 percent) from year-end 2019. At June 30, 2020, investments included $12.0 billion of MBS and $17.5 billion of other investments, which consisted primarily of highly-rated short-term instruments and longer-term U.S. Treasury and GSE obligations held for liquidity. All of our MBS held at June 30, 2020 were issued and guaranteed by Fannie Mae, Freddie Mac or a U.S. agency. The decrease in investments at June 30, 2020 was primarily driven by lower liquidity investments.

Investments averaged $33.7 billion in the first six months of 2020, a decrease of $1.8 billion (five percent) from the average balance during the same period of 2019. The decrease in average investments was driven by lower MBS balances due to an increase in prepayments of MBS as a result of the low interest rate environment. Due to regulatory limitations regarding the purchase of MBS that reference LIBOR, we have not been able to fully replace the MBS that were prepaid. Liquidity investments can vary significantly on a daily basis during times of volatility in Advance balances. We maintained a robust amount of asset liquidity throughout the first six months of 2020 across a variety of liquidity measures, as discussed in the "Liquidity Risk" section of "Quantitative and Qualitative Disclosures About Risk Management."

Capital

Capital adequacy surpassed all minimum regulatory capital requirements in the first six months of 2020. The GAAP capital-to-assets ratio at June 30, 2020 was 5.56 percent, while the regulatory capital-to-assets ratio was 5.60 percent. Both ratios exceeded the regulatory required minimum of four percent. Regulatory capital includes mandatorily redeemable capital stock accounted for as a liability under GAAP. GAAP and regulatory capital both increased $0.6 billion in the first six months of 2020, primarily due to purchases of capital stock by members to support Advance growth. The purchases of capital stock at the end of the first quarter were largely offset by our repurchase of $950 million of excess stock in the second quarter of 2020. Retained earnings grew in the first six months of 2020, continuing a trend over the last several years. Retained earnings totaled $1.2 billion at June 30, 2020, an increase of 14 percent from year-end 2019.

Results of Operations

Overall Results

Our earnings reflect the combination of a stable business model and conservative management of risk. Our business model is structured to be able to absorb sharp changes in Mission Asset Activity because we can execute commensurate changes in liability and capital stock balances. Key factors that can cause significant periodic volatility in our profitability are changes in the level of interest rates, changes in spreads between benchmark interest rates and our short-term funding costs, recognition of net amortization due to accelerated prepayments of mortgage assets, and fair value adjustments related to the use of derivatives and the associated hedged items. The table below summarizes our results of operations.

	Three Months Ended June 30,		Six Months Ended June 30,		Year Ended December 31,
(Dollars in millions)	2020	2019	2020	2019	2019
Net income	$ 99	$ 64	$ 179	$ 137	$ 276
Affordable Housing Program assessments	11	7	20	16	31
Return on average equity (ROE)	7.12 %	5.09 %	7.04 %	5.34 %	5.65 %
Return on average assets	0.37	0.26	0.36	0.27	0.28
Weighted average dividend rate	2.50	5.50	2.50	5.76	5.05
Average short-term interest rates [(1)]	0.33	2.46	0.86	2.50	2.24
ROE spread to average short-term interest rates	6.79	2.63	6.18	2.84	3.41
Dividend rate spread to average short-term interest rates	2.17	3.04	1.64	3.26	2.81

(1) Average short-term interest rates consist of 3-month LIBOR and the Federal funds effective rate.

Net income increased $35 million (55 percent) in the three-month comparison period and $42 million (30 percent) in the six-month comparison period. Net income increased in the year-to-date comparison period primarily due to higher non-interest income as a result of gains on the sale of certain derivatives during the first quarter of 2020. These gains were partially offset by unrealized losses on other instruments held at fair value in response to changes in interest rates. Despite the large reductions in both short- and long-term interest rates, net income increased in the three-months comparison period primarily due to higher Advance-related activity. Average Advance balances were higher in the second quarter of 2020 as a result of members' increased borrowings in March 2020 as the financial markets reacted to the COVID-19 pandemic. Many of these Advances matured or prepaid before the end of the second quarter of 2020.

Earnings levels continued to represent competitive returns on stockholders' capital investment. ROE was higher than average short-term rates in the periods presented above, while we maintained risk exposures in line with our appetite for a moderate risk profile. The spread between ROE and average short-term rates, which we compute using 3-month LIBOR and the Federal funds effective rate, is a market benchmark we believe member stockholders actively use to assess the competitiveness of the return on their capital investment.

In June 2020, we paid stockholders a quarterly dividend at a 2.50 percent annualized rate on their capital investment in our company. Despite the increases in ROE in the 2020 periods, the dividend rates in the first and second quarters of 2020 were lower compared to those in 2019 due to the decline in the interest rate environment, uncertainty of the impact from the pandemic, and our intent to grow retained earnings to ensure a stable capital position going forward.

Effect of Interest Rate Environment

Trends in market interest rates and the resulting shapes of the market yield curves strongly influence the results of operations and profitability because of how they affect members' demand for Mission Asset Activity, spreads on assets, funding costs and decisions in managing the tradeoffs in our market risk/return profile. The following table presents key market interest rates (obtained from Bloomberg L.P.).

	Quarter 2 2020		Quarter 1 2020		Six Months Ended June 30, 2020	Six Months Ended June 30, 2019	Year 2019	
	Ending	Average	Ending	Average	Average	Average	Ending	Average
Federal funds effective	0.08 %	0.06 %	0.08 %	1.25 %	0.66 %	2.40 %	1.55 %	2.16 %
Secured Overnight Financing Rate (SOFR)	0.10	0.05	0.01	1.25	0.65	2.43	1.55	2.20
3-month LIBOR	0.30	0.61	1.45	1.54	1.07	2.60	1.91	2.33
2-year LIBOR	0.23	0.32	0.49	1.18	0.75	2.41	1.70	2.03
10-year LIBOR	0.64	0.69	0.72	1.34	1.01	2.48	1.90	2.09
2-year U.S. Treasury	0.15	0.19	0.25	1.10	0.65	2.31	1.57	1.97
10-year U.S. Treasury	0.66	0.68	0.67	1.38	1.03	2.49	1.92	2.14
15-year mortgage current coupon (1)	0.98	1.09	1.07	1.86	1.48	2.80	2.28	2.52
30-year mortgage current coupon (1)	1.54	1.58	1.63	2.31	1.95	3.24	2.71	2.95

(1) Simple average of current coupon rates of Fannie Mae and Freddie Mac par MBS indications.

The target overnight Federal funds rate was in the range of zero to 0.25 percent at June 30, 2020, unchanged from the range at March 31, 2020. The low interest rate environment reflects the evolving risks to economic activity from the COVID-19 pandemic.

Average short-term rates were approximately 150 to 180 basis points lower in the first six months of 2020 compared to the same period of 2019 and average long-term rates decreased by approximately 130 to 150 basis points during that same period. The decline in interest rates on short-term assets negatively impacted income in the first six months of 2020 primarily because of the lower earnings generated by funding assets with interest-free capital.

Business Outlook and Risk Management

Other than the updates noted below, our major business strategies, outlook for our business, and risk profiles and management have not changed substantially since our 2019 Annual Report on Form 10-K. "Quantitative and Qualitative Disclosures About Risk Management" provides details on current risk exposures.

Regulatory and Legislative Risk and Significant Developments

Finance Agency Final Rule on FHLBank Housing Goals Amendments. On June 3, 2020, the Finance Agency issued a final rule, effective August 24, 2020, amending the FHLBank housing goals regulation. Enforcement of the final rule will phase in over three years. The final rule eliminates the current $2.5 billion volume threshold, such that all FHLBanks are subject to a new housing goal, regardless of their mortgage purchase volume. The new housing goal establishes one overall target level requiring 20 percent of an FHLBank's total mortgage purchases to be home-purchase mortgages for low- and very-low income families and low-income areas as well as refinancing mortgages for low-income families. The final rule also establishes a separate small member participation housing goal with a target level of 50 percent. The final rule provides that an FHLBank may request Finance Agency approval of alternative target levels for either or both of the goals. While we are still analyzing the impact of the final rule, we do not believe these changes will have a material effect on our financial condition or results of operations.

Finance Agency Supervisory Letter - Paycheck Protection Program (PPP) Loans as Collateral for FHLBank Advances: On April 23, 2020, the Finance Agency issued a Supervisory Letter (PPP Supervisory Letter) permitting the FHLBanks to accept PPP loans as collateral for Advances as "Agency Securities," given the Small Business Administration's (SBA) 100 percent guarantee of the unpaid principal balance. On April 20, 2020, the SBA's third interim final rule related to PPP loans was published. The rule explicitly waived certain regulatory requirements that must be satisfied before a member could pledge PPP loans to the FHLBanks as collateral. The PPP Supervisory Letter establishes a series of conditions under which the FHLBanks may accept PPP loans as collateral that focus on the financial condition of members, collateral discounts, and pledge dollar limits. On July 1, 2020, Congress approved an extension of the Paycheck Protection Program until August 8, 2020.

We have reviewed the PPP Supervisory Letter and decided to accept PPP loans as collateral. On May 4, 2020, we issued a member communication detailing the terms on which we would accept such collateral. We do not expect the PPP Supervisory Letter to materially effect our financial condition or results of operations.

Coronavirus Aid, Relief, and Economic Security (CARES) Act: The CARES Act was signed into law on March 27, 2020. The CARES Act is in addition to previous relief legislation passed by Congress in March 2020. Although many of the CARES Act provisions have expired, a number of provisions have been extended by regulatory action. Additional phases of the CARES Act or other COVID-19 relief legislation may be enacted by Congress. We are evaluating the potential impact of the CARES Act on our business, including its impact on mortgages held or serviced by our members that we accept as collateral, and its impact on our MPP portfolio.

LIBOR Replacement; Finance Agency Supervisory Letter: We are planning for the replacement of LIBOR given that the LIBOR index is expected to be phased out by no later than the end of 2021 and the Federal Reserve Bank of New York's establishment of SOFR as its recommended alternative to U.S. dollar LIBOR. At June 30, 2020, all $15.6 billion of our adjustable-rate Consolidated Bonds were indexed to SOFR. We also continued offering SOFR-linked Advances and swapping certain instruments to adjustable-rates tied to SOFR and the overnight Federal funds effective rate in 2020. However, the majority of our variable-rate assets still remain indexed to LIBOR. Therefore, we are continuing to plan for the eventual replacement of our LIBOR-indexed instruments away from the LIBOR benchmark interest rate. Part of our LIBOR transition plan includes our previously implemented fallback language for our LIBOR-indexed Advances and Consolidated Bonds in new and legacy contracts. As for our derivatives and investments that are tied to LIBOR, we are monitoring market-wide efforts to enhance fallback language for new activity and develop frameworks to address existing transactions. We are also evaluating and planning to utilize the transition relief provided by the Financial Accounting Standards Board (FASB) concerning the accounting for contract modifications during the replacement of LIBOR.

The Finance Agency has issued directives designed to ensure the FHLBanks will be able to identify and prudently manage the risks associated with the termination of LIBOR in a safe and sound manner. As of June 30, 2020, the FHLBanks were required to cease entering into new LIBOR-based financial instruments that mature after December 31, 2021, except for investments and option embedded products. With respect to investments, the Finance Agency required the FHLBanks, by December 31, 2019, to stop purchasing investments that reference LIBOR and mature after December 31, 2021. These phase-out dates do not apply to collateral accepted by the FHLBanks. The Finance Agency also directed the FHLBanks to update their pledged collateral certification reporting requirements by September 30, 2020 in an effort to encourage members to identify LIBOR-linked collateral maturing after December 31, 2021.

