As filed with the Securities and Exchange Commission on August 10, 2020

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
Commission File Number 001-14951

FARMER MAC

FEDERAL AGRICULTURAL MORTGAGE CORPORATION
(Exact name of registrant as specified in its charter)

Federally chartered instrumentality of the United States	52-1578738
(State or other jurisdiction of incorporation or organization)	(I.R.S. employer identification number)
Washington, DC	20006
(Address of principal executive offices)	(Zip code)

(202) 872-7700
(Registrant's telephone number, including area code)

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

Title of each class	Trading symbol	Exchange on which registered
Class A voting common stock	AGM.A	New York Stock Exchange
Class C non-voting common stock	AGM	New York Stock Exchange
5.875% Non-Cumulative Preferred Stock, Series A	AGM.PRA	New York Stock Exchange
6.000% Fixed-to-Floating Rate Non-Cumulative Preferred Stock, Series C	AGM.PRC	New York Stock Exchange
5.700% Non-Cumulative Preferred Stock, Series D	AGM.PRD	New York Stock Exchange
5.750% Non-Cumulative Preferred Stock, Series E	AGM.PRE	New York Stock Exchange

Securities registered pursuant to Section 12(g) of the Act: Class B voting common stock

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.

Yes ☐ No ☒

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act.

Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.

Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files).

Yes ☒ No ☐

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

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 ☒

As of August 3, 2020, the registrant had outstanding 1,030,780 shares of Class A voting common stock, 500,301 shares of Class B voting common stock, and 9,201,754 shares of Class C non-voting common stock.

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PART I

Item 1. Financial Statements

FEDERAL AGRICULTURAL MORTGAGE CORPORATION AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS
(unaudited)

	As of	
	June 30, 2020	December 31, 2019
	(in thousands)	
Assets:		
Cash and cash equivalents	$ 827,600	$ 604,381
Investment securities:		
Available-for-sale, at fair value (amortized cost of $3,458,957 and $2,961,430, respectively)	3,467,378	2,959,843
Held-to-maturity, at amortized cost	45,032	45,032
Total Investment Securities	3,512,410	3,004,875
Farmer Mac Guaranteed Securities:		
Available-for-sale, at fair value (amortized cost of $7,539,944 and $7,016,971, respectively)	7,898,387	7,143,025
Held-to-maturity, at amortized cost	1,140,718	1,447,451
Total Farmer Mac Guaranteed Securities	9,039,105	8,590,476
USDA Securities:		
Trading, at fair value	7,786	8,913
Held-to-maturity, at amortized cost	2,339,923	2,232,160
Total USDA Securities	2,347,709	2,241,073
Loans:		
Loans held for investment, at amortized cost	6,469,997	5,390,977
Loans held for investment in consolidated trusts, at amortized cost	1,436,090	1,600,917
Allowance for losses	(14,939)	(10,454)
Total loans, net of allowance	7,891,148	6,981,440
Financial derivatives, at fair value	16,588	10,519
Interest receivable (includes $17,415 and $20,568, respectively, related to consolidated trusts)	175,659	199,195
Guarantee and commitment fees receivable	36,612	38,442
Deferred tax asset, net	38,790	16,510
Prepaid expenses and other assets	47,035	22,463
Total Assets	$ 23,932,656	$ 21,709,374
Liabilities and Equity:		
Liabilities:		
Notes payable	21,421,550	19,098,648
Debt securities of consolidated trusts held by third parties	1,476,964	1,616,504
Financial derivatives, at fair value	47,543	27,042
Accrued interest payable (includes $15,007 and $18,018, respectively, related to consolidated trusts)	100,134	106,959
Guarantee and commitment obligation	35,162	36,700
Accounts payable and accrued expenses	24,167	22,081
Reserve for losses	3,020	2,164
Total Liabilities	23,108,540	20,910,098
Commitments and Contingencies (Note 6)		
Equity:		
Preferred stock:		
Series A, par value $25 per share, 2,400,000 shares authorized, issued and outstanding	58,333	58,333
Series C, par value $25 per share, 3,000,000 shares authorized, issued and outstanding	73,382	73,382
Series D, par value $25 per share, 4,000,000 shares authorized, issued and outstanding	96,659	96,659
Series E, par value $25 per share, 3,180,000 shares authorized, issued and outstanding	77,003	—
Common stock:		
Class A Voting, $1 par value, no maximum authorization, 1,030,780 shares outstanding	1,031	1,031
Class B Voting, $1 par value, no maximum authorization, 500,301 shares outstanding	500	500
Class C Non-Voting, $1 par value, no maximum authorization, 9,201,623 shares and 9,180,744 shares outstanding, respectively	9,202	9,181
Additional paid-in capital	120,856	119,304
Accumulated other comprehensive loss, net of tax	(91,497)	(16,161)
Retained earnings	478,647	457,047
Total Equity	824,116	799,276
Total Liabilities and Equity	$ 23,932,656	$ 21,709,374

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

FEDERAL AGRICULTURAL MORTGAGE CORPORATION AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF OPERATIONS
(unaudited)

	For the Three Months Ended		For the Six Months Ended	
	June 30, 2020	June 30, 2019	June 30, 2020	June 30, 2019
	(in thousands, except per share amounts)			
Interest income:				
Investments and cash equivalents	$ 10,399	$ 20,156	$ 28,140	$ 38,863
Farmer Mac Guaranteed Securities and USDA Securities	61,792	85,569	133,309	170,980
Loans	55,430	59,403	116,026	110,800
Total interest income	127,621	165,128	277,475	320,643
Total interest expense	79,273	122,074	187,815	236,990
Net interest income	48,348	43,054	89,660	83,653
Provision for losses	(451)	(578)	(3,889)	(314)
Net interest income after provision for losses	47,897	42,476	85,771	83,339
Non-interest income/(expense):				
Guarantee and commitment fees	3,140	3,403	6,336	6,916
Gains/(losses) on financial derivatives	6,523	8,913	(2,775)	8,553
(Losses)/gains on trading securities	(21)	61	85	105
Gains on sale of real estate owned	—	—	485	—
Release of reserve for losses	400	158	7	287
Other income	1,229	355	2,045	848
Non-interest income	11,271	12,890	6,183	16,709
Operating expenses:				
Compensation and employee benefits	8,087	6,770	18,214	14,376
General and administrative	5,295	4,689	10,658	9,285
Regulatory fees	725	687	1,450	1,375
Real estate owned operating costs, net	—	64	—	64
Operating expenses	14,107	12,210	30,322	25,100
Income before income taxes	45,061	43,156	61,632	74,948
Income tax expense	9,435	9,111	13,176	15,733
Net income attributable to Farmer Mac	35,626	34,045	48,456	59,215
Preferred stock dividends	(3,939)	(3,785)	(7,370)	(7,081)
Loss on retirement of preferred stock	—	(1,956)	—	(1,956)
Net income attributable to common stockholders	$ 31,687	$ 28,304	$ 41,086	$ 50,178
Earnings per common share:				
Basic earnings per common share	$ 2.95	$ 2.65	$ 3.83	$ 4.70
Diluted earnings per common share	$ 2.94	$ 2.63	$ 3.81	$ 4.66

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

FEDERAL AGRICULTURAL MORTGAGE CORPORATION AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(unaudited)

	For the Three Months Ended		For the Six Months Ended	
	June 30, 2020	June 30, 2019	June 30, 2020	June 30, 2019
			(in thousands)	
Net income	$ 35,626	$ 34,045	$ 48,456	$ 59,215
Other comprehensive income before taxes:				
Net unrealized gains/(losses) on available-for-sale securities	42,527	(28,588)	(56,789)	(25,347)
Net changes in held-to-maturity securities	(2,496)	(4,601)	(8,184)	(6,863)
Net unrealized losses on cash flow hedges	(2,132)	(9,972)	(30,388)	(15,637)
Other comprehensive gain/(loss) before tax	37,899	(43,161)	(95,361)	(47,847)
Income tax (expense)/benefit related to other comprehensive gain/(loss)	(7,959)	9,064	20,025	10,048
Other comprehensive gain/(loss) net of tax	29,940	(34,097)	(75,336)	(37,799)
Comprehensive income/(loss) attributable to Farmer Mac	$ 65,566	$ (52)	$ (26,880)	$ 21,416

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

FEDERAL AGRICULTURAL MORTGAGE CORPORATION AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF EQUITY
(unaudited)

	Preferred Stock		Common Stock		Additional Paid-In	Accumulated Other Comprehensive	Retained	Total
	Shares	Amount	Shares	Amount	Capital	Income/(Loss)	Earnings	Equity
					(in thousands)			
Balance as of December 31, 2019	9,400	$ 228,374	10,712	$ 10,712	$ 119,304	$ (16,161)	$ 457,047	$ 799,276
Cumulative effect adjustment from adoption of current expected credit loss standard	—	—	—	—	—	—	(2,099)	(2,099)
Balance as of January 1, 2020	9,400	$ 228,374	10,712	$ 10,712	$ 119,304	$ (16,161)	$ 454,948	$ 797,177
Net income	—	—	—	—	—	—	12,830	12,830
Other comprehensive loss, net of tax	—	—	—	—	—	(105,276)	—	(105,276)
Cash dividends:								
Preferred stock	—	—	—	—	—	—	(3,431)	(3,431)
Common stock (cash dividend of $0.80 per share)	—	—	—	—	—	—	(8,571)	(8,571)
Issuance of Class C common stock	—	—	15	15	19	—	—	34
Repurchase of Class C Common Stock	—	—	(4)	(4)	—	—	(231)	(235)
Stock-based compensation cost	—	—	—	—	1,293	—		1,293
Other stock-based award activity	—	—	—	—	(204)	—	—	(204)
Balance as of March 31, 2020	9,400	$ 228,374	10,723	$ 10,723	$ 120,412	$ (121,437)	$ 455,545	$ 693,617
Net income	—	—	—	—	—	—	35,626	35,626
Other comprehensive income, net of tax	—	—	—	—	—	29,940	—	29,940
Cash dividends:								
Preferred stock	—	—	—	—	—	—	(3,939)	(3,939)
Common stock (cash dividend of $0.80 per share)	—	—	—	—	—	—	(8,585)	(8,585)
Issuance of Series E preferred stock	3,180	77,003	—	—	—	—	—	77,003
Issuance of Class C common stock	—	—	10	10	17	—	—	27
Stock-based compensation cost	—	—	—	—	719	—	—	719
Other stock-based award activity	—	—	—	—	(292)	—	—	(292)
Balance as of June 30, 2020	12,580	$ 305,377	10,733	$ 10,733	$ 120,856	$ (91,497)	$ 478,647	$ 824,116