We have Advances, investment securities and derivatives with interest rates indexed to LIBOR. The following table presents LIBOR-indexed Advances, investment securities and derivatives at June 30, 2020. See the "Credit Services" section of "Analysis of Financial Condition" for further information.

(In millions)	Maturing in 2020-2021	Maturing after 2021
LIBOR-Indexed Variable Rate Financial Instruments		
Advances by redemption term	$ 17,758	$ 3,313
MBS by contractual maturity [(1)]	148	6,942
Total principal amount	$ 17,906	$ 10,255
Derivatives, notional amount by termination date	$ 7,156	$ 8,778

(1) MBS are presented by contractual maturity; however, their expected maturities will likely differ from contractual maturities as borrowers may have the right to call or prepay obligations with or without call or prepayment fees.

The market transition away from LIBOR towards SOFR is expected to be gradual and complicated, including the development of term structures and credit adjustments to accommodate differences between LIBOR and SOFR. As such, we are not currently able to predict the ultimate impact of such a transition on our business, financial condition, and results of operations.

ANALYSIS OF FINANCIAL CONDITION

Credit Services

Credit Activity and Advance Composition

The table below shows trends in Advance balances by major programs and in the notional amount of Letters of Credit.

(Dollars in millions)	June 30, 2020		March 31, 2020		December 31, 2019	
	Balance	Percent(1)	Balance	Percent(1)	Balance	Percent(1)
Adjustable/Variable-Rate Indexed:						
LIBOR	$21,071	44 %	$28,889	36 %	$10,430	22 %
SOFR	116	—	2,000	3	500	1
Other	83	—	247	—	221	1
Total	21,270	44	31,136	39	11,151	24
Fixed-Rate:						
Repurchase based (REPO)	8,978	18	28,058	35	19,386	41
Regular Fixed-Rate	11,445	24	14,452	18	11,476	24
Putable (2)	3,164	6	3,164	4	1,444	3
Amortizing/Mortgage Matched	2,309	5	2,439	3	2,358	5
Other	1,241	3	680	1	1,449	3
Total	27,137	56	48,793	61	36,113	76
Total Advances Principal	$48,407	100 %	$79,929	100 %	$47,264	100 %
Letters of Credit (notional)	$22,381		$15,785		$16,205	

(1) As a percentage of total Advances principal.
(2) Excludes Putable Advances where the related put options have expired or where the Advance is indexed to a variable-rate. These Advances are classified based on their current terms.

Advance balances at June 30, 2020 increased two percent compared to year-end 2019. Advances spiked across our membership at the end of the first quarter as the financial markets reacted to the COVID-19 pandemic, and members turned to us for liquidity, primarily in the form of LIBOR and REPO Advances. Most of these Advances matured or prepaid in the second quarter of 2020 resulting in June 30, 2020 Advance balances comparable to year-end 2019.

Advance Usage

In addition to analyzing Advance balances by dollar trends, we monitor the degree to which members use Advances to fund their balance sheets. The following table shows the unweighted, average ratio of each member's Advance balance to its most-recently available figures for total assets.

	June 30, 2020	March 31, 2020	December 31, 2019
Average Advances-to-assets for members			
Assets less than $1.0 billion (525 members)	2.48 %	2.73 %	2.55 %
Assets over $1.0 billion (104 members)	2.85	3.92	3.31
All members	2.54	2.91	2.67

The following tables present principal balances for the five members with the largest Advance borrowings.

(Dollars in millions)

June 30, 2020			December 31, 2019		
Name	Principal Amount of Advances	Percent of Total Principal Amount of Advances	Name	Principal Amount of Advances	Percent of Total Principal Amount of Advances
JPMorgan Chase Bank, N.A.	$ 15,000	31 %	U.S. Bank, N.A.	$ 13,874	29 %
U.S. Bank, N.A.	8,274	17	JPMorgan Chase Bank, N.A.	4,500	10
Third Federal Savings and Loan Association	3,757	8	Third Federal Savings and Loan Association	3,883	8
Nationwide Life Insurance Company	2,201	5	First Horizon Bank	2,200	5
Pinnacle Bank	1,791	4	Pinnacle Bank	2,063	4
Total of Top 5	$ 31,023	65 %	Total of Top 5	$ 26,520	56 %

Advance concentration ratios are influenced by, and generally similar to, concentration ratios of financial activity among our Fifth District financial institutions. We believe that having large financial institutions that actively use our Mission Assets augments the value of membership to all members. For example, such activity improves our operating efficiency, increases our earnings and thereby contributions to housing and community investment programs. This activity may enable us to obtain more favorable funding costs, and helps us maintain competitively priced Mission Assets.

Mortgage Loans Held for Portfolio (Mortgage Purchase Program, or MPP)

The table below shows principal purchases and reductions of loans in the MPP for the first six months of 2020.

(In millions)	MPP Principal
Balance at December 31, 2019	$ 10,981
Principal purchases	2,110
Principal reductions	(1,667)
Balance at June 30, 2020	$ 11,424

Although there were 81 active members participating in the MPP during the six months ended June 30, 2020, approximately 52 percent of the principal purchases in the first six months of 2020 resulted from activity of our four largest sellers. All loans acquired in the first six months of 2020 were conventional loans.

We closely track the refinancing incentives of our mortgage assets (including loans in the MPP and MBS) because the option for homeowners to change their principal payments normally represents the largest portion of our market risk exposure and can affect MPP balances. MPP principal paydowns increased in the first six months of 2020 to a 23 percent annual constant prepayment rate, compared to the 14 percent rate for all of 2019, driven by reductions in mortgage rates. We expect to see a higher rate of prepayments for the remainder of the year unless mortgage rates rise. MPP yields on purchases in the first six months of 2020, after consideration of funding and hedging costs, continued to offer favorable returns. However, MPP yields on existing portfolio balances, net of funding and hedging costs, have declined and will continue to do so with the increased prepayment speeds noted above. The metrics of portfolio return relative to their market and credit risks continue to indicate that the MPP has generated, and can be expected to continue to generate, a profitable long-term, risk-adjusted return.

Housing and Community Investment

Other than the updates noted below, our housing and community investment programs have not changed substantially since our 2019 Annual Report on Form 10-K.

In April 2020, we announced a new, zero percent interest rate Advance program, RISE (Responsive, Inclusive, Supportive and Empowering). On May 1, 2020, the RISE Program began offering, for a limited time, up to $2 billion in six-month Advances at zero percent interest. These Advances can be used to support COVID-19 related assistance by all Fifth District members, including loans originated by member financial institutions under the CARES Act, loans to support members' customers who have been directly impacted by COVID-19, assisting mortgage servicers with required investor remittances during borrower forbearance periods as well as deferring insurance premium payments and lease payments. At June 30, 2020, we had $164 million of RISE Advances outstanding. Additionally, we expanded the use of our Community Investment and Economic Development Programs to provide further COVID-19 related support to its members.

Investments

The table below presents the ending and average balances of our investment portfolio.

(In millions)	Six Months Ended June 30, 2020		Year Ended December 31, 2019	
	Ending Balance	Average Balance	Ending Balance	Average Balance
Liquidity investments	$ 17,549	$ 20,591	$ 20,924	$ 22,525
MBS	11,984	12,631	13,465	15,029
Other investments (1)	—	456	—	232
Total investments	$ 29,533	$ 33,678	$ 34,389	$ 37,786

(1) The average balance includes the rights or obligations to cash collateral, which are included in the fair value of derivative assets or derivative liabilities on the Statements of Condition at period end.

Liquidity investments are either short-term (primarily overnight), or longer-term, but can be easily sold and converted to cash. It is normal for liquidity investments to vary by up to several billion dollars on a daily basis. Liquidity investment levels can vary significantly based on changes in the amount of actual Advances, anticipated demand for Advances, liquidity needs, the availability of acceptable net spreads, and the number of eligible counterparties that meet our unsecured credit risk criteria.

The balance of liquidity investments was lower at June 30, 2020 compared to year-end 2019 due in part to not fully replenishing the lower liquidity balances held at the end of the first quarter. The lower balance of liquidity investments at the end of the first quarter of 2020 was in response to volatile market conditions and limited returns on other available liquidity investments. The average balance of liquidity investments for the six months ended June 30, 2020 remained elevated and was near the average balance for all of 2019 as we continued to hold U.S. Treasury obligations to help meet regulatory liquidity requirements. Under the regulatory requirements, liquidity includes certain high-quality liquid assets, which are defined as U.S. Treasury obligations with remaining maturities of 10 years or less held as trading securities or available-for-sale securities.

Our overarching strategy for balances of MBS is to keep holdings as close as possible to the regulatory maximum, subject to the availability of securities that we believe provide acceptable risk/return tradeoffs. Finance Agency regulations prohibit us from purchasing MBS if our investment in these securities exceeds three times regulatory capital on the day we intend to purchase the securities. The ratio of MBS to regulatory capital was 2.36 at June 30, 2020. The MBS ratio was lower than normal primarily due to the increase in regulatory capital as well as lower MBS balances given paydowns in the low interest rate environment and the regulatory limitations regarding the purchase of investments that reference LIBOR.

The balance of MBS at June 30, 2020 consisted of $10.6 billion of securities issued by Fannie Mae or Freddie Mac (of which $6.9 billion were floating-rate securities), $0.1 billion of floating-rate securities issued by the National Credit Union Administration (NCUA), and $1.3 billion of securities issued by Ginnie Mae (which are primarily fixed rate).

The table below shows principal purchases and paydowns of our MBS for the first six months of 2020.

(In millions)	MBS Principal
Balance at December 31, 2019	$ 13,447
Principal purchases	149
Principal paydowns	(1,625)
Balance at June 30, 2020	$ 11,971

MBS principal paydowns in the first six months of 2020 equated to a 22 percent annual constant prepayment rate, up from the 20 percent rate experienced in 2019. The higher prepayment rate experienced in the first six months of 2020 is a result of the historically low mortgage rate environment.

Consolidated Obligations

We fund variable-rate assets with Discount Notes (a portion of which are swapped), adjustable-rate Bonds, and swapped fixed-rate Bonds because they give us the ability to effectively match the underlying rate reset periods embedded in these assets. The balances and composition of our Consolidated Obligations tend to fluctuate with changes in the balances and composition of our assets. In addition, changes in the amount and composition of our funding may be necessary from time to time to meet the days positive liquidity and asset/liability maturity funding gap requirements under the regulatory liquidity guidance discussed in the "Liquidity Risk" section of "Quantitative and Qualitative Disclosures About Risk Management."

The table below presents the ending and average balances of our participations in Consolidated Obligations.