	Preferred Stock		Common Stock		Additional Paid-In	Accumulated Other Comprehensive	Retained	Total
	Shares	Amount	Shares	Amount	Capital	Income/(Loss)	Earnings	Equity
					(in thousands)			
Balance as of December 31, 2018	8,400	$ 204,759	10,669	$ 10,669	$ 118,822	$ 24,956	$ 393,351	$ 752,557
Net Income	—	—	—	—	—	—	25,170	25,170
Other comprehensive loss, net of tax	—	—	—	—	—	(3,702)	—	(3,702)
Cash dividends:								
Preferred stock	—	—	—	—	—	—	(3,296)	(3,296)
Common stock (cash dividend of $0.70 per share)	—	—	—	—	—	—	(7,470)	(7,470)
Issuance of Class C Common Stock	—	—	20	20	3	—	—	23
Stock-based compensation cost	—	—	—	—	724	—	—	724
Other stock-based award activity	—	—	—	—	(708)	—	—	(708)
Balance as of March 31, 2019	8,400	$ 204,759	10,689	$ 10,689	$ 118,841	$ 21,254	$ 407,755	$ 763,298
Net income	—	—	—	—	—	—	34,045	34,045
Other comprehensive loss, net of tax	—	—	—	—	—	(34,097)	—	(34,097)
Cash dividends:								
Preferred stock	—	—	—	—	—	—	(3,785)	(3,785)
Common stock (cash dividend of $0.70 per share)	—	—	—	—	—	—	(7,490)	(7,490)
Issuance of Series D Preferred Stock	4,000	96,659			—	—	—	96,659
Redemption of Series B Preferred Stock	(3,000)	(73,044)	—	—	—	—	—	(73,044)
Loss on retirement of preferred stock	—	—	—	—	—	—	(1,956)	(1,956)
Issuance of Class C Common Stock	—	—	11	11	3	—	—	14
Stock-based compensation cost	—	—	—	—	533	—	—	533
Other stock-based award activity	—	—	—	—	(435)	—	—	(435)
Balance as of June 30, 2019	9,400	$ 228,374	10,700	$ 10,700	$ 118,942	$ (12,843)	$ 428,569	$ 773,742

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

FEDERAL AGRICULTURAL MORTGAGE CORPORATION AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS
(unaudited)

	For the Six Months Ended	
	June 30, 2020	June 30, 2019
	(in thousands)	
Cash flows from operating activities:		
Net income	$ 48,456	$ 59,215
Adjustments to reconcile net income to net cash provided by operating activities:		
Net amortization of deferred gains, premiums, and discounts on loans, investments, Farmer Mac Guaranteed Securities, and USDA Securities	1,095	(4,922)
Amortization of debt premiums, discounts, and issuance costs	14,769	24,022
Net change in fair value of trading securities, hedged assets, and financial derivatives	(401,002)	(208,213)
Gain on sale of real estate owned	(485)	—
Total provision for allowance for losses	3,882	27
Excess tax benefits related to stock-based awards	(475)	259
Deferred income taxes	(2,254)	5,874
Stock-based compensation expense	2,012	1,257
Proceeds from repayment of loans purchased as held for sale	35,351	23,239
Net change in:		
Interest receivable	24,139	(4,578)
Guarantee and commitment fees receivable	292	120
Other assets	(23,446)	(9,006)
Accrued interest payable	(6,825)	11,386
Other liabilities	(2,453)	651
Net cash used in operating activities	(306,944)	(100,669)
Cash flows from investing activities:		
Purchases of available-for-sale investment securities	(1,591,501)	(1,217,901)
Purchases of Farmer Mac Guaranteed Securities and USDA Securities	(1,361,109)	(1,660,280)
Purchases of loans held for investment	(1,502,920)	(1,101,705)
Purchases of defaulted loans	(6,272)	—
Proceeds from repayment of available-for-sale investment securities	1,097,237	500,462
Proceeds from repayment of Farmer Mac Guaranteed Securities and USDA Securities	1,029,718	1,241,156
Proceeds from repayment of loans purchased as held for investment	712,238	330,387
Proceeds from sale of Farmer Mac Guaranteed Securities	28,050	166,351
Proceeds from sale of real estate owned	2,191	—
Net cash used in investing activities	(1,592,368)	(1,741,530)
Cash flows from financing activities:		
Proceeds from issuance of discount notes	34,376,593	28,265,587
Proceeds from issuance of medium-term notes	7,791,406	4,467,265
Payments to redeem discount notes	(34,075,014)	(27,730,461)
Payments to redeem medium-term notes	(5,847,765)	(3,106,538)
Payments to third parties on debt securities of consolidated trusts	(175,004)	(80,820)
Proceeds from common stock issuance	36	6
Retirement of Series B preferred stock	—	(75,000)
Proceeds from Series D preferred stock issuance, net of stock issuance costs	—	96,659
Proceeds from Series E preferred stock issuance, net of stock issuance costs	77,003	—
Tax payments related to share-based awards	(471)	(1,112)
Purchases of common stock	(235)	—
Dividends paid on common and preferred stock	(24,018)	(22,041)
Net cash provided by financing activities	2,122,531	1,813,545
Net change in cash and cash equivalents	223,219	(28,654)
Cash and cash equivalents at beginning of period	604,381	425,256
Cash and cash equivalents at end of period	$ 827,600	$ 396,602
Non-cash activity:		
Loans acquired and securitized as Farmer Mac Guaranteed Securities	28,050	166,351
Consolidation of Farmer Mac Guaranteed Securities from off-balance sheet to loans held for investment in consolidated trusts and to debt securities of consolidated trusts held by third parties	28,050	118,004
Reclassification of defaulted loans from loans held for investment in consolidated trusts to loans held for investment	7,414	4,721
Maturity of investment security - not yet settled	—	(35,075)
Purchases of securities - traded, not yet settled	4,588	10,000

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

FEDERAL AGRICULTURAL MORTGAGE CORPORATION AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The interim unaudited consolidated financial statements of the Federal Agricultural Mortgage Corporation ("Farmer Mac") and subsidiaries have been prepared pursuant to the rules and regulations of the U.S. Securities and Exchange Commission ("SEC"). These interim unaudited consolidated financial statements reflect all normal and recurring adjustments that are, in the opinion of management, necessary to present a fair statement of the financial position and the results of operations and cash flows of Farmer Mac and subsidiaries for the interim periods presented. Certain information and footnote disclosures normally included in the annual consolidated financial statements have been omitted as permitted by SEC rules and regulations. The December 31, 2019 consolidated balance sheet presented in this report has been derived from Farmer Mac's audited 2019 consolidated financial statements. Management believes that the disclosures are adequate to present fairly the consolidated financial statements as of the dates and for the periods presented. These interim unaudited consolidated financial statements should be read in conjunction with the 2019 consolidated financial statements of Farmer Mac and subsidiaries included in Farmer Mac's Annual Report on Form 10-K for the year ended December 31, 2019, as filed with the SEC on February 25, 2020. Results for interim periods are not necessarily indicative of those that may be expected for the fiscal year. Presented below are Farmer Mac's significant accounting policies that contain updated information for the three and six months ended June 30, 2020.

Principles of Consolidation

The consolidated financial statements include the accounts of Farmer Mac and its two subsidiaries during the year: (1) Farmer Mac Mortgage Securities Corporation ("FMMSC"), whose principal activities are to facilitate the purchase and issuance of Farmer Mac Guaranteed Securities; and (2) Farmer Mac II LLC, whose principal activity is the operation of substantially all of the business related to the USDA Guarantees line of business – primarily the acquisition of USDA Securities. The consolidated financial statements also include the accounts of Variable Interest Entities ("VIEs") in which Farmer Mac determined itself to be the primary beneficiary.

The following tables present, by line of business, details about the consolidation of VIEs:

Table 1.1

	Consolidation of Variable Interest Entities			
	As of June 30, 2020			
	Farm & Ranch	USDA Guarantees	Corporate	Total
	(in thousands)			
On-Balance Sheet:				
Consolidated VIEs:				
Loans held for investment in consolidated trusts, at amortized cost	$ 1,436,090	$ —	$ —	$ 1,436,090
Debt securities of consolidated trusts held by third parties [1]	1,476,964	—	—	1,476,964
Unconsolidated VIEs:				
Farmer Mac Guaranteed Securities:				
Carrying value [2]	—	32,615	—	32,615
Maximum exposure to loss [3]	—	32,537	—	32,537
Investment securities:				
Carrying value [4]	—	—	1,651,031	1,651,031
Maximum exposure to loss [3] [4]	—	—	1,648,328	1,648,328
Off-Balance Sheet:				
Unconsolidated VIEs:				
Farmer Mac Guaranteed Securities:				
Maximum exposure to loss [3] [5]	90,225	330,309	—	420,534

(1) Includes borrower remittances of $40.9 million. The borrower remittances had not been passed through to third party investors as of June 30, 2020.
(2) Includes $0.1 million of unamortized premiums and discounts and fair value adjustments related to the USDA Guarantees line of business.
(3) Farmer Mac uses unpaid principal balance and outstanding face amount of investment securities to represent maximum exposure to loss.
(4) Includes auction-rate certificates, asset-backed securities, and government-sponsored enterprise ("GSE")-guaranteed mortgage-backed securities.
(5) The amount under the Farm & Ranch line of business relates to unconsolidated trusts where Farmer Mac determined it was not the primary beneficiary due to shared power with an unrelated party.

	Consolidation of Variable Interest Entities			
	As of December 31, 2019			
	Farm & Ranch	USDA Guarantees	Corporate	Total
	(in thousands)			
On-Balance Sheet:				
Consolidated VIEs:				
Loans held for investment in consolidated trusts, at amortized cost	$ 1,600,917	$ —	$ —	$ 1,600,917
Debt securities of consolidated trusts held by third parties [(1)]	1,616,504	—	—	1,616,504
Unconsolidated VIEs:				
Farmer Mac Guaranteed Securities:				
Carrying value [(2)]	—	32,041	—	32,041
Maximum exposure to loss [(3)]	—	31,887	—	31,887
Investment securities:				
Carrying value [(4)]	—	—	1,117,203	1,117,203
Maximum exposure to loss [(3)] [(4)]	—	—	1,120,765	1,120,765
Off-Balance Sheet:				
Unconsolidated VIEs:				
Farmer Mac Guaranteed Securities:				
Maximum exposure to loss [(3)] [(5)]	107,322	389,216	—	496,538

(1) Includes borrower remittances of $15.6 million. The borrower remittances had not been passed through to third party investors as of December 31, 2019.
(2) Includes $0.2 million of unamortized premiums and discounts and fair value adjustments related to the USDA Guarantees line of business.
(3) Farmer Mac uses unpaid principal balance and outstanding face amount of investment securities to represent maximum exposure to loss.
(4) Includes auction-rate certificates, asset-backed securities, and government-sponsored enterprise ("GSE")-guaranteed mortgage-backed securities.
(5) The amount under the Farm & Ranch line of business relates to unconsolidated trusts where Farmer Mac determined it was not the primary beneficiary due to shared power with an unrelated party.

(a) Earnings Per Common Share

Basic earnings per common share ("EPS") is based on the daily weighted-average number of shares of common stock outstanding. Diluted earnings per common share is based on the daily weighted-average number of shares of common stock outstanding adjusted to include all potentially dilutive stock appreciation rights ("SARs") and unvested restricted stock awards. The following schedule reconciles basic and diluted EPS for the three and six months ended June 30, 2020 and 2019:

Table 1.2

	For the Three Months Ended					
	June 30, 2020			June 30, 2019		
	Net Income	Weighted-Average Shares	$ per Share	Net Income	Weighted-Average Shares	$ per Share
	(in thousands, except per share amounts)					
Basic EPS						
Net income attributable to common stockholders	$ 31,687	10,730	$ 2.95	$ 28,304	10,698	$ 2.65
Effect of dilutive securities[(1)]						
SARs and restricted stock	—	46	(0.01)	—	72	(0.02)
Diluted EPS	$ 31,687	10,776	$ 2.94	$ 28,304	10,770	$ 2.63

(1) For the three months ended June 30, 2020 and 2019, SARs and restricted stock of 83,297 and 62,660, respectively, were outstanding but not included in the computation of diluted earnings per share of common stock because they were anti-dilutive. For the three months ended June 30, 2020 and 2019, contingent shares of unvested restricted stock of 12,680 and 12,284, respectively, were outstanding but not included in the computation of diluted earnings per share of common stock because performance conditions had not yet been met.

	For the Six Months Ended					
	June 30, 2020			June 30, 2019		
	Net Income	Weighted-Average Shares	$ per Share	Net Income	Weighted-Average Shares	$ per Share
	(in thousands, except per share amounts)					
Basic EPS						
Net income attributable to common stockholders	$ 41,086	10,721	$ 3.83	$ 50,178	10,684	$ 4.70
Effect of dilutive securities[(1)]						
SARs and restricted stock	—	58	(0.02)	—	90	(0.04)
Diluted EPS	$ 41,086	10,779	$ 3.81	$ 50,178	10,774	$ 4.66

(1) For the six months ended June 30, 2020 and 2019, SARs and restricted stock of 85,223 and 59,818, respectively, were outstanding but not included in the computation of diluted earnings per share of common stock because they were anti-dilutive. For the six months ended June 30, 2020 and 2019, contingent shares of unvested restricted stock of 12,680 and 12,284, respectively, were outstanding but not included in the computation of diluted earnings per share of common stock because performance conditions had not yet been met.

(b) Comprehensive Income

Comprehensive income represents all changes in stockholders' equity except those resulting from investments by or distributions to stockholders, and is comprised of net income and unrealized gains and losses on available-for-sale securities, certain held-to-maturity securities transferred from the available-for-sale classification, and cash flow hedges, net of related taxes.

The following table presents the changes in accumulated other comprehensive income ("AOCI"), net of tax, by component for the three and six months ended June 30, 2020 and 2019:

Table 1.3

	As of June 30, 2020				As of June 30, 2019			
	Available-for-Sale Securities	Held-to-Maturity Securities	Cash Flow Hedges	Total	Available-for-Sale Securities	Held-to-Maturity Securities	Cash Flow Hedges	Total
	(in thousands)							
For the Three Months Ended:								
Beginning Balance	$ (121,858)	$ 28,351	$ (27,930)	$ (121,437)	$ (22,800)	$ 41,656	$ 2,398	$ 21,254
Other comprehensive income/(loss) before reclassifications	34,374	—	(2,920)	31,454	(21,711)	—	(7,512)	(29,223)
Amounts reclassified from AOCI	(777)	(1,972)	1,235	(1,514)	(873)	(3,635)	(366)	(4,874)
Net comprehensive income/(loss)	33,597	(1,972)	(1,685)	29,940	(22,584)	(3,635)	(7,878)	(34,097)
Ending Balance	$ (88,261)	$ 26,379	$ (29,615)	$ (91,497)	$ (45,384)	$ 38,021	$ (5,480)	$ (12,843)
For the Six Months Ended:								
Beginning Balance	$ (43,397)	$ 32,845	$ (5,609)	$ (16,161)	$ (25,360)	$ 43,443	$ 6,873	$ 24,956
Other comprehensive loss before reclassifications	(43,310)	—	(25,588)	(68,898)	(18,393)	—	(11,608)	(30,001)
Amounts reclassified from AOCI	(1,554)	(6,466)	1,582	(6,438)	(1,631)	(5,422)	(745)	(7,798)
Net comprehensive loss	(44,864)	(6,466)	(24,006)	(75,336)	(20,024)	(5,422)	(12,353)	(37,799)
Ending Balance	$ (88,261)	$ 26,379	$ (29,615)	$ (91,497)	$ (45,384)	$ 38,021	$ (5,480)	$ (12,843)

The following table presents other comprehensive income activity, the impact on net income of amounts reclassified from each component of AOCI, and the related tax impact for the three and six months ended June 30, 2020 and 2019:

Table 1.4

	For the Three Months Ended					
	June 30, 2020			June 30, 2019		
	Before Tax	Provision (Benefit)	After Tax	Before Tax	Provision (Benefit)	After Tax
	(in thousands)					
Other comprehensive income:						
Available-for-sale-securities:						
Unrealized holding gains/(losses) on available-for-sale securities	$ 43,512	$ 9,138	$ 34,374	$ (27,482)	$ (5,771)	$ (21,711)
Less reclassification adjustments included in:						
Net interest income[1]	(971)	(204)	(767)	(956)	(201)	(755)
Other income[2]	(14)	(4)	(10)	(150)	(32)	(118)
Total	$ 42,527	$ 8,930	$ 33,597	$ (28,588)	$ (6,004)	$ (22,584)
Held-to-maturity securities:						
Less reclassification adjustments included in:						
Net interest income[3]	(2,496)	(524)	(1,972)	(4,601)	(966)	(3,635)
Total	$ (2,496)	$ (524)	$ (1,972)	$ (4,601)	$ (966)	$ (3,635)
Cash flow hedges						
Unrealized losses on cash flow hedges	$ (3,695)	$ (775)	$ (2,920)	$ (9,510)	$ (1,998)	$ (7,512)
Less reclassification adjustments included in:						
Net interest income[4]	1,563	328	1,235	(462)	(96)	(366)
Total	$ (2,132)	$ (447)	$ (1,685)	$ (9,972)	$ (2,094)	$ (7,878)
Other comprehensive income/(loss)	$ 37,899	$ 7,959	$ 29,940	$ (43,161)	$ (9,064)	$ (34,097)

(1) Relates to the amortization of unrealized gains on hedged items prior to the application of fair value hedge accounting.
(2) Represents amortization of deferred gains related to certain available-for-sale USDA Securities and Farmer Mac Guaranteed USDA Securities.
(3) Relates to the amortization of unrealized gains or losses prior to the reclassification of these securities from available-for-sale to held-to-maturity. The amortization of unrealized gains or losses reported in AOCI for held-to-maturity securities will be offset by the amortization of the premium or discount created from the transfer into held-to-maturity securities, which occurred at fair value. These unrealized gains or losses will be recorded over the remaining life of the security with no impact on future net income.
(4) Relates to the recognition of unrealized gains and losses on cash flow hedges recorded in AOCI.

	For the Six Months Ended					
	June 30, 2020			June 30, 2019		
	Before Tax	Provision (Benefit)	After Tax	Before Tax	Provision (Benefit)	After Tax
	(in thousands)					
Other comprehensive income:						
Available-for-sale-securities:						
Unrealized holding losses on available-for-sale securities	$ (54,822)	$ (11,512)	$ (43,310)	$ (23,282)	$ (4,889)	$ (18,393)
Less reclassification adjustments included in:						
Net interest income(1)	(1,940)	(407)	(1,533)	(1,909)	(401)	(1,508)
Other income(2)	(27)	(6)	(21)	(156)	(33)	(123)
Total	$ (56,789)	$ (11,925)	$ (44,864)	$ (25,347)	$ (5,323)	$ (20,024)
Held-to-maturity securities:						
Less reclassification adjustments included in:						
Net interest income(3)	(8,184)	(1,718)	(6,466)	(6,863)	(1,441)	(5,422)
Total	$ (8,184)	$ (1,718)	$ (6,466)	$ (6,863)	$ (1,441)	$ (5,422)
Cash flow hedges						
Unrealized losses on cash flow hedges	$ (32,390)	$ (6,802)	$ (25,588)	$ (14,695)	$ (3,087)	$ (11,608)
Less reclassification adjustments included in:						
Net interest income(4)	2,002	420	1,582	(942)	(197)	(745)
Total	$ (30,388)	$ (6,382)	$ (24,006)	$ (15,637)	$ (3,284)	$ (12,353)
Other comprehensive loss	$ (95,361)	$ (20,025)	$ (75,336)	$ (47,847)	$ (10,048)	$ (37,799)

(1) Relates to the amortization of unrealized gains on hedged items prior to the application of fair value hedge accounting.
(2) Represents amortization of deferred gains related to certain available-for-sale USDA Securities and Farmer Mac Guaranteed USDA Securities.
(3) Relates to the amortization of unrealized gains or losses prior to the reclassification of these securities from available-for-sale to held-to-maturity. The amortization of unrealized gains or losses reported in AOCI for held-to-maturity securities will be offset by the amortization of the premium or discount created from the transfer into held-to-maturity securities, which occurred at fair value. These unrealized gains or losses will be recorded over the remaining life of the security with no impact on future net income.
(4) Relates to the recognition of unrealized gains and losses on cash flow hedges recorded in AOCI.

(c) Allowance for Losses and Reserve for Losses

On January 1, 2020, Farmer Mac adopted Accounting Standards Update 2016-13, Financial Instruments - Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments, ("CECL"). Under CECL, Farmer Mac's allowance for credit losses represents the difference between the carrying amount of the related financial instruments and the present value of their expected cash flows discounted at their effective interest rates, as of the respective balance sheet date. Under CECL, Farmer Mac's reserve for credit losses represents the difference between the outstanding amount of off-balance sheet credit exposures and the present value of their expected cash flows discounted at their effective interest rates.

Farmer Mac maintains an allowance for credit losses to cover current expected credit losses as of the balance sheet date for on-balance sheet investment securities, loans held for investment, and Farmer Mac Guaranteed Securities (collectively referred to as "allowance for losses"). Additionally, Farmer Mac maintains a reserve for credit losses to cover current expected credit losses as of the balance sheet date for off-balance sheet loans underlying LTSPCs and off-balance sheet Farmer Mac Guaranteed Securities (collectively referred to as "reserve for losses"). Both the allowance for losses and reserve for losses are based on historical information and reasonable and supportable forecasts.