(In millions)	Six Months Ended June 30, 2020		Year Ended December 31, 2019	
	Ending Balance	Average Balance	Ending Balance	Average Balance
Discount Notes:				
Unswapped	$ 43,698	$ 48,907	$ 36,776	$ 39,286
Swapped	650	7,550	12,401	5,291
Total par Discount Notes	44,348	56,457	49,177	44,577
Other items (1)	(24)	(66)	(93)	(95)
Total Discount Notes	44,324	56,391	49,084	44,482
Bonds:				
Unswapped fixed-rate	20,972	20,276	22,420	24,423
Unswapped adjustable-rate (2)	15,562	11,760	11,012	16,132
Swapped fixed-rate	2,731	4,554	4,949	5,310
Total par Bonds	39,265	36,590	38,381	45,865
Other items (1)	74	78	59	44
Total Bonds	39,339	36,668	38,440	45,909
Total Consolidated Obligations (3)	$ 83,663	$ 93,059	$ 87,524	$ 90,391

(1) Includes unamortized premiums/discounts, fair value option valuation adjustments, hedging and other basis adjustments.
(2) Unswapped adjustable-rate Bonds are indexed to either LIBOR or SOFR. At June 30, 2020, 100 percent were indexed to SOFR. At December 31, 2019, 1 percent were indexed to LIBOR and 99 percent were indexed to SOFR.
(3) The 11 FHLBanks have joint and several liability for the par amount of all of the Consolidated Obligations issued on their behalves. The par amount of the outstanding Consolidated Obligations for all of the FHLBanks was (in millions) $915,753 and $1,025,895 at June 30, 2020 and December 31, 2019, respectively.

The average balance of Discount Notes was higher in the first six months of June 30, 2020 compared to the average for all of 2019 due to the growth in short-term and variable-rate Advances across our membership at the end of the first quarter of 2020 as the financial markets reacted to the COVID-19 pandemic. The decrease in swapped Discount Notes at June 30, 2020 was driven by our preference to use unswapped Discount Notes and unswapped adjustable-rate Bonds in the current market environment.

The balance of unswapped fixed-rate Bonds, which typically have initial maturities greater than one year, declined in the first six months of 2020 compared to the same period in 2019 driven by actions taken to terminate higher coupon fixed-rate Bonds with embedded options as interest rates fell.

Deposits

Total deposits with us are normally a relatively minor source of low-cost funding. Total interest-bearing deposits at June 30, 2020 were $1.2 billion, an increase of $0.3 billion from year-end 2019.

Derivatives Hedging Activity and Liquidity

Our use of derivatives is discussed in the "Effect of the Use of Derivatives on Net Interest Income" section in "Results of Operations." Liquidity is discussed in the "Liquidity Risk" section in “Quantitative and Qualitative Disclosures About Risk Management.”

Capital Resources

The following tables present capital amounts and capital-to-assets ratios, on both a GAAP and regulatory basis. We consider the regulatory ratio to be a better representation of financial leverage than the GAAP ratio because, although the GAAP ratio treats mandatorily redeemable capital stock as a liability, it protects investors in our debt in the same manner as GAAP capital stock and retained earnings.

(In millions)	Six Months Ended June 30, 2020		Year Ended December 31, 2019	
	Period End	Average	Period End	Average
GAAP and Regulatory Capital				
GAAP Capital Stock	$ 3,813	$ 3,957	$ 3,367	$ 3,827
Mandatorily Redeemable Capital Stock	19	92	22	25
Regulatory Capital Stock	3,832	4,049	3,389	3,852
Retained Earnings	1,247	1,177	1,094	1,069
Regulatory Capital	$ 5,079	$ 5,226	$ 4,483	$ 4,921

	Six Months Ended June 30, 2020		Year Ended December 31, 2019	
	Period End	Average	Period End	Average
GAAP and Regulatory Capital-to-Assets Ratio				
GAAP	5.56 %	5.09 %	4.75 %	5.04 %
Regulatory (1)	5.60	5.20	4.79	5.08

(1) At all times, the FHLBanks must maintain at least a four percent minimum regulatory capital-to-assets ratio.

See the "Capital Adequacy" section in “Quantitative and Qualitative Disclosures About Risk Management” for discussion of our retained earnings.

A portion of our capital stock is excess, meaning it is not required as a condition to being a member and is not currently capitalizing Mission Asset Activity. Excess capital stock provides a base of capital to manage financial leverage at prudent levels, augments loss protections for bondholders, and may be used to capitalize a portion of growth in Mission Assets. At June 30, 2020, the amount of excess stock, as defined by our Capital Plan, was $413 million, an increase of $376 million from year-end 2019. The balance of excess stock grew in the second quarter as many Advances matured or prepaid. The increase in GAAP and regulatory capital balances and the related capital-to-assets ratios was primarily due to members purchasing $2.1 billion of capital stock to support Advance growth in the first quarter of 2020. The purchases of capital stock were offset by our repurchase of $950 million of excess stock in the second quarter of 2020.

Membership and Stockholders

In the first six months of 2020, we added two new member stockholders and lost 13 member stockholders, ending the quarter at 629 member stockholders. The decline in membership during the first six months of 2020 was primarily attributable to intra-district merger activity.

RESULTS OF OPERATIONS

Components of Earnings and Return on Equity

The following table is a summary income statement for the three and six months ended June 30, 2020 and 2019. Each ROE percentage is computed by dividing income or expense for the category by the average amount of stockholders' equity for the period.

(Dollars in millions)	Three Months Ended June 30,				Six Months Ended June 30,			
	2020		2019		2020		2019	
	Amount	ROE (1)	Amount	ROE (1)	Amount	ROE (1)	Amount	ROE (1)
Net interest income	$ 149	10.71 %	$ 97	7.72 %	$ 232	9.11 %	$ 220	8.54 %
Non-interest income (loss):								
Net gains (losses) on investment securities	(11)	(0.74)	171	13.59	362	14.23	194	7.52
Net gains (losses) on derivatives and hedging activities	(34)	(2.43)	(152)	(12.06)	(328)	(12.89)	(178)	(6.92)
Net gains (losses) on financial instruments held under fair value option	26	1.84	(25)	(1.96)	(25)	(0.99)	(42)	(1.63)
Other non-interest income, net	4	0.26	3	0.22	6	0.26	5	0.21
Total non-interest income (loss)	(15)	(1.07)	(3)	(0.21)	15	0.61	(21)	(0.82)
Total income	134	9.64	94	7.51	247	9.72	199	7.72
Non-interest expense	24	1.72	23	1.85	48	1.90	46	1.78
Affordable Housing Program assessments	11	0.80	7	0.57	20	0.78	16	0.60
Net income	$ 99	7.12 %	$ 64	5.09 %	$ 179	7.04 %	$ 137	5.34 %

(1) The ROE amounts have been computed using dollars in thousands. Accordingly, recalculations based upon the disclosed amounts in millions may produce nominally different results.

Details on the individual factors contributing to the level and changes in profitability are explained in the sections below.

Net Interest Income

Components of Net Interest Income

The following table shows selected components of net interest income.

(Dollars in millions)	Three Months Ended June 30, 2020 Amount	2020 % of Earning Assets	2019 Amount	2019 % of Earning Assets	Six Months Ended June 30, 2020 Amount	2020 % of Earning Assets	2019 Amount	2019 % of Earning Assets
Components of net interest rate spread:								
Net (amortization)/accretion [1] [2]	$ (28)	(0.11)%	$ (8)	(0.03)%	$ (50)	(0.10)%	$ (11)	(0.02)%
Prepayment fees on Advances, net [2]	13	0.05	—	—	18	0.03	—	—
Other components of net interest rate spread	158	0.61	73	0.30	239	0.49	165	0.33
Total net interest rate spread	143	0.55	65	0.27	207	0.42	154	0.31
Earnings from funding assets with interest-free capital	6	0.03	32	0.13	25	0.05	66	0.13
Total net interest income/net interest margin [3]	$ 149	0.58 %	$ 97	0.40 %	$ 232	0.47 %	$ 220	0.44 %

(1) Includes monthly recognition of premiums and discounts paid on purchases of mortgage assets, premiums, discounts and concessions paid on Consolidated Obligations and other hedging basis adjustments.
(2) This component of net interest rate spread has been segregated to display its relative impact.
(3) Net interest margin is net interest income as a percentage of average total interest-earning assets.

Net Amortization/Accretion (generally referred to as "amortization"): While net amortization has been moderate over the past few years, it can become substantial and volatile when mortgage rates decrease. Amortization in the three and six months ended June 30, 2020 increased compared to the same periods in 2019 primarily due to a decline in mortgage rates, which led to accelerated prepayments of mortgage assets in the first half of 2020. We expect the trend of faster prepayments to continue throughout 2020 unless mortgage rates rise.

Prepayment Fees on Advances: Fees for members' early repayment of certain Advances, which are included in net interest income, are designed to make us economically indifferent to whether members hold Advances to maturity or repay them before maturity. Although Advance prepayment fees have been minimal in recent years, they grew in the three and six months ended June 30, 2020. The growth in Advance prepayment fees was due to a higher amount of member prepayments of Advances as interest rates declined and due to the U.S. government's actions to provide liquidity to support the economy.

Other Components of Net Interest Rate Spread: The total other components of net interest rate spread increased $85 million and $74 million in the three- and six-months comparison periods, respectively. The net increases were primarily due to the factors below.

Six-Months Comparison

- **Higher spreads on liquidity investment balances-*Favorable*:** Higher spreads on liquidity investments improved net interest income by an estimated $77 million as the rates on the debt funding these investments declined. However, the increase in net interest income was substantially offset by earnings reductions recognized in non-interest income from an increase of $53 million in net interest payments on related derivatives not receiving hedge accounting and from an estimated $9 million market value decline reflecting the impact of purchased premiums on certain trading securities.
- **Growth in average MPP balances-*Favorable*:** The $1.3 billion increase in the average balance of mortgage loans held for portfolio improved net interest income by an estimated $7 million.
- **Higher spreads on Advances-*Favorable*:** Higher spreads earned on certain Advances increased net interest income by an estimated $6 million. The higher spreads were a result of a temporary widening of basis spreads which reduced funding costs for floating-rate and shorter-term Advances. The Advance portfolio also benefited from a decrease of $26 million in net interest payments on related derivatives not receiving hedge accounting, which was reflected in non-interest income (loss).

- **Higher spreads on mortgage-backed securities - *Favorable*:** Higher spreads earned on mortgage-backed securities increased net interest income by an estimated $5 million. The higher spreads were driven by wider spreads between LIBOR-indexed securities and Discount Note funding.
- **Losses on designated fair value hedges-*Unfavorable*:** Net unrealized losses on hedged items and derivatives in qualifying fair value hedge relationships lowered net interest income by $9 million.
- **Lower average balances of mortgage-backed securities -*Unfavorable*:** The $3.1 billion decrease in the average balance of mortgage-backed securities decreased net interest income by an estimated $7 million.
- **Lower spreads on MPP balances-*Unfavorable*:** Lower spreads on MPP balances decreased net interest income by an estimated $7 million due to the falling interest rate environment.

Three-Months Comparison

Except for the unrealized losses on fair value hedges, which were gains in the three-months comparison, the same factors generally affected the other components of net interest rate spread as in the six-months comparison and by approximately the same relative magnitude.

The three-months comparison period was also impacted by an increase of $13.5 billion in average Advance balances which benefited net interest income by an estimated $8 million. In addition, a decrease of $5.3 billion in average liquidity investment balances reduced net interest income by an estimated $3 million in the three-months comparison period.

Earnings from Capital: Earnings from capital decreased $26 million and $41 million in the three and six months ended June 30, 2020, respectively, compared to the same periods in 2019 primarily due to average short-term rates declining more than 170 basis points as the Federal Reserve responded to the evolving risks to economic activity from the COVID-19 pandemic.