Farmer Mac has never experienced a credit loss in its Rural Utilities line of business. Upon the adoption of CECL, Farmer Mac is now required to measure its expected credit losses for the expected life of all financial instruments, including its Rural Utilities loans. To estimate expected credit losses on these loans, Farmer Mac relies upon industry historical credit loss data from ratings agencies and publicly available information as disclosed in the securities filings of other major lenders who serve the utilities industry.

The allowance for losses increases through periodic provisions for loan losses that are charged against net interest income and the reserve for losses increases through provisions for losses that are charged to non-interest expense. Both the allowance for losses and reserve for losses are decreased by charge-offs for realized losses, net of recoveries. Releases from the allowance for losses or reserve for losses occur when the estimate of expected credit losses as of the end of a period is less than the estimate at the beginning of the period.

The total allowance for losses consists of the allowance for losses and the reserve for losses.

Charge-offs

Farmer Mac records a charge-off against the allowance for losses principally when a loss has been confirmed through the receipt of assets, generally the underlying collateral, in full satisfaction of the loan. The loss equals the excess of the recorded investment in the loan over the fair value of the collateral less estimated selling costs.

Estimation Methodology

Farmer Mac bases its methodology for determining its current estimate of expected losses on a statistical model, which incorporates credit loss history and reasonable and supportable forecasts. Farmer Mac's estimation methodology is comprised of the following key components:

- An economic model for each portfolio, including Farm & Ranch, Rural Utilities, and Institutional Credit;
- A migration matrix for each portfolio that reasonably predicts the movement of each financial asset among various risk categories over the course of each asset's expected life. The migration matrix forms the basis for our estimate of the probability of default of each financial asset;
- A loss-given-default ("LGD") model that reasonably predicts the amount of loss that Farmer Mac would incur upon the default of each financial asset;
- An economic factor forecast that updates the migration matrix model and the LGD model with current assumptions for the economic indicators that Farmer Mac has determined are most correlated with or relevant to the performance of each portfolio of assets; including Gross Domestic Product ("GDP"), credit spreads, unemployment rates, land values, and commodity prices; and
- A discounted cash flow analysis, which relies upon each of the above model outputs, plus the contractual terms of each financial asset, and the effective interest rate of each financial asset.

Management evaluates these assumptions by considering many relevant factors, including:

- economic conditions;
- geographic and agricultural commodity/product concentrations in the portfolio;
- the credit profile of the portfolio, including risk ratings and financial metrics;
- delinquency trends of the portfolio;
- historical charge-off and recovery activities of the portfolio; and

- other factors to capture current portfolio trends and characteristics that differ from historical experience.

Management believes that its methodology produces a reasonable estimate of expected credit losses, as of the balance sheet date, for the expected life of all of its financial assets.

Allowance for Loss on Available-for-Sale (AFS) Securities

To measure current expected credit losses on impaired AFS securities, Farmer Mac first considers those impaired securities that: 1) Farmer Mac does not intend to sell, and 2) it is not more likely than not that Farmer Mac will be required to sell before recovering its amortized cost basis. In assessing whether a credit loss exists, Farmer Mac compares the present value, discounted at the security's effective interest rate, of cash flows expected to be collected from an impaired AFS debt security to its amortized cost basis. If the present value of cash flows expected to be collected is less than the amortized cost basis of the impaired security, a credit loss exists and Farmer Mac records an allowance for loss for that credit loss. However, the amount of that allowance is limited by the amount that the security's fair value is less than its amortized cost basis. Accrued interest receivable is recorded separately on the Consolidated Balance Sheet, and the allowance for credit losses excludes uncollectible accrued interest receivable.

Collateral Dependent Assets ("CDAs")

CDAs are loans, loans underlying LTSPCs, or off-balance sheet credit exposures in which the borrower is either in foreclosure or is experiencing financial difficulty and repayment is expected to be provided substantially through the sale or operation of the collateral by Farmer Mac. Farmer Mac estimates the current expected credit loss on CDAs based upon the appraised value of the collateral, the costs to sell it, and any applicable credit protection such as a guarantee.

COVID-19 Payment Deferments

The Coronavirus Aid, Relief, and Economic Security Act ("CARES Act") was signed into law on March 27, 2020. Section 4013 of the CARES Act titled "Temporary Relief from Troubled Debt Restructurings" provides financial institutions the option to temporarily suspend certain requirements under U.S. GAAP related to troubled debt restructurings ("TDRs") for a limited period of time to account for the effects of the novel coronavirus disease 2019 ("COVID-19"). On April 10, 2020, Farmer Mac's prudential regulator, the Office of Secondary Market Oversight (OSMO) within the Farm Credit Administration (FCA), issued guidance to Farmer Mac on loan servicing and reporting TDRs for lines of business affected by the COVID-19 outbreak. This guidance was consistent with the guidance provided by other financial regulatory agencies and the Financial Accounting Standards Board that short-term modifications made on a good faith basis in response to the COVID-19 national emergency are not TDRs when the borrower was not past due on loan payments before the March 13, 2020 presidential proclamation declaring the COVID-19 outbreak a national emergency.

During second quarter 2020, Farmer Mac implemented the guidance from FCA by granting up to 6-month payment deferments to borrowers who have been economically impacted by COVID-19. Farmer Mac deems loans under a COVID-19 payment deferment not to be past due and continues to accrue interest on those loans. Furthermore, Farmer Mac does not consider a payment deferment on any such loan to be a troubled debt restructuring. For the purpose of estimating expected credit losses on Farm & Ranch loans held for investment, Farmer Mac does consider payment deferments along with other available credit and economic information that pertains to that portfolio.

(d) New Accounting Standards

Recently Adopted Accounting Guidance

Standard	Description	Date of Adoption	Effect on Consolidated Financial Statements
ASU 2016-13, Financial Instruments - Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments	This Update required entities to measure all expected credit losses for financial assets held at amortized cost at the reporting date based on historical experience, current conditions, and reasonable and supportable forecasts, as well as requiring entities to use forward-looking information to form their credit loss estimates.	January 1, 2020	In first quarter 2020 Farmer Mac adopted the new guidance. The cumulative-effect adjustment to retained earnings as of January 1, 2020 reflected application of the new guidance and did not have a material effect on Farmer Mac's financial position, results of operations, or cash flows. For more information on the transition adjustment see Table 1.5 below.
ASU 2017-08, Receivables - Nonrefundable Fees and Other Costs (Subtopic 310-20): Premium Amortization on Purchased Callable Debt Securities	The amendments in this Update shorten the amortization period for certain callable debt securities held at a premium by requiring the premium to be amortized to the earliest call date. There is no required accounting change for securities held at a discount in this Update.	January 1, 2020	The adoption of this Update did not have a material effect on Farmer Mac's financial position, results of operations, or cash flows.
ASU 2018-13, Fair Value Measurement (Topic 820): Disclosure Framework - Changes to the Disclosure Requirements for Fair Value Measurement	The amendments in this Update modify the disclosure requirements on fair value measurements in Topic 820, Fair Value Measurements, including the consideration of costs and benefits. Certain disclosure requirements were either removed, modified, or added.	January 1, 2020	The adoption of this Update did not have a material effect on Farmer Mac's financial position, results of operations, or cash flows.

The following table presents the impact of adopting CECL on January 1, 2020 on our allowance and retained earnings:

Table 1.5

	December 31, 2019	Transition Adjustment	January 1, 2020
		(in thousands)	
Allowance:			
Farm & Ranch:			
Loans	$ 10,454	$ (3,909)	$ 6,545
Long-term standby purchase commitments and guarantees	2,164	(148)	2,016
Rural Utilities:			
Loans	—	5,378	5,378
Long-term standby purchase commitments	—	1,011	1,011
Farmer Mac Guaranteed Securities:			
AgVantage	—	315	315
Investment Securities	—	9	9
Total Allowance	$ 12,618	$ 2,656	$ 15,274
Retained Earnings	$ 457,047	$ (2,099)	$ 454,948

Recently Issued Accounting Guidance, Not Yet Adopted Within Our Consolidated Financial Statements

Standard	Description	Date of Planned Adoption	Effect on Consolidated Financial Statements
ASU 2020-04, Reference Rate Reform (Topic 848): Facilitation of the Effects of Reference Rate Reform on Financial Reporting	The amendments in this Update provide optional guidance for a limited period of time to ease the potential burden in accounting for reference rate reform on financial reporting. They provide optional expedients and exceptions for applying GAAP to contracts, hedging relationships, and other transactions affected by reference rate reform if certain criteria are met.	The amendments in this Update are effective for all entities as of March 12, 2020 through December 31, 2022.	Farmer Mac is currently evaluating the impact of the discontinuation of LIBOR on the consolidated financial statements and the applicability of the optional guidance provided by this Update.

(e) Reclassifications

Certain reclassifications of prior period information were made to conform to the current period presentation.

2. INVESTMENT SECURITIES

The following tables set forth information about Farmer Mac's investment securities as of June 30, 2020 and December 31, 2019:

Table 2.1

	As of June 30, 2020						
	Amount Outstanding	Unamortized Premium/ (Discount)	Amortized Cost[(1)]	Allowance for losses[(2)]	Unrealized Gains	Unrealized Losses	Fair Value
				(in thousands)			
Available-for-sale:							
Floating rate auction-rate certificates backed by Government guaranteed student loans	$ 19,700	$ —	$ 19,700	$ (38)	$ —	$ (1,379)	$ 18,283
Floating rate asset-backed securities	9,818	—	9,818	—	—	(11)	9,807
Floating rate Government/GSE guaranteed mortgage-backed securities	2,108,505	29	2,108,534	—	7,409	(3,566)	2,112,377
Fixed rate GSE guaranteed mortgage-backed securities	292	—	292	—	30	—	322
Fixed rate U.S. Treasuries	1,314,850	5,763	1,320,613	—	6,043	(67)	1,326,589
Total available-for-sale	3,453,165	5,792	3,458,957	(38)	13,482	(5,023)	3,467,378
Held-to-maturity:							
Floating rate Government/GSE guaranteed mortgage-backed securities[(3)]	45,032	—	45,032	—	650	—	45,682
Total investment securities	$ 3,498,197	$ 5,792	$ 3,503,989	$ (38)	$ 14,132	$ (5,023)	$ 3,513,060

(1) Amounts presented exclude $6.6 million of accrued interest receivable on investment securities as of June 30, 2020.

(2) Represents the amount of impairment that has resulted from credit-related factors, and therefore was recognized in the consolidated statement of operations as a provision for losses. Amount excludes unrealized losses relating to non-credit factors.

(3) The held-to-maturity investment securities had a weighted average yield of 1.5% as of June 30, 2020.