Average Balance Sheet and Rates

The following table provides average balances and rates for major balance sheet accounts, which determine the changes in net interest rate spreads. Interest amounts and average rates are affected by our use of derivatives and the related accounting elections we make. Interest amounts reported for Advances, MBS, Other investments and Swapped Bonds include gains (losses) on hedged items and derivatives in qualifying fair value hedge relationships.

In addition, the net interest settlements of interest receivables or payables associated with derivatives in a fair value hedge relationship are included in net interest income and interest rate spread. However, if the derivatives do not qualify for fair value hedge accounting, the related net interest settlements of interest receivables or payables are recorded in "Non-interest income (loss)" as "Net gains (losses) on derivatives and hedging activities" and therefore are excluded from the calculation of net interest rate spread. Amortization associated with some hedging-related basis adjustments is also reflected in net interest income, which affects interest rate spread.

(Dollars in millions)	Three Months Ended June 30, 2020			Three Months Ended June 30, 2019		
	Average Balance	Interest	Average Rate (1)	Average Balance	Interest	Average Rate (1)
Assets:						
Advances	$ 62,445	$ 172	1.11 %	$ 48,901	$ 321	2.63 %
Mortgage loans held for portfolio (2)	11,963	74	2.49	10,557	86	3.25
Federal funds sold and securities purchased under resale agreements	4,154	1	0.08	13,261	81	2.46
Interest-bearing deposits in banks (3) (4) (5)	1,467	—	0.11	1,293	8	2.45
Mortgage-backed securities (4)	12,212	48	1.59	15,582	104	2.67
Other investments (4)	12,163	68	2.26	8,209	46	2.26
Loans to other FHLBanks	—	—	—	8	—	2.43
Total interest-earning assets	104,404	363	1.40	97,811	646	2.65
Less: allowance for credit losses on mortgage loans	—			1		
Other assets	3,099			432		
Total assets	$ 107,503			$ 98,242		
Liabilities and Capital:						
Term deposits	$ 51	—	1.07	$ 59	—	2.48
Other interest bearing deposits (5)	1,266	—	0.02	661	4	2.19
Discount Notes	63,084	83	0.53	40,148	244	2.44
Unswapped fixed-rate Bonds	19,152	108	2.27	25,448	145	2.28
Unswapped adjustable-rate Bonds	12,702	5	0.14	19,405	121	2.50
Swapped Bonds	4,393	17	1.58	6,655	35	2.09
Mandatorily redeemable capital stock	133	1	2.61	23	—	5.01
Other borrowings	—	—	—	—	—	—
Total interest-bearing liabilities	100,781	214	0.85	92,399	549	2.38
Non-interest bearing deposits	—			9		
Other liabilities	1,106			774		
Total capital	5,616			5,060		
Total liabilities and capital	$ 107,503			$ 98,242		
Net interest rate spread			0.55 %			0.27 %
Net interest income and net interest margin (6)		$ 149	0.58 %		$ 97	0.40 %
Average interest-earning assets to interest-bearing liabilities			103.60 %			105.86 %

(1) Amounts used to calculate average rates are based on dollars in thousands. Accordingly, recalculations based upon the disclosed amounts in millions may not produce the same results.
(2) Non-accrual loans are included in average balances used to determine average rate.
(3) Includes certificates of deposit that are classified as available-for-sale securities.
(4) Includes available-for-sale securities based on their amortized costs. The yield information does not give effect to changes in fair value that are reflected as a component of stockholders' equity for available-for-sale securities.
(5) The average balance amounts include the rights or obligations to cash collateral, which are included in the fair value of derivative assets or derivative liabilities on the Statements of Condition at period end.
(6) Net interest margin is net interest income as a percentage of average total interest-earning assets.

(Dollars in millions)	Six Months Ended June 30, 2020			Six Months Ended June 30, 2019		
	Average Balance	Interest	Average Rate [1]	Average Balance	Interest	Average Rate [1]
Assets:						
Advances	$ 52,872	$ 348	1.32 %	$ 55,080	$ 724	2.65 %
Mortgage loans held for portfolio [2]	11,865	163	2.77	10,535	174	3.34
Federal funds sold and securities purchased under resale agreements	7,385	40	1.07	13,422	164	2.47
Interest-bearing deposits in banks [3] [4] [5]	1,630	7	0.85	1,754	23	2.59
Mortgage-backed securities [4]	12,631	116	1.85	15,726	210	2.69
Other investments [4]	12,033	137	2.29	4,590	52	2.29
Loans to other FHLBanks	10	—	1.22	6	—	2.43
Total interest-earning assets	98,426	811	1.66	101,113	1,347	2.69
Less: allowance for credit losses on mortgage loans	—			1		
Other assets	2,011			373		
Total assets	$100,437			$101,485		
Liabilities and Capital:						
Term deposits	$ 42	—	1.38	$ 60	1	2.43
Other interest bearing deposits [5]	1,153	3	0.50	636	7	2.20
Discount Notes	56,391	259	0.93	45,866	556	2.44
Unswapped fixed-rate Bonds	20,312	239	2.36	25,744	289	2.26
Unswapped adjustable-rate Bonds	11,760	40	0.68	17,788	219	2.49
Swapped Bonds	4,596	37	1.64	5,454	54	2.02
Mandatorily redeemable capital stock	92	1	2.29	24	1	5.51
Other borrowings	—	—	—	—	—	—
Total interest-bearing liabilities	94,346	579	1.24	95,572	1,127	2.38
Non-interest bearing deposits	5			9		
Other liabilities	969			717		
Total capital	5,117			5,187		
Total liabilities and capital	$100,437			$101,485		
Net interest rate spread			0.42 %			0.31 %
Net interest income and net interest margin [6]		$ 232	0.47 %		$ 220	0.44 %
Average interest-earning assets to interest-bearing liabilities			104.32 %			105.80 %

(1) Amounts used to calculate average rates are based on dollars in thousands. Accordingly, recalculations based upon the disclosed amounts in millions may not produce the same results.
(2) Non-accrual loans are included in average balances used to determine average rate.
(3) Includes certificates of deposit that are classified as available-for-sale securities.
(4) Includes available-for-sale securities based on their amortized costs. The yield information does not give effect to changes in fair value that are reflected as a component of stockholders' equity for available-for-sale securities.
(5) The average balance amounts include the rights or obligations to cash collateral, which are included in the fair value of derivative assets or derivative liabilities on the Statements of Condition at period end.
(6) Net interest margin is net interest income as a percentage of average total interest-earning assets.

Rates on most of our interest-bearing assets and liabilities decreased in the three and six months ended June 30, 2020 compared to the same periods in 2019 due to the decline in interest rates. Average rates on short-term assets and liabilities declined more notably as they repriced quicker to lower rates.

Volume/Rate Analysis

Changes in both average balances (volume) and interest rates influence changes in net interest income, as shown in the following table.

(In millions)	Three Months Ended June 30, 2020 over 2019			Six Months Ended June 30, 2020 over 2019		
	Volume (1)(3)	Rate (2)(3)	Total	Volume (1)(3)	Rate (2)(3)	Total
Increase (decrease) in interest income						
Advances	$ 72	$ (221)	$ (149)	$ (28)	$ (348)	$ (376)
Mortgage loans held for portfolio	10	(22)	(12)	20	(31)	(11)
Federal funds sold and securities purchased under resale agreements	(33)	(47)	(80)	(55)	(69)	(124)
Interest-bearing deposits in banks	1	(9)	(8)	(2)	(14)	(16)
MBS	(19)	(37)	(56)	(36)	(58)	(94)
Other investments	22	—	22	85	—	85
Loans to other FHLBanks	—	—	—	—	—	—
Total	53	(336)	(283)	(16)	(520)	(536)
Increase (decrease) in interest expense						
Term deposits	—	—	—	—	(1)	(1)
Other interest-bearing deposits	2	(6)	(4)	3	(7)	(4)
Discount Notes	93	(254)	(161)	106	(403)	(297)
Unswapped fixed-rate Bonds	(36)	(1)	(37)	(63)	13	(50)
Unswapped adjustable-rate Bonds	(31)	(85)	(116)	(57)	(122)	(179)
Swapped Bonds	(10)	(8)	(18)	(8)	(9)	(17)
Mandatorily redeemable capital stock	1	—	1	1	(1)	—
Other borrowings	—	—	—	—	—	—
Total	19	(354)	(335)	(18)	(530)	(548)
Increase (decrease) in net interest income	$ 34	$ 18	$ 52	$ 2	$ 10	$ 12

(1) Volume changes are calculated as the change in volume multiplied by the prior year rate.
(2) Rate changes are calculated as the change in rate multiplied by the prior year average balance.
(3) Changes that are not identifiable as either volume-related or rate-related, but rather are equally attributable to both volume and rate changes, have been allocated to the volume and rate categories based upon the proportion of the absolute value of the volume and rate changes.

Effect of the Use of Derivatives on Net Interest Income

The following table shows the impact on net interest income from the effect of derivatives and hedging activities. As noted above, gains (losses) on hedged items and derivatives in qualifying fair value hedge relationships are recorded in interest income or expense. In addition, for derivatives designated as a fair value hedge, the net interest settlements of interest receivables or payables related to such derivatives are recognized as adjustments to the interest income or expense of the designated hedged item. As such, all the effects on earnings of derivatives qualifying for fair value hedge accounting are reflected in net interest income. The effect on earnings from derivatives not receiving hedge accounting is provided in the "Non-Interest Income (Loss)" section below.

(In millions)	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	2019	2020	2019
Advances:				
Gains (losses) on designated fair value hedges	$ 2	$ (2)	$ (11)	$ (2)
Net interest settlements included in net interest income	(19)	12	(21)	25
Investment securities:				
Net interest settlements included in net interest income	(1)	—	(1)	—
Mortgage loans:				
Amortization of derivative fair value adjustments in net interest income	(3)	(1)	(5)	(1)
Consolidated Obligation Bonds:				
Net interest settlements included in net interest income	1	—	1	—
Increase (decrease) to net interest income	$ (20)	$ 9	$ (37)	$ 22

Most of our use of derivatives is to synthetically convert the fixed interest rates on certain Advances, investments and Consolidated Obligations to adjustable rates tied to an eligible benchmark rate (e.g., LIBOR, the Federal funds effective rate, or SOFR). The negative net effect of derivatives on net interest income in the three and six months of 2020 was primarily due to lower short-term benchmark interest rates in the three and six months ended June 30, 2020 compared to the same periods in 2019, which resulted in net interest settlements being paid, rather than received, on certain Advances where the fixed interest rates were converted to adjustable-coupon rates. The fluctuation in earnings from the use of derivatives was acceptable because it enabled us to lower market risk exposure by matching actual cash flows between assets and liabilities more closely than would otherwise occur.

Non-Interest Income (Loss)

Non-interest income (loss) consists of certain realized and unrealized gains (losses) on investment securities, derivatives activities, financial instruments held under the fair value option, and other non-interest earning activities. The following tables present the net effect of derivatives and hedging activities on non-interest income (loss). The effects of derivatives and hedging activities on non-interest income relate only to derivatives not qualifying for fair value hedge accounting.

(In millions)	Advances	Investment Securities	Mortgage Loans	Bonds	Discount Notes	Balance Sheet [1]	Other	Total
Three Months Ended June 30, 2020								
Net effect of derivatives and hedging activities								
Gains (losses) on derivatives not receiving hedge accounting	$ —	$ 18	$ (7)	$ (3)	$ (13)	$ (2)	$ —	$ (7)
Net interest settlements on derivatives not receiving hedge accounting	—	(49)	—	9	13	—	—	(27)
Price alignment amount	—	—	—	—	—	—	—	—
Net gains (losses) on derivatives and hedging activities	—	(31)	(7)	6	—	(2)	—	(34)
Gains (losses) on trading securities [2]	—	(11)	—	—	—	—	—	(11)
Gains (losses) on financial instruments held under fair value option [3]	—	—	—	12	14	—	—	26
Total net effect on non-interest income	$ —	$ (42)	$ (7)	$ 18	$ 14	$ (2)	$ —	$ (19)
Three Months Ended June 30, 2019								
Net effect of derivatives and hedging activities								
Gains (losses) on derivatives not receiving hedge accounting	$ (1)	$ (175)	$ 1	$ 28	$ —	$ (3)	$ —	$ (150)
Net interest settlements on derivatives not receiving hedge accounting	—	5	—	(8)	—	—	—	(3)
Price alignment amount	—	—	—	—	—	—	1	1
Net gains (losses) on derivatives and hedging activities	(1)	(170)	1	20	—	(3)	1	(152)
Gains (losses) on trading securities [2]	—	171	—	—	—	—	—	171
Gains (losses) on financial instruments held under fair value option [3]	—	—	—	(25)	—	—	—	(25)
Total net effect on non-interest income	$ (1)	$ 1	$ 1	$ (5)	$ —	$ (3)	$ 1	$ (6)

(In millions)	Advances	Investment Securities	Mortgage Loans	Bonds	Discount Notes	Balance Sheet [1]	Other	Total
Six Months Ended June 30, 2020								
Net effect of derivatives and hedging activities								
Gains (losses) on derivatives not receiving hedge accounting	$ (9)	$ (387)	$ (15)	$ 28	$ 1	$ 91	$ —	$ (291)
Net interest settlements on derivatives not receiving hedge accounting	1	(68)	—	9	20	—	—	(38)
Price alignment amount	—	—	—	—	—	—	1	1
Net gains (losses) on derivatives and hedging activities	(8)	(455)	(15)	37	21	91	1	(328)
Gains (losses) on trading securities [2]	—	362	—	—	—	—	—	362
Gains (losses) on financial instruments held under fair value option [3]	—	—	—	(25)	—	—	—	(25)
Total net effect on non-interest income	$ (8)	$ (93)	$ (15)	$ 12	$ 21	$ 91	$ 1	$ 9
Six Months Ended June 30, 2019								
Net effect of derivatives and hedging activities								
Gains (losses) on derivatives not receiving hedge accounting	$ (2)	$ (200)	$ 3	$ 47	$ —	$ (16)	$ —	$ (168)
Net interest settlements on derivatives not receiving hedge accounting	1	5	—	(17)	—	—	—	(11)
Price alignment amount	—	—	—	—	—	—	1	1
Net gains (losses) on derivatives and hedging activities	(1)	(195)	3	30	—	(16)	1	(178)
Gains (losses) on trading securities [2]	—	194	—	—	—	—	—	194
Gains (losses) on financial instruments held under fair value option [3]	—	—	—	(42)	—	—	—	(42)
Total net effect on non-interest income	$ (1)	$ (1)	$ 3	$ (12)	$ —	$ (16)	$ 1	$ (26)

(1) Balance sheet includes swaptions, which are not designated as hedging a specific financial instrument.
(2) Includes only those gains (losses) on trading securities that have an assigned economic derivative; therefore, this line item may not agree to the Statement of Income.
(3) Includes only those gains or losses on financial instruments held at fair value that have an economic derivative "assigned."

The net amount of income volatility in derivatives and hedging activities was moderate and consistent with the close hedging relationships of our derivative transactions. Most of the volatility was a result of both unrealized fair value gains and losses on instruments we expect to hold to maturity and the sale of certain swaptions as interest rates fell to historically low levels during the first quarter of 2020. We use swaptions to hedge market risk exposure associated with fixed-rate mortgage assets and may sell swaptions as interest rates change in order to offset actual and anticipated risks associated with holding fixed-rate mortgage assets.

At June 30, 2020, we held $12.0 billion of fixed-rate U.S. Treasury and GSE obligations and swapped them to a variable rate. These investments are classified as trading securities and are recorded at fair value, with changes in fair value reported in non-interest income (loss). There are a number of factors that affect the fair value of these securities, including changes in interest rates, the passage of time, and volatility. By hedging these trading securities, the gains or losses on these securities will generally be offset by the changes in fair value of the associated interest rate swaps. In the first six months of 2020, a significant decline in longer-term interest rates led to large market value gains on investments held as trading securities and corresponding market value losses on the swaps hedging those investments.

Non-Interest Expense

The following table presents non-interest expense and related financial ratios.

	Three Months Ended June 30,		Six Months Ended June 30,	
(Dollars in millions)	2020	2019	2020	2019
Non-interest expense				
Compensation and benefits	$ 12	$ 11	$ 25	$ 24
Other operating expense	5	5	11	11
Finance Agency	2	2	3	3
Office of Finance	1	1	3	3
Other	4	4	6	5
Total non-interest expense	$ 24	$ 23	$ 48	$ 46
Average total assets	$ 107,503	$ 98,242	$ 100,437	$ 101,485
Average regulatory capital	5,766	5,096	5,226	5,224
Total non-interest expense to average total assets (1)	0.09 %	0.10 %	0.10 %	0.09 %
Total non-interest expense to average regulatory capital (1)	1.68	1.84	1.86	1.77

(1) Amounts used to calculate percentages are based on dollars in thousands. Accordingly, recalculations based upon the disclosed amounts in millions may not produce the same results.

Total non-interest expense remained relatively stable for the three and six months ended June 30, 2020 compared to same periods in 2019.

Segment Information

Note 13 of the Notes to Unaudited Financial Statements presents information on our two operating business segments. We manage financial operations and market risk exposure primarily at the macro level, and within the context of the entire balance sheet, rather than exclusively at the level of individual segments. Under this approach, the market risk/return profile of each segment may not match, or possibly even have the same trends as, what would occur if we managed each segment on a stand-alone basis. The tables below summarize each segment's operating results for the periods shown.

(Dollars in millions)	Traditional Member Finance	MPP	Total
Three Months Ended June 30, 2020			
Net interest income	$ 139	$ 10	$ 149
Net income (loss)	$ 99	$ —	$ 99
Average assets	$ 95,499	$ 12,004	$ 107,503
Assumed average capital allocation	$ 4,988	$ 628	$ 5,616
Return on average assets [(1)]	0.42 %	— %	0.37 %
Return on average equity [(1)]	8.02 %	(0.02)%	7.12 %
Three Months Ended June 30, 2019			
Net interest income	$ 70	$ 27	$ 97
Net income	$ 43	$ 21	$ 64
Average assets	$ 84,755	$ 13,487	$ 98,242
Assumed average capital allocation	$ 4,365	$ 695	$ 5,060
Return on average assets [(1)]	0.20 %	0.63 %	0.26 %
Return on average equity [(1)]	3.97 %	12.16 %	5.09 %

(Dollars in millions)	Traditional Member Finance	MPP	Total
Six Months Ended June 30, 2020			
Net interest income	$ 204	$ 28	$ 232
Net income	$ 117	$ 62	$ 179
Average assets	$ 88,419	$ 12,018	$ 100,437
Assumed average capital allocation	$ 4,505	$ 612	$ 5,117
Return on average assets [(1)]	0.27 %	1.03 %	0.36 %
Return on average equity [(1)]	5.24 %	20.28 %	7.04 %
Six Months Ended June 30, 2019			
Net interest income	$ 161	$ 59	$ 220
Net income	$ 96	$ 41	$ 137
Average assets	$ 88,084	$ 13,401	$ 101,485
Assumed average capital allocation	$ 4,502	$ 685	$ 5,187
Return on average assets [(1)]	0.22 %	0.62 %	0.27 %
Return on average equity [(1)]	4.31 %	12.13 %	5.34 %

(1) Amounts used to calculate returns are based on numbers in thousands. Accordingly, recalculations based upon the disclosed amounts in millions may not produce the same results.

Traditional Member Finance Segment

Net income increased in the three- and six-months comparison periods primarily due to higher spreads earned on certain Advances and liquidity investments as well as an increase in prepayment fees on Advances. The three-months comparison period also increased as a result of higher average Advance balances experienced in the second quarter of 2020. By the end of the second quarter of 2020, Advance balances fell to levels comparable to year-end 2019. The favorable factors noted were offset by lower earnings from funding assets with interest-free capital.

MPP Segment

In the first six months of 2020, the MPP continued to earn a substantial level of profitability compared to market interest rates, with a moderate amount of market risk and a minimal amount of credit risk. In the first six months of 2020, the MPP averaged 12 percent of total average assets while accounting for 34 percent of earnings. Net income increased in the six-months comparison period due to net gains on derivatives and hedging activities, which resulted from the sale of certain swaptions as rates fell to historically low levels in the first quarter of 2020. Net interest income decreased in both the three- and six-months comparison periods due to higher net amortization given the low mortgage rate environment. We expect the trend of higher net amortization to continue throughout 2020 unless mortgage rates rise. In addition, net income decreased in the three-months comparison period due to lower spreads earned on MPP balances as a result of the falling interest rate environment and due to net losses on derivatives and hedging activities.

QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT RISK MANAGEMENT

Market Risk

Market Value of Equity and Duration of Equity - Entire Balance Sheet

Two key measures of long-term market risk exposure are the sensitivities of the market value of equity and the duration of equity to changes in interest rates and other variables, as presented in the following tables for various instantaneous and permanent interest rate shocks (in basis points). We compiled average results using data for each month end. Given the current level of rates, some down rate shocks are nonparallel scenarios, with short-term rates decreasing less than long-term rates such that no rate falls below zero.

Market Value of Equity

(Dollars in millions)	Down 300	Down 200	Down 100	Flat Rates	Up 100	Up 200	Up 300
Average Results							
2020 Year-to-Date							
Market Value of Equity	$ 4,978	$ 4,978	$ 4,973	$ 5,063	$ 5,182	$ 5,083	$ 4,938
% Change from Flat Case	(1.7)%	(1.7)%	(1.8)%	—	2.4 %	0.4 %	(2.5)%
2019 Full Year							
Market Value of Equity	$ 4,545	$ 4,580	$ 4,652	$ 4,729	$ 4,674	$ 4,586	$ 4,528
% Change from Flat Case	(3.9)%	(3.1)%	(1.6)%	—	(1.1)%	(3.0)%	(4.3)%
Month-End Results							
June 30, 2020							
Market Value of Equity	$ 4,779	$ 4,779	$ 4,781	$ 4,846	$ 4,913	$ 4,728	$ 4,487
% Change from Flat Case	(1.4)%	(1.4)%	(1.3)%	—	1.4 %	(2.4)%	(7.4)%
December 31, 2019							
Market Value of Equity	$ 4,257	$ 4,262	$ 4,236	$ 4,372	$ 4,313	$ 4,213	$ 4,144
% Change from Flat Case	(2.6)%	(2.5)%	(3.1)%	—	(1.3)%	(3.6)%	(5.2)%

Duration of Equity

(In years)	Down 300	Down 200	Down 100	Flat Rates	Up 100	Up 200	Up 300
Average Results							
2020 Year-to-Date	—	—	(0.5)	(3.0)	0.3	3.0	2.5
2019 Full Year	(0.8)	(1.4)	(1.7)	(0.8)	1.7	1.4	1.1
Month-End Results							
June 30, 2020	—	—	(1.1)	(1.2)	1.5	5.3	6.8
December 31, 2019	(0.1)	0.6	(2.1)	(1.2)	2.0	1.7	1.4

The overall market risk exposure to changing interest rates was within policy limits during the periods presented. At June 30, 2020, exposure to falling interest rates in the down shock scenarios was muted as some rates become floored at near zero rate levels. Exposure to moderate rising rate shocks decreased due to the reduction in all market rates that occurred during the first quarter of 2020. The duration of equity provides an estimate of the change in market value of equity for a 1.00 percentage point further change in interest rates from the rate shock level.