	As of December 31, 2019					
	Amount Outstanding	Unamortized Premium/ (Discount)	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
	(in thousands)					
Available-for-sale:						
Floating rate auction-rate certificates backed by Government guaranteed student loans	$ 19,700	$ —	$ 19,700	$ —	$ (788)	$ 18,912
Floating rate asset-backed securities	11,092	—	11,092	—	(7)	11,085
Floating rate Government/GSE guaranteed mortgage-backed securities	1,633,731	1,174	1,634,905	2,414	(4,736)	1,632,583
Fixed rate GSE guaranteed mortgage-backed securities	315	—	315	25	—	340
Fixed rate U.S. Treasuries	1,295,210	208	1,295,418	1,520	(15)	1,296,923
Total available-for-sale	2,960,048	1,382	2,961,430	3,959	(5,546)	2,959,843
Held-to-maturity:						
Floating rate Government/GSE guaranteed mortgage-backed securities[1]	45,032	—	45,032	953	—	45,985
Total investment securities	$ 3,005,080	$ 1,382	$ 3,006,462	$ 4,912	$ (5,546)	$ 3,005,828

(1) The held-to-maturity investment securities had a weighted average yield of 3.3% as of December 31, 2019.

Farmer Mac did not sell any securities from its available-for-sale investment portfolio during the three and six months ended June 30, 2020 and 2019.

As of June 30, 2020 and December 31, 2019, unrealized losses on available-for-sale investment securities were as follows:

Table 2.2

	As of June 30, 2020			
	Available-for-Sale Securities			
	Unrealized loss position for less than 12 months		Unrealized loss position for more than 12 months	
	Fair Value	Unrealized Loss	Fair Value	Unrealized Loss
	(dollars in thousands)			
Floating rate auction-rate certificates backed by Government guaranteed student loans	$ —	$ —	$ 18,283	$ (1,379)
Floating rate asset-backed securities	—	—	9,807	(11)
Floating rate Government/GSE guaranteed mortgage-backed securities	565,860	(2,163)	217,525	(1,403)
Fixed rate U.S. Treasuries	226,448	(67)	—	—
Total	$ 792,308	$ (2,230)	$ 245,615	$ (2,793)
Number of securities in loss position		58		55

	As of December 31, 2019							
	Available-for-Sale Securities							
	Unrealized loss position for less than 12 months				Unrealized loss position for more than 12 months			
	Fair Value		Unrealized Loss		Fair Value		Unrealized Loss	
	(dollars in thousands)							
Floating rate auction-rate certificates backed by Government guaranteed student loans	$	—	$	—	$	18,912	$	(788)
Floating rate asset-backed securities		2,583		(1)		8,502		(6)
Floating rate Government/GSE guaranteed mortgage-backed securities		841,993		(2,244)		436,621		(2,492)
Fixed rate U.S. Treasuries		35,107		(15)		—		—
Total	$	879,683	$	(2,260)	$	464,035	$	(3,286)
Number of securities in loss position				57				62

The unrealized losses presented above are principally due to a general widening of market spreads and changes in the levels of interest rates from the dates of acquisition to June 30, 2020 and December 31, 2019, as applicable. The resulting decrease in fair values reflects an increase in the perceived risk by the financial markets related to those securities. As of both June 30, 2020 and December 31, 2019, all of the investment securities in an unrealized loss position either were backed by the full faith and credit of the U.S. government or had credit ratings of at least "AA+."

Securities in unrealized loss positions for 12 months or longer have a fair value as of June 30, 2020 that is, on average, approximately 98.9% of their amortized cost basis. Farmer Mac believes that all of these unrealized losses are recoverable within a reasonable period of time by way of maturity or changes in credit spreads.

The amortized cost, fair value, and weighted-average yield of available-for-sale investment securities by remaining contractual maturity as of June 30, 2020 are set forth below. Asset-backed and mortgage-backed securities are included based on their final maturities, although the actual maturities may differ due to prepayments of the underlying assets.

Table 2.3

	As of June 30, 2020				
	Available-for-Sale Securities				
	Amortized Cost		Fair Value		Weighted-Average Yield
	(dollars in thousands)				
Due within one year	$	1,235,047	$	1,241,040	1.58%
Due after one year through five years		364,971		364,927	0.99%
Due after five years through ten years		922,322		926,675	0.72%
Due after ten years		936,617		934,736	0.69%
Total	$	3,458,957	$	3,467,378	1.05%

3. FARMER MAC GUARANTEED SECURITIES AND USDA SECURITIES

The following tables set forth information about on-balance sheet Farmer Mac Guaranteed Securities and USDA Securities as of June 30, 2020 and December 31, 2019:

Table 3.1

	As of June 30, 2020						
	Unpaid Principal Balance	Unamortized Premium/ (Discount)	Amortized Cost[1]	Allowance for losses[2]	Unrealized Gains	Unrealized Losses	Fair Value
				(in thousands)			
Held-to-maturity:							
AgVantage	$ 1,108,720	$ (70)	$ 1,108,650	$ (546)	$ 30,070	$ —	$ 1,138,174
Farmer Mac Guaranteed USDA Securities	32,537	77	32,614	—	1,249	—	33,863
Total Farmer Mac Guaranteed Securities	1,141,257	7	1,141,264	(546)	31,319	—	1,172,037
USDA Securities	2,307,684	32,239	2,339,923	—	85,626	(661)	2,424,888
Total held-to-maturity	$ 3,448,941	$ 32,246	$ 3,481,187	$ (546)	$ 116,945	$ (661)	$ 3,596,925
Available-for-sale:							
AgVantage	$ 7,540,043	$ (99)	$ 7,539,944	$ (235)	$ 405,926	$ (47,248)	$ 7,898,387
Trading:							
USDA Securities[3]	$ 7,276	$ 391	$ 7,667	$ —	$ 122	$ (3)	$ 7,786

(1) Amounts presented exclude $34.9 million, $35.3 million, and $0.2 million of accrued interest receivable on available-for-sale, held-to-maturity, and trading securities, respectively, as of June 30, 2020.
(2) Represents the amount of impairment that has resulted from credit-related factors, and therefore was recognized in the statement of financial operations as a provision for losses. Amount excludes unrealized losses relating to non-credit factors.
(3) The trading USDA securities had a weighted average yield of 5.15% as of June 30, 2020.

	As of December 31, 2019					
	Unpaid Principal Balance	Unamortized Premium/ (Discount)	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
			(in thousands)			
Held-to-maturity:						
AgVantage	$ 1,415,584	$ (174)	$ 1,415,410	$ 15,300	$ (164)	$ 1,430,546
Farmer Mac Guaranteed USDA Securities	31,887	154	32,041	839	—	32,880
Total Farmer Mac Guaranteed Securities	1,447,471	(20)	1,447,451	16,139	(164)	1,463,426
USDA Securities	2,190,671	41,489	2,232,160	54,356	(758)	2,285,758
Total held-to-maturity	$ 3,638,142	$ 41,469	$ 3,679,611	$ 70,495	$ (922)	$ 3,749,184
Available-for-sale:						
AgVantage	$ 7,017,095	$ (124)	$ 7,016,971	$ 161,316	$ (35,262)	$ 7,143,025
Trading:						
USDA Securities[1]	$ 8,400	$ 479	$ 8,879	$ 61	$ (27)	$ 8,913

(1) The trading USDA securities had a weighted average yield of 5.20% as of December 31, 2019.

As of June 30, 2020 and December 31, 2019, unrealized losses on held-to-maturity and available-for-sale on-balance sheet Farmer Mac Guaranteed Securities and USDA Securities were as follows:

Table 3.2

	As of June 30, 2020			
	Held-to-Maturity and Available-for-Sale Securities			
	Unrealized loss position for less than 12 months		Unrealized loss position for more than 12 months	
	Fair Value	Unrealized Loss	Fair Value	Unrealized Loss
	(in thousands)			
Held-to-maturity:				
USDA Securities	$ —	$ —	$ 22,235	$ (661)
Total held-to-maturity	$ —	$ —	$ 22,235	$ (661)
Available-for-sale:				
AgVantage	$ 521,979	$ (932)	$ 841,123	$ (46,316)

	As of December 31, 2019			
	Held-to-Maturity and Available-for-Sale Securities			
	Unrealized loss position for less than 12 months		Unrealized loss position for more than 12 months	
	Fair Value	Unrealized Loss	Fair Value	Unrealized Loss
	(in thousands)			
Held-to-maturity:				
AgVantage	$ —	$ —	$ 301,836	$ (164)
USDA Securities	—	—	27,089	(758)
Total held-to-maturity	$ —	$ —	$ 328,925	$ (922)
Available-for-sale:				
AgVantage	$ 225,239	$ (2,203)	$ 1,394,802	$ (33,059)

The unrealized losses presented above are principally due to changes in interest rates from the date of acquisition to June 30, 2020 and December 31, 2019, as applicable. The unrealized losses on the held-to-maturity USDA Securities as of both June 30, 2020 and December 31, 2019 reflect their increased cost basis resulting from their transfer to held-to-maturity as of October 1, 2016.

The credit exposure related to Farmer Mac's USDA Guarantees line of business is covered by the full faith and credit guarantee of the United States of America. As of June 30, 2020, Farmer Mac had executed COVID-19 payment deferments on loans with unpaid principal balances of $50.1 million underlying USDA Securities.

The unrealized losses from AgVantage securities were on 13 and 17 available-for-sale securities as of June 30, 2020 and December 31, 2019, respectively. There were 0 and 4 held-to-maturity AgVantage securities with an unrealized loss as of June 30, 2020 and December 31, 2019, respectively. As of June 30, 2020 and December 31, 2019, 6 and 13 available-for-sale AgVantage securities, respectively, had been in a loss position for more than 12 months.

During the three and six months ended June 30, 2020 and 2019, Farmer Mac had no sales of Farmer Mac Guaranteed Securities or USDA Securities and, therefore, Farmer Mac realized no gains or losses.

The amortized cost, fair value, and weighted-average yield of available-for-sale and held-to-maturity Farmer Mac Guaranteed Securities and USDA Securities by remaining contractual maturity as of June 30, 2020 are set forth below. The balances presented are based on their final maturities, although the actual maturities may differ due to prepayments of the underlying assets.

Table 3.3

	As of June 30, 2020		
	Available-for-Sale Securities		
	Amortized Cost[1]	Fair Value	Weighted-Average Yield
		(dollars in thousands)	
Due within one year	$ 1,435,445	$ 1,438,585	1.34 %
Due after one year through five years	3,434,770	3,557,439	2.34 %
Due after five years through ten years	1,147,366	1,232,206	2.34 %
Due after ten years	1,522,363	1,670,157	2.67 %
Total	$ 7,539,944	$ 7,898,387	2.22 %

(1) Amounts presented exclude $34.9 million of accrued interest receivable.