Based on the totality of our risk analysis, we expect that profitability, defined as the level of ROE compared with short-term market rates, will remain competitive over the long term unless interest rates change by large amounts in a short period of time. Further declines in long-term interest rates could substantially decrease income in the near term (one to two years) before reverting over time to average levels. This temporary reduction in income would be driven by the accelerated recognition of mortgage asset premiums as the incentive for borrowers to refinance results in faster than anticipated repayments of those mortgage assets.

Market Risk Exposure of the Mortgage Assets Portfolio

The mortgage assets portfolio normally accounts for almost all market risk exposure because of prepayment volatility that we cannot completely hedge while maintaining sufficient net spreads. Sensitivities of the market value of equity allocated to the mortgage assets portfolio under interest rate shocks (in basis points) are shown below. The average mortgage assets portfolio had an assumed capital allocation of $1.3 billion in the first six months of 2020 based on the entire balance sheet's average regulatory capital-to-assets ratio. Average results shown in the table below are compiled using data for each month end. The market value sensitivities are one measure we use to analyze the portfolio's estimated market risk exposure.

% Change in Market Value of Equity-Mortgage Assets Portfolio

	Down 300	Down 200	Down 100	Flat Rates	Up 100	Up 200	Up 300
Average Results							
2020 Year-to-Date	(15.0)%	(15.0)%	(14.7)%	—	12.5 %	3.9 %	(9.6)%
2019 Full Year	(28.6)%	(24.1)%	(10.4)%	—	(2.4)%	(8.3)%	(11.7)%
Month-End Results							
June 30, 2020	(15.7)%	(15.7)%	(15.5)%	—	12.1 %	(1.4)%	(21.2)%
December 31, 2019	(17.7)%	(17.2)%	(12.5)%	—	(5.6)%	(14.6)%	(20.5)%

The average risk exposure of the mortgage assets portfolio in the first six months of 2020 remained aligned with our preference to keep our exposure to market risk at a low to moderate level. The variances between periods primarily reflect the impact of lower long-term interest rates observed in the first six months of 2020. These lower long-term interest rates result in reduced exposure to moderate rising rate shocks and muted exposure to falling rate shocks as they become floored when they reach near zero rate levels. We believe the mortgage asset portfolio will continue to provide an acceptable risk adjusted return consistent with our risk appetite philosophy.

Capital Adequacy

Retained Earnings

We must hold sufficient capital to protect against exposure to various risks, including market, credit, and operational. We regularly conduct a variety of measurements and assessments for capital adequacy. At June 30, 2020, our capital management policy set forth approximately $500 million as the minimum amount of retained earnings we believe is necessary to mitigate impairment risk.

The following table presents retained earnings.

(In millions)	June 30, 2020	December 31, 2019
Unrestricted retained earnings	$ 765	$ 648
Restricted retained earnings (1)	482	446
Total retained earnings	$ 1,247	$ 1,094

(1) Pursuant to the FHLBank System's Joint Capital Enhancement Agreement we are not permitted to distribute as dividends.

As indicated in the table above, our current balance of retained earnings exceeds the policy minimum, which we expect will continue to be the case as we bolster capital adequacy over time by allocating a portion of earnings to the restricted retained earnings account.

Market Capitalization Ratios

We measure two sets of market capitalization ratios. One measures the market value of equity (i.e., total capital) relative to the par value of regulatory capital stock (which is GAAP capital stock and mandatorily redeemable capital stock). The other measures the market value of total capital relative to the book value of total capital, which includes all components of capital, and mandatorily redeemable capital stock. The measures provide a point-in-time indication of the FHLB's liquidation or franchise value and can also serve as a measure of realized or potential market risk exposure. The down shocks used are either 100 or 200 basis points depending on the benchmark interest rate levels at the time.

The following table presents the market value of equity to regulatory capital stock (excluding retained earnings) for several interest rate environments.

	June 30, 2020	December 31, 2019
Market Value of Equity to Par Value of Regulatory Capital Stock - Base Case (Flat Rates) Scenario	126 %	129 %
Market Value of Equity to Par Value of Regulatory Capital Stock - Down Shock (1)	125	125
Market Value of Equity to Par Value of Regulatory Capital Stock - Up Shock (2)	123	124

(1) Represents a down shock of 100 basis points.
(2) Represents an up shock of 200 basis points.

A base case value below 100 percent could indicate that, in the remote event of an immediate liquidation scenario involving redemption of all capital stock, capital stock may be returned to stockholders at a value below par. This could be due to experiencing risks that lower the market value of capital and/or to having an insufficient amount of retained earnings. In the first six months of 2020, the market capitalization ratios in the scenarios presented continued to be above our policy requirements. The base case ratio at June 30, 2020 was well above 100 percent because retained earnings were 33 percent of regulatory capital stock and we maintained risk exposures at moderate levels.

The following table presents the market value of equity to the book value of total capital and mandatorily redeemable capital stock.

	June 30, 2020	December 31, 2019
Market Value of Equity to Book Value of Capital - Base Case (Flat Rates) Scenario (1)	96 %	98 %
Market Value of Equity to Book Value of Capital - Down Shock (1)(2)	94	95
Market Value of Equity to Book Value of Capital - Up Shock (1)(3)	93	94

(1) Capital includes total capital and mandatorily redeemable capital stock.
(2) Represents a down shock of 100 basis points.
(3) Represents an up shock of 200 basis points.

A base-case value below 100 percent indicates that we have realized or could realize risks (especially market risk), such that the market value of total capital owned by stockholders is below the book value of total capital. The base-case ratio of 96 percent at June 30, 2020 indicates that the market value of total capital is $217 million below the book value of total capital. In a scenario in which interest rates increase 200 basis points, the market value of total capital would be $335 million below the book value of total capital. This indicates that in a liquidation scenario, stockholders would not receive the full sum of their total equity ownership in the FHLB. We believe the likelihood of a liquidation scenario is extremely remote; and therefore, we accept the risk of diluting equity ownership in such a scenario.

Credit Risk

Overview

Our business entails a significant amount of inherent credit risk exposure. We believe our risk management practices, discussed below, bring the amount of residual credit risk to a minimal level. We have no loan loss reserves or impairment recorded for Credit Services, investments, and derivatives and a minimal amount of legacy credit risk exposure to the MPP.

Credit Services

Overview: We have policies and practices to manage credit risk exposure from our secured lending activities, which include Advances and Letters of Credit. The objective of our credit risk management is to equalize risk exposure across members and counterparties to a zero level of expected losses, consistent with our conservative risk management principles and desire to have no residual credit risk related to member borrowings.

Collateral: We require each member to provide a security interest in eligible collateral before it can undertake any secured borrowing. Eligible collateral includes single-family loans, multi-family loans, home equity loans and lines of credit, commercial real estate, bond securities, government guaranteed loans and farm real estate. The estimated value of pledged collateral is discounted in order to offset market, credit and liquidity risks that may affect the collateral's realizable value in the event it must be liquidated. Over-collateralization by one member is not applied to another member. At June 30, 2020, our policy of over-collateralization resulted in total collateral pledged of $394.5 billion to support total borrowing capacity of $314.7 billion of which $70.8 billion was used to support outstanding Advances and Letters of Credit. Borrowers often pledge collateral in excess of their collateral requirement to demonstrate available liquidity and to have the ability to borrow additional amounts in the future. The collateral composition remained relatively stable compared to the end of 2019.

Borrowing Capacity/Lendable Value: We determine borrowing capacity against pledged collateral by applying collateral discounts, or haircuts, to the value of the collateral. These haircuts result in Lendable Value Rates (LVRs) that are less than the amount of pledged collateral.

LVRs are determined by statistical analysis and management assumptions relating to historical price volatility, inherent credit risks, liquidation costs, and the current credit and economic environment. We apply LVR results to the estimated values of pledged assets. LVRs vary among pledged assets and members based on the member institution type, the financial strength of the member institution, the form of valuation, the issuer of bond collateral or the quality of securitized assets, the quality of the loan collateral as reflected in the manner in which it was underwritten, and the marketability of the pledged assets.

Internal Credit Ratings: We perform credit underwriting of our members and nonmember borrowers and assign them an internal credit rating. These credit ratings are based on internal ratings models, credit analyses and consideration of credit ratings from independent credit rating organizations. Credit ratings are used in conjunction with other measures of credit risk in managing secured credit risk exposure.

Member Failures, Closures, and Receiverships: There have been no member failures in 2020 through the date of this filing.

MPP

Overview: We believe that the residual amount of credit risk exposure to loans in the MPP is minimal, based on the same factors described in the 2019 Annual Report on Form 10-K. In light of the COVID-19 pandemic, we are closely monitoring the credit risk of our MPP portfolio. Although we may see further increases in delinquencies due to the current unemployment level, we cannot predict the overall impact. However, we have implemented temporary relief provisions for MPP loans, including forbearance plans to help with short-term hardships, in response to the negative economic impacts associated with COVID-19.

Conventional Loan Portfolio Characteristics: The levels of loan-to-value ratios are consistent with the portfolio's excellent credit quality. At June 30, 2020, the weighted average loan-to-value ratios for conventional loans based on origination values and estimated current values were 74 percent and 60 percent, respectively. These ratios were similar at December 31, 2019.

Credit Performance: The table below provides an analysis of conventional loans delinquent or in the process of foreclosure, along with the national average serious delinquency rate.

	Conventional Loan Delinquencies	
(Dollars in millions)	June 30, 2020	December 31, 2019
Early stage delinquencies - unpaid principal balance (1)	$ 140	$ 40
Serious delinquencies - unpaid principal balance (2)	$ 13	$ 12
Early stage delinquency rate (3)	1.3 %	0.4 %
Serious delinquency rate (4)	0.1 %	0.1 %
National average serious delinquency rate (5)	1.1 %	1.3 %

(1) Includes conventional loans 30 to 89 days delinquent and not in foreclosure.
(2) Includes conventional loans that are 90 days or more past due or where the decision of foreclosure or a similar alternative such as pursuit of deed-in-lieu has been reported.
(3) Early stage delinquencies expressed as a percentage of the total conventional loan portfolio.
(4) Serious delinquencies expressed as a percentage of the total conventional loan portfolio.
(5) National average number of fixed-rate prime and subprime conventional loans that are 90 days or more past due or in the process of foreclosure is based on the most recent national delinquency data available. The June 30, 2020 rate is based on March 31, 2020 data.

In response to the COVID-19 pandemic, our mortgage loan servicers may grant a forbearance period to borrowers who have had COVID-19 related hardships. As a result, early stage delinquencies increased in the first six months of 2020. At June 30, 2020, $90 million of conventional loans with an early stage delinquency were under a forbearance plan.

Overall, the MPP has experienced a minimal amount of delinquencies, with delinquency rates continuing to be well below national averages. This further supports our view that the portfolio is comprised of high-quality, well-performing loans.

Credit Enhancements: Conventional mortgage loans are supported against credit losses by various combinations of primary mortgage insurance (PMI), supplemental mortgage insurance (SMI) (for loans purchased before February 2011), and the Lender Risk Account (LRA). The LRA is a hold back of a portion of the initial purchase price to cover expected credit losses for a specific pool of loans. Starting after five years from the loan purchase date, we may return the hold back to Participating Financial Institutions (PFIs) if they manage credit risk to predefined acceptable levels of exposure on the loan pools they sell to us. As a result, some pools of loans may have sufficient credit enhancements to recapture all losses while other pools of loans may not. The LRA had balances of $249 million and $233 million at June 30, 2020 and December 31, 2019, respectively. For more information, see Note 5 of the Notes to Unaudited Financial Statements.

Credit Losses: The following table shows the effects of credit enhancements on the estimation of credit losses at the noted periods. Estimated credit losses, after credit enhancements, are accounted for in the allowance for credit losses or as a charge off (i.e., a reduction to the principal of mortgage loans held for portfolio). Our methodology for determining the allowance for credit losses on mortgage loans changed on January 1, 2020 with the adoption of new accounting guidance on the measurement of credit losses on financial instruments. Consistent with the modified retrospective method of adoption, the prior period has not been revised to conform to the new basis of accounting.

(In millions)	June 30, 2020	December 31, 2019
Estimated credit losses, before credit enhancements	$ 11	$ 4
Estimated amounts deemed recoverable by:		
Primary mortgage insurance	—	—
Supplemental mortgage insurance	(2)	(2)
Lender Risk Account	(8)	(1)
Estimated credit losses, after credit enhancements	$ 1	$ 1

The minimal amount of estimated credit losses provides further evidence of the overall health of the portfolio. As a result of adopting new accounting guidance, the estimated credit losses before credit enhancements increased at June 30, 2020 as our estimate now includes a forecast of housing prices, including the potential impact of the COVID-19 pandemic. Residual credit risk exposure depends on the actual and potential credit performance of the loans in each pool compared to the pool's equity (on individual loans) and credit enhancements, including PMI, the LRA, and SMI. Our available credit enhancements at June 30, 2020 were ample and able to cover the increase in estimated gross credit losses. In addition, we have assessed that we do not have any credit risk exposure to our PMI providers, and our estimation of credit exposure to SMI providers was not material at June 30, 2020 or December 31, 2019.

Separate from our allowance for credit losses analysis, we regularly analyze potential adverse scenarios of lifetime credit risk exposure for the loans in the MPP. Even under adverse macroeconomic scenarios, including the increased delinquencies as a result of COVID-19 related forbearances, we expect that further credit losses would not significantly decrease profitability.

Investments

Liquidity Investments: We purchase liquidity investments from counterparties that have a strong ability to repay principal and interest. These investments can be easily converted to cash and may be unsecured, guaranteed or supported by the U.S. government, or secured (i.e., collateralized). For unsecured liquidity investments, we invest in the debt securities of highly rated, investment-grade institutions, have appropriate and conservative limits on dollar and maturity exposure to each institution, and have strong credit underwriting practices, including active monitoring of credit quality of our counterparties and of the environment in which they operate.

The following table presents the carrying value of liquidity investments outstanding in relation to the counterparties' lowest long-term credit ratings provided by Standard & Poor's, Moody's, and/or Fitch Advisory Services. For resale agreements, the ratings shown are based on ratings of the associated collateral. Our internal ratings of these investments may differ from those obtained from Standard & Poor's, Moody's, and/or Fitch Advisory Services. The historical or current ratings displayed in this table should not be taken as an indication of future ratings.

(In millions)	June 30, 2020		
	Long-Term Rating		
	AA	A	Total
Unsecured Liquidity Investments			
Interest-bearing deposits	$ —	$ 905	$ 905
Federal funds sold	840	2,685	3,525
Total unsecured liquidity investments	840	3,590	4,430
Guaranteed/Secured Liquidity Investments			
Securities purchased under agreements to resell	964	—	964
U.S. Treasury obligations	9,863	—	9,863
GSE obligations	2,292	—	2,292
Total guaranteed/secured liquidity investments	13,119	—	13,119
Total liquidity investments	$ 13,959	$ 3,590	$ 17,549

	December 31, 2019		
	Long-Term Rating		
	AA	A	Total
Unsecured Liquidity Investments			
Interest-bearing deposits	$ —	$ 550	$ 550
Federal funds sold	1,023	3,810	4,833
Certificates of deposit	500	910	1,410
Total unsecured liquidity investments	1,523	5,270	6,793
Guaranteed/Secured Liquidity Investments			
Securities purchased under agreements to resell	2,349	—	2,349
U.S. Treasury obligations	9,662	—	9,662
GSE obligations	2,120	—	2,120
Total guaranteed/secured liquidity investments	14,131	—	14,131
Total liquidity investments	$ 15,654	$ 5,270	$ 20,924

Our balance of liquidity investments decreased during the first six months of 2020 due in part to not fully replenishing the lower liquidity balances held at the end of the first quarter. The lower balance of liquidity investments at the end of the first quarter of 2020 was in response to volatile market conditions and limited returns on other available liquidity investments. In addition, a portion of our total liquidity investments are with counterparties for which the investments are secured with collateral (secured resale agreements). We believe these investments present no credit risk exposure to us.

The following table presents the lowest long-term credit ratings provided by Standard & Poor's, Moody's, and/or Fitch Advisory Services of our unsecured investment credit exposure by the domicile of the counterparty or the domicile of the counterparty's immediate parent for U.S. branches and agency offices of foreign commercial banks. Our internal ratings of these investments may differ from those obtained from Standard & Poor's, Moody's, and/or Fitch Advisory Services. The historical or current ratings displayed in this table should not be taken as an indication of future ratings.

(In millions)	June 30, 2020		
	Counterparty Rating		
Domicile of Counterparty	AA	A	Total
Domestic	$ —	$ 905	$ 905
U.S. branches and agency offices of foreign commercial banks:			
Canada	300	1,350	1,650
Australia	—	785	785
Netherlands	—	500	500
Norway	400	—	400
Finland	140	—	140
Germany	—	50	50
Total U.S. branches and agency offices of foreign commercial banks	840	2,685	3,525
Total unsecured investment credit exposure	$ 840	$ 3,590	$ 4,430

The following table presents the remaining contractual maturity of our unsecured investment credit exposure by the domicile of the counterparty or the domicile of the counterparty's immediate parent for U.S. branches and agency offices of foreign commercial banks.

(In millions)	June 30, 2020	
Domicile of Counterparty	Overnight	Total
Domestic	$ 905	$ 905
U.S. branches and agency offices of foreign commercial banks:		
Canada	1,650	1,650
Australia	785	785
Netherlands	500	500
Norway	400	400
Finland	140	140
Germany	50	50
Total U.S. branches and agency offices of foreign commercial banks	3,525	3,525
Total unsecured investment credit exposure	$ 4,430	$ 4,430

At June 30, 2020, all of the $4.4 billion of unsecured investment exposure was to counterparties with holding companies domiciled in countries receiving either AAA or AA long-term sovereign ratings. Furthermore, we restrict a significant portion of unsecured lending to overnight maturities, which further limits risk exposure to these counterparties. By Finance Agency regulation, all counterparties exposed to non-U.S. countries are required to be domestic U.S. branches of foreign counterparties.

MBS:

GSE MBS

At June 30, 2020, $10.6 billion of MBS held were GSE securities issued by Fannie Mae and Freddie Mac, which provide credit safeguards by guaranteeing either timely or ultimate payments of principal and interest. We believe that the conservatorships of Fannie Mae and Freddie Mac lower the chance that they would not be able to fulfill their credit guarantees and that the securities issued by these two GSEs are effectively government guaranteed. In addition, based on the data available to us and our purchase practices, we believe that most of the mortgage loans backing our GSE MBS are of high quality with acceptable credit performance.

MBS Issued by Other Government Agencies

We also invest in MBS issued and guaranteed by Ginnie Mae and the NCUA. These investments totaled $1.4 billion at June 30, 2020. We believe that the strength of the issuers' guarantees and backing by the full faith and credit of the U.S. government is sufficient to protect us against credit losses on these securities.

Derivatives

Credit Risk Exposure: We mitigate most of the credit risk exposure resulting from derivative transactions through collateralization or use of daily settled contracts. The table below presents the lowest long-term counterparty credit ratings provided by Standard & Poor's, Moody's, and/or Fitch Advisory Services for derivative positions to which we had credit risk exposure at June 30, 2020. The historical or current ratings displayed in this table should not be taken as an indication of future ratings.

(In millions)

	Total Notional	Net Derivatives Fair Value Before Collateral	Cash Collateral Pledged to (from) Counterparties	Net Credit Exposure to Counterparties
Nonmember counterparties:				
Asset positions with credit exposure:				
Uncleared derivatives:				
AA-rated	$ 431	$ 1	$ (1)	$ —
A-rated	538	1	—	1
Total uncleared derivatives	969	2	(1)	1
Cleared derivatives (1)	22,241	4	293	297
Liability positions with credit exposure:				
Uncleared derivatives:				
BBB-rated	2,689	(157)	158	1
Total uncleared derivatives	2,689	(157)	158	1
Cleared derivatives (1)	798	—	3	3
Total derivative positions with credit exposure to nonmember counterparties	26,697	(151)	453	302
Member institutions (2)	133	1	—	1
Total	$ 26,830	$ (150)	$ 453	$ 303

(1) Represents derivative transactions cleared with LCH Ltd. and CME Clearing, the FHLB's clearinghouses. LCH Ltd. is rated AA- by Standard & Poor's, and CME Clearing is not rated, but its parent company, CME Group Inc., is rated Aa3 by Moody's and AA- by Standard & Poor's.

(2) Represents Mandatory Delivery Contracts.

Our exposure to cleared derivatives is primarily associated with our requirement to post initial margin through the clearing agent to the Derivatives Clearing Organizations. The amount of cash collateral pledged as initial margin has increased from our use of cleared derivatives. However, the use of cleared derivatives mitigates credit risk exposure because a central counterparty is substituted for individual counterparties.

At June 30, 2020, the net exposure of uncleared derivatives with residual credit risk exposure was less than $2 million. If interest rates rise or the composition of our derivatives change resulting in an increase to our gross exposure to uncleared derivatives, the contractual collateral provisions in these derivatives would limit our net exposure to acceptable levels.

Although we cannot predict if we will realize credit risk losses from any of our derivatives counterparties, we believe that all of the counterparties will be able to continue making timely interest payments and, more generally, to continue to satisfy the terms and conditions of their derivative contracts with us. As of June 30, 2020, we had $491 million of notional principal of interest rate swaps with one member, JPMorgan Chase Bank, N.A., which also had outstanding credit services with us. Due to the amount of market value collateralization, we had no outstanding credit exposure to this counterparty related to interest rate swaps outstanding.