	As of June 30, 2020		
	Held-to-Maturity Securities		
	Amortized Cost[1]	Fair Value	Weighted-Average Yield
		(dollars in thousands)	
Due within one year	$ 445,889	$ 451,452	2.94 %
Due after one year through five years	751,402	777,980	3.21 %
Due after five years through ten years	213,460	220,404	3.17 %
Due after ten years	2,070,436	2,147,089	3.39 %
Total	$ 3,481,187	$ 3,596,925	3.28 %

(1) Amounts presented exclude $35.3 million of accrued interest receivable.

4. FINANCIAL DERIVATIVES

Farmer Mac enters into financial derivative transactions to protect against risk from the effects of market price, or interest rate movements, on the value of certain assets, future cash flows, or debt issuance, and not for trading or speculative purposes. For more information about Farmer Mac's financial derivatives, see Note 6 in Farmer Mac's Annual Report on Form 10-K for the fiscal year ended December 31, 2019 filed with the SEC on February 25, 2020.

The following tables summarize information related to Farmer Mac's financial derivatives on a gross basis without giving consideration to master netting arrangements as of June 30, 2020 and December 31, 2019:

Table 4.1

	As of June 30, 2020						
		Fair Value					
	Notional Amount	Asset	(Liability)	Weighted-Average Pay Rate	Weighted-Average Receive Rate	Weighted-Average Forward Price	Weighted-Average Remaining Term (in years)
			(dollars in thousands)				
Fair value hedges:							
Interest rate swaps:							
Pay fixed non-callable	$ 5,584,809	$ 8,358	$ (4,694)	2.24%	0.65%		11.71
Receive fixed non-callable	2,305,500	249	(8,087)	0.78%	1.90%		2.35
Receive fixed callable	413,500	5,891	—	0.48%	1.80%		3.53
Cash flow hedges:							
Interest rate swaps:							
Pay fixed non-callable	437,000	1,246	(11,964)	2.27%	0.71%		5.82
No hedge designation:							
Interest rate swaps:							
Pay fixed non-callable	446,721	—	(22,403)	2.78%	0.85%		4.25
Receive fixed non-callable	3,143,951	—	—	0.48%	1.09%		0.82
Receive fixed callable	150,000	138	—	0.73%	1.66%		1.27
Basis swaps	3,610,000	706	(545)	0.49%	0.27%		1.08
Treasury futures	27,500		(9)			139.14	
Credit valuation adjustment		—	159				
Total financial derivatives	$ 16,118,981	$ 16,588	$ (47,543)				
Collateral (held)/pledged		(1,500)	248,293				
Net amount		$ 15,088	$ 200,750				

	As of December 31, 2019						
		Fair Value					
	Notional Amount	Asset	(Liability)	Weighted-Average Pay Rate	Weighted-Average Receive Rate	Weighted-Average Forward Price	Weighted-Average Remaining Term (in years)
	(dollars in thousands)						
Fair value hedges:							
Interest rate swaps:							
Pay fixed non-callable	$ 4,955,686	$ 7,163	$ (3,281)	2.47%	1.93%		11.26
Receive fixed non-callable	1,413,200	76	(5,329)	1.88%	2.13%		1.25
Receive fixed callable	524,000	476	(772)	1.52%	1.91%		2.83
Cash flow hedges:							
Interest rate swaps:							
Pay fixed non-callable	428,000	1,882	(1,514)	2.36%	2.12%		5.43
No hedge designation:							
Interest rate swaps:							
Pay fixed non-callable	342,745	7	(14,046)	3.55%	2.00%		5.51
Receive fixed non-callable	3,124,148	49	(1,637)	1.88%	2.06%		1.66
Receive fixed callable	525,000	79	(80)	1.64%	1.68%		0.83
Basis swaps	2,670,000	787	(395)	1.86%	1.76%		0.90
Treasury futures	39,400	—	(51)			128.29	
Credit valuation adjustment		—	63				
Total financial derivatives	$ 14,022,179	$ 10,519	$ (27,042)				
Collateral (held)/pledged		(2,685)	132,129				
Net amount		$ 7,834	$ 105,087				

As of June 30, 2020, Farmer Mac expects to reclassify $5.3 million after tax from accumulated other comprehensive income to earnings over the next twelve months. This amount could differ from amounts actually recognized due to changes in interest rates, hedge de-designations, and the addition of other hedges after June 30, 2020. During the three and six months ended June 30, 2020 and 2019, there were no gains or losses from interest rate swaps designated as cash flow hedges reclassified to earnings because it was probable that the originally forecasted transactions would occur.

The following table summarizes the net income/(expense) recognized in the consolidated statements of operations related to derivatives for the three and six months ended June 30, 2020 and 2019:

Table 4.2

	For the Three Months Ended June 30, 2020				
	Net Income/(Expense) Recognized in Consolidated Statement of Operations on Derivatives				
	Net Interest Income			Non-Interest Income	
	Interest Income Farmer Mac Guaranteed Securities and USDA Securities	Interest Income Loans	Total Interest Expense	Gains on financial derivatives	Total
			(in thousands)		
Total amounts presented in the consolidated statement of operations	$ 61,792	$ 55,430	$ (79,273)	$ 6,523	$ 44,472
Income/(expense) related to interest settlements on fair value hedging relationships:					
Recognized on derivatives	(12,257)	(4,535)	5,432	—	(11,360)
Recognized on hedged items	32,102	9,812	(12,721)	—	29,193
Discount amortization recognized on hedged items	—	—	(181)	—	(181)
Income/(expense) related to interest settlements on fair value hedging relationships	$ 19,845	$ 5,277	$ (7,470)	$ —	$ 17,652
(Losses)/gains on fair value hedging relationships:					
Recognized on derivatives	$ (9,226)	$ (6,616)	$ 3,722	$ —	$ (12,120)
Recognized on hedged items	9,050	3,037	(2,348)	—	9,739
(Losses)/gains on fair value hedging relationships	$ (176)	$ (3,579)	$ 1,374	$ —	$ (2,381)
Expense related to interest settlements on cash flow hedging relationships:					
Interest settlements reclassified from AOCI into net income on derivatives	$ —	$ —	$ (1,563)	$ —	$ (1,563)
Recognized on hedged items	—	—	(1,029)	—	(1,029)
Discount amortization recognized on hedged items	—	—	(2)	—	(2)
Expense recognized on cash flow hedges	$ —	$ —	$ (2,594)	$ —	$ (2,594)
Gains on financial derivatives not designated in hedging relationships:					
Gains on interest rate swaps	$ —	$ —	$ —	$ 8,427	$ 8,427
Interest expense on interest rate swaps	—	—	—	(1,795)	(1,795)
Treasury futures	—	—	—	(109)	(109)
Gains on financial derivatives not designated in hedge relationships	$ —	$ —	$ —	$ 6,523	$ 6,523

	For The Three Months Ended June 30, 2019				
	Net Income/(Expense) Recognized in Consolidated Statement of Operations on Derivatives				
	Net Interest Income			Non-Interest Income	
	Interest Income Farmer Mac Guaranteed Securities and USDA Securities	Interest Income Loans	Total Interest Expense	Gains on financial derivatives	Total
			(in thousands)		
Total amounts presented in the consolidated statement of operations:	$ 85,569	$ 59,403	$ (122,074)	$ 8,913	$ 31,811
Income/(expense) related to interest settlements on fair value hedging relationships:					
Recognized on derivatives	1,167	(202)	(2,572)	—	(1,607)
Recognized on hedged items	30,380	6,323	(11,779)	—	24,924
Discount amortization recognized on hedged items	—	—	(164)	—	(164)
Income/(expense) related to interest settlements on fair value hedging relationships	$ 31,547	$ 6,121	$ (14,515)	$ —	$ 23,153
(Losses)/gains on fair value hedging relationships:					
Recognized on derivatives	$ (116,405)	$ (33,953)	$ 16,146	$ —	$ (134,212)
Recognized on hedged items	114,638	33,795	(15,649)	—	132,784
(Losses)/gains on fair value hedging relationships	$ (1,767)	$ (158)	$ 497	$ —	$ (1,428)
Expense related to interest settlements on cash flow hedging relationships:					
Interest settlements reclassified from AOCI into net income on derivatives	$ —	$ —	$ 462	$ —	$ 462
Recognized on hedged items	—	—	(2,697)	—	(2,697)
Discount amortization recognized on hedged items	—	—	(1)	—	(1)
Expense recognized on cash flow hedges	$ —	$ —	$ (2,236)	$ —	$ (2,236)
Gains on financial derivatives not designated in hedge relationships:					
Gains on interest rate swaps	$ —	$ —	$ —	$ 11,152	$ 11,152
Interest expense on interest rate swaps	—	—	—	(1,146)	(1,146)
Treasury futures	—	—	—	(1,093)	(1,093)
Gains on financial derivatives not designated in hedge relationships	$ —	$ —	$ —	$ 8,913	$ 8,913

	For the Six Months Ended June 30, 2020				
	Net Income/(Expense) Recognized in Consolidated Statement of Operations on Derivatives				
	Net Interest Income			Non-Interest Income	
	Interest Income Farmer Mac Guaranteed Securities and USDA Securities	Interest Income Loans	Total Interest Expense	Losses on financial derivatives	Total
			(in thousands)		
Total amounts presented in the consolidated statement of operations	$ 133,309	$ 116,026	$ (187,815)	$ (2,775)	$ 58,745
Income/(expense) related to interest settlements on fair value hedging relationships:					
Recognized on derivatives	(18,408)	(6,412)	7,066	—	(17,754)
Recognized on hedged items	63,927	18,489	(26,997)	—	55,419
Discount amortization recognized on hedged items	—	—	(361)	—	(361)
Income/(expense) related to interest settlements on fair value hedging relationships	$ 45,519	$ 12,077	$ (20,292)	$ —	$ 37,304
(Losses)/gains on fair value hedging relationships:					
Recognized on derivatives	$ (303,159)	$ (152,521)	$ 62,656	$ —	$ (393,024)
Recognized on hedged items	299,430	148,445	(62,913)	—	384,962
(Losses)/gains on fair value hedging relationships	$ (3,729)	$ (4,076)	$ (257)	$ —	$ (8,062)
Expense related to interest settlements on cash flow hedging relationships:					
Interest settlements reclassified from AOCI into net income on derivatives	$ —	$ —	$ (2,002)	$ —	$ (2,002)
Recognized on hedged items	—	—	(3,152)	—	(3,152)
Discount amortization recognized on hedged items	—	—	(2)	—	(2)
Expense recognized on cash flow hedges	$ —	$ —	$ (5,156)	$ —	$ (5,156)
(Losses)/gains on financial derivatives not designated in hedging relationships:					
Gains on interest rate swaps	$ —	$ —	$ —	$ 1,878	$ 1,878
Interest expense on interest rate swaps	—	—	—	(2,657)	(2,657)
Treasury futures	—	—	—	(1,996)	(1,996)
(Losses)/gains on financial derivatives not designated in hedge relationships	$ —	$ —	$ —	$ (2,775)	$ (2,775)