Liquidity Risk

Liquidity Overview

We strive to be in a liquidity position at all times to meet the borrowing needs of our members and to meet all current and future financial commitments. This objective is achieved by managing liquidity positions to maintain stable, reliable, and cost-effective sources of funds while taking into account market conditions, member demand, and the maturity profile of assets and liabilities. Our liquidity position complies with the FHLBank Act, Finance Agency regulations, and internal policies.

The FHLBank System's primary source of funds is the sale of Consolidated Obligations in the capital markets. Our ability to obtain funds through the sale of Consolidated Obligations at acceptable interest costs depends on the financial market's perception of the riskiness of the Obligations and on prevailing conditions in the capital markets, particularly the short-term capital markets. The System's favorable debt ratings, the implicit U.S. government backing of our debt, and our effective risk management practices are instrumental in ensuring stable and satisfactory access to the capital markets.

We believe our liquidity position, as well as that of the System, continued to be strong during the first six months of 2020, even in light of the temporary market disruptions caused by the COVID-19 pandemic. Our overall ability to effectively fund our operations through debt issuances remained sufficient. Investor demand for System debt was robust in the first six months of 2020, as investors preferred short-term, high-quality money market instruments amid the uncertainty in the financial markets due to the COVID-19 pandemic. We believe the possibility of a liquidity or funding crisis in the System that would impair our ability to participate, on a cost-effective basis, in issuances of debt, service outstanding debt, maintain adequate capitalization, or pay competitive dividends is remote.

The System works collectively to manage and monitor the System-wide liquidity and funding risks. Liquidity risk includes the risk that the System could have difficulty rolling over short-term Obligations when market conditions change, also called refinancing risk. The System has a large reliance on short-term funding; therefore, it has a sharp focus on managing liquidity risk to very low levels. As shown on the Statements of Cash Flows, in the first six months of 2020, our portion of the System's debt issuances totaled $180.2 billion for Discount Notes and $20.3 billion for Bonds. Access to short-term debt markets has been reliable because investors, driven by liquidity preferences and risk aversion, have sought the System’s short-term debt, which has resulted in strong demand for debt maturing in one year or less.

See the Notes to Unaudited Financial Statements for more detailed information regarding maturities of certain financial assets and liabilities which are instrumental in determining the amount of liquidity risk. In addition to contractual maturities, other assumptions regarding cash flows such as estimated prepayments, embedded call optionality, and scheduled amortization are considered when managing liquidity risks.

Liquidity Management and Regulatory Requirements

We manage liquidity risk by ensuring compliance with our regulatory liquidity requirements and regularly monitoring other metrics.

We adhere to the Finance Agency's *Advisory Bulletin 2018-07 Federal Home Loan Bank Liquidity Guidance* (Liquidity AB). The Liquidity AB establishes the expectations with respect to the maintenance of sufficient liquidity for a specified number of days. Under the Liquidity AB, the calculation of liquidity is intended to provide additional assurance that we can continue to provide Advances and Letters of Credit to members over an extended period without access to the capital markets. Under this guidance, all Advance maturities are assumed to renew, unless the Advances relate to former members who are ineligible to borrow new Advances.

As part of the base case liquidity expectations, the Liquidity AB requires the FHLBanks to maintain sufficient liquidity for a period of between 10 to 30 calendar days. As of June 30, 2020, we maintained a sufficient number of days of positive daily cash balances under the Liquidity AB guidance.

The Liquidity AB also provides guidance related to asset/liability maturity funding gap limits. Funding gap metrics measure the difference between assets and liabilities that are scheduled to mature during a specified period of time and are expressed as a percentage of total assets. Although subject to change depending on conditions in the financial markets, the Liquidity AB provides guidance on maintaining appropriate funding gaps for three-month (-10 percent to -20 percent) and one-year (-25 percent to -35 percent) maturity horizons. As of June 30, 2020, we were operating within those limits.

To support our member deposits, we also must meet a statutory deposit reserve requirement. The sum of our investments in obligations of the United States, deposits in eligible banks or trust companies, and Advances with a final maturity not exceeding five years must equal or exceed the current amount of member deposits. The following table presents the components of this liquidity requirement.

(In millions)	June 30, 2020	December 31, 2019
Deposit Reserve Requirement		
Total Eligible Deposit Reserves	$ 58,575	$ 61,590
Total Member Deposits	(1,236)	(942)
Excess Deposit Reserves	$ 57,339	$ 60,648

Contractual Obligations

The following table summarizes our contractual obligations at June 30, 2020. We believe that, as in the past, we will continue to have sufficient liquidity, including from access to the debt markets to issue Consolidated Obligations, to satisfy these obligations on a timely basis.

(In millions)	< 1 year	1 < 3 years	3 < 5 years	> 5 years	Total
Contractual Obligations					
Long-term debt (Bonds) - par [(1)]	$ 26,057	$ 6,090	$ 3,353	$ 3,765	$ 39,265
Operating leases (include premises and equipment)	1	3	2	1	7
Mandatorily redeemable capital stock	13	3	2	1	19
Commitments to fund mortgage loans	133	—	—	—	133
Pension and other postretirement benefit obligations	2	5	5	36	48
Total Contractual Obligations	$ 26,206	$ 6,101	$ 3,362	$ 3,803	$ 39,472

(1) Does not include Discount Notes and contractual interest payments related to Bonds. Total is based on contractual maturities; the actual timing of payments could be affected by factors affecting redemptions.

Off-Balance Sheet Arrangements

The following table summarizes our off-balance sheet items at June 30, 2020. For more information, see Note 15 of the Notes to Unaudited Financial Statements.

(In millions)	< 1 year	1 < 3 years	3 < 5 years	> 5 years	Total
Off-balance sheet items [(1)]					
Standby Letters of Credit	$ 21,238	$ 1,051	$ 91	$ 1	$ 22,381
Standby bond purchase agreements	32	41	—	—	73
Consolidated Obligations traded, not yet settled	427	—	—	133	560
Total off-balance sheet items	$ 21,697	$ 1,092	$ 91	$ 134	$ 23,014

(1) Represents notional amount of off-balance sheet obligations.

Member Concentration Risk

We regularly assess concentration risks from business activity. We believe that the concentration of Advance activity is consistent with our risk management philosophy, and the impact of borrower concentration on market risk, credit risk, and operational risk, after considering mitigating controls, is minimal.

Operational Risks

There were no material developments regarding our operational risk exposure during the first six months of 2020.

Item 3. Quantitative and Qualitative Disclosures About Market Risk.

Information required by this Item is set forth under the caption “Quantitative and Qualitative Disclosures About Risk Management” in Part I, Item 2, of this Report.

Item 4. Controls and Procedures.

DISCLOSURE CONTROLS AND PROCEDURES

As of June 30, 2020, the FHLB's management, including its principal executive officer and principal financial officer, evaluated the effectiveness of our disclosure controls and procedures as defined in Rule 13a-15(e) under the Securities Exchange Act of 1934 (the “Exchange Act”). Based upon that evaluation, these two officers each concluded that, as of June 30, 2020, the FHLB maintained effective disclosure controls and procedures designed to ensure that information required to be disclosed in the reports that it files under the Exchange Act is (1) accumulated and communicated to management as appropriate to allow timely decisions regarding disclosure and (2) recorded, processed, summarized and reported within the time periods specified in the rules and forms of the Securities and Exchange Commission.

CHANGES IN INTERNAL CONTROL OVER FINANCIAL REPORTING

As of June 30, 2020, the FHLB's management, including its principal executive officer and principal financial officer, evaluated the FHLB's internal control over financial reporting. Based upon that evaluation, these two officers each concluded that there were no changes in the FHLB's internal control over financial reporting that occurred during the quarter ended June 30, 2020 that materially affected, or are reasonably likely to materially affect, the FHLB's internal control over financial reporting.

PART II - OTHER INFORMATION

Item 1A. Risk Factors.

For a discussion of our risk factors, see Part I, Item 1A. "Risk Factors" in our 2019 Annual Report on Form 10-K. Other than the risk factor noted below, there have been no material changes from the risk factors in our 2019 Annual Report on Form 10-K.

***Other External Risk*. Natural disasters, pandemics, terrorist attacks, or other catastrophic events could adversely affect our operations, business activities, results of operations and financial condition.**

Natural disasters, pandemics or other widespread health emergencies (such as the recent outbreak of COVID-19), terrorist attacks, or other unanticipated or catastrophic events could create economic and financial disruptions and uncertainties, which may lead to reduced demand for Advances and an increased risk of credit losses and may adversely affect our cost of funding or access to funding. These events may also lead to operational difficulties that could adversely affect the ability of the FHLBanks and the Office of Finance to conduct and manage their businesses. Any of these factors could adversely affect our business activities and results of operations.

In particular, the current COVID-19 pandemic temporarily disrupted the credit markets in which we operate, and the decline in interest rates has affected, or may in the future adversely affect, the fair values of some of our assets, the valuation of collateral, and our net income and capital. Many businesses in our district and across the U.S. have been forced to suspend or modify operations for a period of time in an attempt to slow the spread of the virus, and unemployment claims have increased dramatically. Ultimately, the significant slowdown in economic activity caused by the COVID-19 pandemic could reduce demand at our member institutions, which could impact members’ demand for our products and services and have an adverse effect on our profitability and financial condition. It could also lead to a devaluation of our assets, the collateral pledged by members to secure Advances and other extensions of credit, or our MPP portfolio, all of which could have an adverse impact on the our financial condition and results of operations, including as a result of reduced business volumes, reduced income or credit losses. Market volatility and economic stress during a prolonged COVID-19 outbreak may adversely affect the FHLBanks’ access to the debt markets and possibly affect our liquidity. Our decision to have most employees work remotely could create additional cybersecurity risks and operational challenges that could affect our ability to conduct business or increase the risk of operational incidents and errors. In addition, we rely on vendors and other third parties to perform certain services, and if a critical vendor or third party experiences a failure or any interruption to their business due to the COVID-19 pandemic, we may be unable to conduct and manage our business effectively.

The outlook for the remainder of 2020 is uncertain, and there is a possibility that the Federal Reserve will keep interest rates low or even use negative interest rates, which could significantly affect our business and profitability.

Item 6. Exhibits.

Exhibit Number [(1)]	Description of exhibit	Document filed or furnished, as indicated below
31.1	Rule 13a-14(a)/15d-14(a) Certification of Principal Executive Officer	Filed Herewith
31.2	Rule 13a-14(a)/15d-14(a) Certification of Principal Financial Officer	Filed Herewith
32	Section 1350 Certifications	Furnished Herewith
101.INS	XBRL Instance Document	The instance document does not appear in the interactive data file because its XBRL tags are embedded within the inline XBRL document
101.SCH	XBRL Taxonomy Extension Schema Document	Filed Herewith
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document	Filed Herewith
101.LAB	XBRL Taxonomy Extension Label Linkbase Document	Filed Herewith
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document	Filed Herewith
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document	Filed Herewith
104	Cover Page Interactive Data File (formatted as inline XBRL and contained in Exhibit 101)	Filed Herewith

(1) Numbers coincide with Item 601 of Regulation S-K.

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, as of the 6th day of August 2020.

FEDERAL HOME LOAN BANK OF CINCINNATI
(Registrant)

By: /s/ Andrew S. Howell
Andrew S. Howell
President and Chief Executive Officer
(principal executive officer)

By: /s/ Stephen J. Sponaugle
Stephen J. Sponaugle
Executive Vice President - Chief Financial Officer
(principal financial officer)