	For The Six Months Ended June 30, 2019				
	Net Income/(Expense) Recognized in Consolidated Statement of Operations on Derivatives				
	Net Interest Income			Non-Interest Income	
	Interest Income Farmer Mac Guaranteed Securities and USDA Securities	Interest Income Loans	Total Interest Expense	Gains on financial derivatives	Total
			(in thousands)		
Total amounts presented in the consolidated statement of operations:	$ 170,980	$ 110,800	$ (236,990)	$ 8,553	$ 53,343
Income/(expense) related to interest settlements on fair value hedging relationships:					
Recognized on derivatives	2,717	(224)	(5,790)	—	(3,297)
Recognized on hedged items	55,198	10,878	(21,811)	—	44,265
Discount amortization recognized on hedged items	—	—	(314)	—	(314)
Income/(expense) related to interest settlements on fair value hedging relationships	$ 57,915	$ 10,654	$ (27,915)	$ —	$ 40,654
Gains/(losses) on fair value hedging relationships:					
Recognized on derivatives	$ (175,392)	$ (54,034)	$ 25,123	$ —	$ (204,303)
Recognized on hedged items	173,990	50,031	(23,846)	—	200,175
Gains/(losses) on fair value hedging relationships	$ (1,402)	$ (4,003)	$ 1,277	$ —	$ (4,128)
Expense related to interest settlements on cash flow hedging relationships:					
Interest settlements reclassified from AOCI into net income on derivatives	$ —	$ —	$ 942	$ —	$ 942
Recognized on hedged items	—	—	(5,417)	—	(5,417)
Discount amortization recognized on hedged items	—	—	(2)	—	(2)
Expense recognized on cash flow hedges	$ —	$ —	$ (4,477)	$ —	$ (4,477)
Gains on financial derivatives not designated in hedge relationships:					
Gains on interest rate swaps	$ —	$ —	$ —	$ 13,320	$ 13,320
Interest expense on interest rate swaps	—	—	—	(3,446)	(3,446)
Treasury futures	—	—	—	(1,321)	(1,321)
Gains on financial derivatives not designated in hedge relationships	$ —	$ —	$ —	$ 8,553	$ 8,553

The following table shows the carrying amount and associated cumulative basis adjustment related to the application of hedge accounting that is included in the carrying amount of hedged assets and liabilities in fair value hedging relationships as of June 30, 2020 and December 31, 2019:

Table 4.3

	Hedged Items in Fair Value Relationship			
	Carrying Amount of Hedged Assets/ (Liabilities)		Cumulative Amount of Fair Value Hedging Adjustments included in the Carrying Amount of the Hedged Assets/(Liabilities)	
	June 30, 2020	December 31, 2019	June 30, 2020	December 31, 2019
	(in thousands)			
Farmer Mac Guaranteed Securities, Available-for-Sale, at fair value	$ 4,506,185	$ 4,092,611	$ 479,632	$ 180,215
Loans held for investment, at amortized cost[1]	1,634,784	1,050,335	186,352	37,907
Notes Payable[2]	(2,787,699)	(2,761,052)	(70,433)	(7,433)

(1) Includes $0.4 million as of June 30, 2020 in fair value adjustment, currently included in "Prepaid expenses and other assets" related to a hedge of a purchase commitment of a loan.
(2) Carrying amount represents amortized cost.

The following table shows Farmer Mac's credit exposure to interest rate swap counterparties as of June 30, 2020 and December 31, 2019:

Table 4.4

	June 30, 2020		
	Gross Amount Recognized[1]	Counterparty Netting	Net Amount Presented in the Consolidated Balance Sheet
	(in thousands)		
Assets:			
Derivatives			
Interest rate swap	$ 122,793	$ 121,310	$ 1,483
Liabilities:			
Derivatives			
Interest rate swap	$ 799,070	$ 779,807	$ 19,263

(1) Gross amount excludes netting arrangements and any adjustment for nonperformance risk, but includes accrued interest.

	December 31, 2019		
	Gross Amount Recognized[1]	Counterparty Netting	Net Amount Presented in the Consolidated Balance Sheet
	(in thousands)		
Assets:			
Derivatives			
Interest rate swaps	$ 56,139	$ 53,771	$ 2,368
Liabilities:			
Derivatives			
Interest rate swaps	$ 305,584	$ 291,326	$ 14,258

(1) Gross amount excludes netting arrangements and any adjustment for nonperformance risk, but includes accrued interest.

As of June 30, 2020, Farmer Mac held $1.5 million of cash and no investment securities as collateral for its derivatives in net asset positions, compared to $2.7 million of cash and no investment securities as collateral for its derivatives in net asset positions as of December 31, 2019.

Farmer Mac posted $17.6 million cash and $230.7 million of investment securities as of June 30, 2020 and posted $0.5 million cash and $131.7 million investment securities as of December 31, 2019. Farmer Mac records posted cash as a reduction in the outstanding balance of cash and cash equivalents and an increase in the balance of prepaid expenses and other assets. Any investment securities posted as collateral are included in the investment securities balances on the consolidated balance sheets. If Farmer Mac had breached certain provisions of the derivative contracts as of June 30, 2020 and December 31, 2019, it could have been required to settle its obligations under the agreements, but would not have been required to post additional collateral. As of June 30, 2020 and December 31, 2019, there were no financial derivatives in a net payable position where Farmer Mac was required to pledge collateral which the counterparty had the right to sell or repledge.

Of Farmer Mac's $16.1 billion notional amount of interest rate swaps outstanding as of June 30, 2020, $13.3 billion were cleared through the swap clearinghouse, the Chicago Mercantile Exchange ("CME"). Of Farmer Mac's $14.0 billion notional amount of interest rate swaps outstanding as of December 31, 2019, $11.0 billion were cleared through the CME. During the first half of 2020 and throughout 2019, Farmer Mac increased its use of non-cleared basis swaps as it began to prepare for the transition away from the use of LIBOR as a reference rate. For more information about interest rate swaps cleared through a clearinghouse, see Note 6 in Farmer Mac's Annual Report on Form 10-K for the fiscal year ended December 31, 2019 filed with the SEC on February 25, 2020.

5. LOANS

Loans held for investment are recorded at the unpaid principal balance, net of unamortized premium or discount and other cost basis adjustments. The following table displays the composition of the loan balances as of June 30, 2020 and December 31, 2019:

Table 5.1

	As of June 30, 2020[(1)]			As of December 31, 2019[(2)]		
	Unsecuritized	In Consolidated Trusts	Total	Unsecuritized	In Consolidated Trusts	Total
	(in thousands)					
Farm & Ranch	$ 4,181,422	$ 1,436,090	$ 5,617,512	$ 3,675,640	$ 1,600,917	$ 5,276,557
Rural Utilities	2,101,568	—	2,101,568	1,671,293	—	1,671,293
Total unpaid principal balance[(3)]	6,282,990	1,436,090	7,719,080	5,346,933	1,600,917	6,947,850
Unamortized premiums, discounts, fair value hedge basis adjustment, and other cost basis adjustments	187,007	—	187,007	44,044	—	44,044
Total loans	6,469,997	1,436,090	7,906,087	5,390,977	1,600,917	6,991,894
Allowance for losses	(13,758)	(1,181)	(14,939)	(8,853)	(1,601)	(10,454)
Total loans, net of allowance	$ 6,456,239	$ 1,434,909	$ 7,891,148	$ 5,382,124	$ 1,599,316	$ 6,981,440

(1) Allowance for losses reflects the adoption of ASU 2016-13, "Financial Instruments - Credit Losses," in first quarter 2020.
(2) Prior to the adoption of ASU 2016-13, "Financial Instruments - Credit Losses," in first quarter 2020, Farmer Mac maintained an allowance for losses to cover estimated probable incurred losses on loans held.
(3) Unpaid principal balance is the basis of presentation in disclosures of outstanding balances for Farmer Mac's lines of business.

Allowance for Losses

The following table is a summary, by asset type, of the allowance for losses as of June 30, 2020 and December 31, 2019:

Table 5.2

	June 30, 2020[1]	December 31, 2019[2]
	Allowance for Losses	Allowance for Losses
	(in thousands)	
Loans:		
Farm & Ranch	$ 6,039	$ 10,454
Rural Utilities	8,900	—
Total	$ 14,939	$ 10,454

(1) Allowance for losses reflects the adoption of ASU 2016-13, "Financial Instruments - Credit Losses," in first quarter 2020.
(2) Prior to the adoption of ASU 2016-13, "Financial Instruments - Credit Losses," in first quarter 2020, Farmer Mac maintained an allowance for loan losses to cover estimated probable incurred losses on loans held.

The following is a summary of the changes in the allowance for losses for the three and six month period ended June 30, 2020 and 2019:

Table 5.3

	For the Three Months Ended		For the Six Months Ended	
	June 30, 2020[1]	June 30, 2019[2]	June 30, 2020[1]	June 30, 2019[2]
	Allowance for Losses	Allowance for Losses	Allowance for Losses	Allowance for Losses
	(in thousands)			
Farm & Ranch:				
Beginning Balance	$ 7,353	$ 6,753	$ 10,454	$ 7,017
Cumulative effect adjustment from adoption of current expected credit loss standard	—	—	(3,909)	—
Adjusted Beginning Balance	7,353	6,753	6,545	7,017
(Release of)/provision for losses	(920)	578	(112)	314
Charge-offs	(394)	(67)	(394)	(67)
Ending Balance[3]	$ 6,039	$ 7,264	$ 6,039	$ 7,264
Rural Utilities:				
Beginning Balance	$ 7,503	$ —	$ —	$ —
Cumulative effect adjustment from adoption of current expected credit loss standard	—	—	5,378	—
Adjusted Beginning Balance	7,503	—	5,378	—
Provision for losses	1,397	—	3,522	—
Charge-offs	—	—	—	—
Ending Balance[4]	$ 8,900	$ —	$ 8,900	$ —

(1) Allowance for losses reflects the adoption of ASU 2016-13, "Financial Instruments - Credit Losses," in first quarter 2020.
(2) Prior to the adoption of ASU 2016-13, "Financial Instruments - Credit Losses," in first quarter 2020, Farmer Mac maintained an allowance for loan losses to cover estimated probable incurred losses on loans held.
(3) Allowance for losses includes $1.8 million for collateral dependent assets secured by commercial real estate.
(4) Allowance for losses includes no allowance for collateral dependent assets.

The cumulative transition adjustment decrease of $3.9 million in the Farm & Ranch portfolio was primarily driven by differences in the way that the two loss models measure the impact of low loan-to-value ratios in that portfolio. Under the previous accounting standard, Farmer Mac's estimated incurred loss model was based on historical weighted-average loss rates from realized losses within commodities and risk ratings. The historical weighted average loss rates were then applied to sub-portfolios, as disaggregated by commodity and risk rating, to calculate the general allowance. Under the CECL accounting standard, Farmer Mac's current expected credit losses are calculated individually based on the expected probability of default and the expected loss-given-default for each loan. The low loan-to-value ratios in the Farm & Ranch portfolio result in low individual losses-given-default. Thus, our expected credit losses as of January 1, 2020 were less than our estimate of incurred losses as of December 31, 2019.

The cumulative transition adjustment increase of $5.4 million in the Rural Utilities portfolio was primarily driven by the change from measuring incurred probable credit losses to measuring expected credit losses over the expected lives of these loans. Farmer Mac has never experienced a credit loss in its Rural Utilities portfolio. Additionally, these loans have strong credit ratings and performance, which supported Farmer Mac's estimate of no incurred credit losses under the previous accounting standard. Upon the adoption of CECL, Farmer Mac is now required to measure its expected credit losses for the entire expected life of all financial instruments, including its Rural Utilities loans. To estimate expected credit losses on these loans, Farmer Mac relies upon industry data from ratings agencies and publicly available information as disclosed in the securities filings of other major lenders who serve the utilities industry. Under the CECL accounting standard, Farmer Mac's loss allowance model for these loans is primarily impacted by the long-term maturities of the loans and their low probability of prepayment. In addition, the highly-specialized nature of power generation and transmission facilities results in significant losses given default even though the probability of default is low. Thus, the long-term expected lives of these loans combined with high losses given default result in an estimate of expected losses although we have never incurred a credit loss in this portfolio.

The provision to the allowance for loan losses of $0.5 million recorded during second quarter 2020 was primarily due to the impact of net new loan volume in the Rural Utilities portfolio of $311.8 million. The impact of the Rural Utilities portfolio on the net increase to the provision was partially offset by improving economic factors that uniquely impacted the Farm & Ranch portfolio, specifically improvements in commodity prices and expectations for stable farm land values. In addition, there was a $0.4 million charge-off to the allowance related to the acquisition of a new real estate owned property ("REO") during second quarter 2020.

The provision to the allowance for loan losses of $3.4 million recorded during the six months ended June 30, 2020 was primarily due to the impact of net new loan volume in the Rural Utilities portfolio and the impact of economic factor forecasts on the Rural Utilities portfolio, especially expected higher unemployment, as a result of the COVID-19 pandemic and the resulting economic volatility.

The provision for the allowance for loan losses recorded during three and six months ended June 30, 2019 was attributable to an increase in the general allowance due to net volume growth in on-balance sheet Farm & Ranch loans and a slight decrease in the portfolio credit quality.

The following table presents the unpaid principal balances by delinquency status of Farmer Mac's loans and non-performing assets as of June 30, 2020:

Table 5.4

	As of June 30, 2020						
	Accruing						
	Current[5]	30-59 Days	60-89 Days	90 Days and Greater[2]	Total Past Due	Nonaccrual loans[3][4]	Total Loans
	(in thousands)						
Loans[1]:							
Farm & Ranch	$ 5,476,962	$ 7,892	$ —	$ 15,528	$ 23,420	$ 117,130	$ 5,617,512
Rural Utilities	2,101,568	—	—	—	—	—	2,101,568
Total	$ 7,578,530	$ 7,892	$ —	$ 15,528	$ 23,420	$ 117,130	$ 7,719,080

(1) Amounts represent unpaid principal balance of risk rated loans, which is the basis Farmer Mac uses to analyze its portfolio, and recorded investment of past due loans.
(2) Includes loans in consolidated trusts with beneficial interests owned by third parties that are 90 days or more past due.
(3) Includes loans that are 90 days or more past due, in foreclosure, or in bankruptcy with at least one missed payment, excluding loans performing under either their original loan terms or a court-approved bankruptcy plan.
(4) Includes $23.1 million of nonaccrual loans for which there was no associated allowance. During the three and six months ended June 30, 2020, Farmer Mac received $1.3 million and 2.3 million, respectively, in interest on nonaccrual loans.
(5) Includes $82.2 million of unpaid principal balance related to Farm & Ranch loans that Farmer Mac has executed a COVID-19 payment deferment.

The following tables present the unpaid principal balances of loans held and the related total allowance for losses by impairment method and commodity type as of December 31, 2019:

Table 5.5

	As of December 31, 2019						
	Crops	Permanent Plantings	Livestock	Part-time Farm	Ag. Storage and Processing	Other	Total
	(in thousands)						
Ending Balance:							
Collectively evaluated for impairment	$ 2,664,362	$ 1,161,900	$ 871,341	$ 356,920	$ 10,360	$ 4,597	$ 5,069,480
Individually evaluated for impairment	108,815	51,256	39,962	7,044	—	—	207,077
Total Farm & Ranch loans	$ 2,773,177	$ 1,213,156	$ 911,303	$ 363,964	$ 10,360	$ 4,597	$ 5,276,557
Allowance for Losses:							
Collectively evaluated for impairment	$ 1,880	$ 1,362	$ 714	$ 249	$ 47	$ 4	$ 4,256
Individually evaluated for impairment	2,628	1,008	2,447	115	—	—	6,198
Total Farm & Ranch loans	$ 4,508	$ 2,370	$ 3,161	$ 364	$ 47	$ 4	$ 10,454

The following tables present by commodity type the unpaid principal balances, recorded investment, and specific allowance for losses related to impaired loans and the recorded investment in loans on nonaccrual status as of December 31, 2019:

Table 5.6

	As of December 31, 2019						
	Crops	Permanent Plantings	Livestock	Part-time Farm	Ag. Storage and Processing	Other	Total
	(in thousands)						
Impaired Loans:							
With no specific allowance:							
Recorded investment	$ 30,846	$ 16,696	$ 3,195	$ 1,398	$ —	$ 56	$ 52,191
Unpaid principal balance	30,741	16,638	3,185	1,394	—	56	52,014
With a specific allowance:							
Recorded investment(1)	84,044	36,852	47,113	6,376	—	—	174,385
Unpaid principal balance	83,772	36,732	46,984	6,356	—	—	173,844
Associated allowance	2,725	1,051	2,636	129	—	—	6,541
Total:							
Recorded investment	114,890	53,548	50,308	7,774	—	56	226,576
Unpaid principal balance	114,513	53,370	50,169	7,750	—	56	225,858
Associated allowance	2,725	1,051	2,636	129	—	—	6,541
Recorded investment of loans on nonaccrual status(2)	$ 34,037	$ 22,849	$ 28,441	$ 2,454	$ —	$ —	$ 87,781

(1) Impairment analysis was performed in the aggregate in consideration of similar risk characteristics of the assets and historical statistics on $159.1 million (70%) of impaired loans as of December 31, 2019, which resulted in a specific allowance of $3.0 million.

(2) Includes $30.1 million of loans that are less than 90 days delinquent but which have not met Farmer Mac's performance criteria for returning to accrual status.

The following table presents by commodity type the average recorded investment and interest income recognized on impaired loans for the three and six months ended June 30, 2019:

Table 5.7

	June 30, 2019						
	Crops	Permanent Plantings	Livestock	Part-time Farm	Ag. Storage and Processing	Other	Total
	(in thousands)						
For the Three Months Ended:							
Average recorded investment in impaired loans	$ 98,176	$ 39,056	$ 28,650	$ 7,675	$ —	$ 59	$ 173,616
Income recognized on impaired loans	379	121	304	55	—	—	859
For the Six Months Ended:							
Average recorded investment in impaired loans	$ 85,652	$ 41,903	$ 26,279	$ 8,268	$ —	$ 66	$ 162,168
Income recognized on impaired loans	701	420	417	122	—	—	1,660

Net credit losses and 90-day delinquencies as of and for the periods indicated for loans held are presented in the table below. As of December 31, 2019, there were no delinquencies and no probable losses inherent in Farmer Mac's Rural Utilities loan portfolio and Farmer Mac had not experienced credit losses on any Rural Utilities loans.

Table 5.8

	90-Day Delinquencies[1] As of December 31, 2019	Net Credit Losses For the Six Months Ended June 30, 2019
	(in thousands)	
Farm & Ranch loans	$ 57,719	$ 131

(1) Includes loans that are 90 days or more past due, in foreclosure, or in bankruptcy with at least one missed payment, excluding loans performing under either their original loan terms or a court-approved bankruptcy plan.

Of the $57.7 million of on-balance sheet loans reported as 90-day delinquencies as of December 31, 2019, no loans were subject to "removal-of-account" provisions.

Rural Utilities

As of December 31, 2019, no allowance for losses had been provided for Farmer Mac's Rural Utilities line of business based on the performance of the loans in this line of business and the credit quality of the collateral supporting these loans, as well as Farmer Mac's counterparty risk analysis. As of December 31, 2019, there were no delinquencies or probable losses inherent in Farmer Mac's Rural Utilities loans held or underlying LTSPCs.

Credit Quality Indicators

The following tables present credit quality indicators related to Farm & Ranch loans and Rural Utilities loans held as of June 30, 2020, by year of origination:

Table 5.9

	As of June 30, 2020							
	Year of Origination:							
	2020	2019	2018	2017	2016	Prior	Revolving Loans - Amortized Cost Basis	Total
	(in thousands)							
Farm & Ranch[1]:								
Internally Assigned Risk Rating:								
Acceptable	$ 758,965	$ 773,199	$ 562,604	$ 617,751	$ 528,068	$1,345,384	$ 501,625	$5,087,596
Special mention[2]	76,588	166,829	32,164	9,278	5,477	19,630	10,260	320,226
Substandard[3]	448	6,655	18,326	59,545	53,639	60,478	10,599	209,690
Total	$ 836,001	$ 946,683	$ 613,094	$ 686,574	$ 587,184	$1,425,492	$ 522,484	$5,617,512
For the Three Months Ended:								
Current period charge-offs	$ —	$ —	$ —	$ —	$ —	$ 394	$ —	$ 394
Current period recoveries	—	—	—	—	—	—	—	—
Current period Farm & Ranch net charge-offs	$ —	$ —	$ —	$ —	$ —	$ 394	$ —	$ 394
For the Six Months Ended:								
Current period charge-offs	$ —	$ —	$ —	$ —	$ —	$ 394	$ —	$ 394
Current period recoveries	—	—	—	—	—	—	—	—
Current period Farm & Ranch net charge-offs	$ —	$ —	$ —	$ —	$ —	$ 394	$ —	$ 394

(1) Amounts represent unpaid principal balance of risk-rated loans, which is the basis Farmer Mac uses to analyze its portfolio, and recorded investment of past due loans.
(2) Assets in the "Special mention" category generally have potential weaknesses due to performance issues but are currently considered to be adequately secured.
(3) Substandard assets have a well-defined weakness or weaknesses and there is a distinct possibility that some loss will be sustained if deficiencies are not corrected.

	As of June 30, 2020							
	Year of Origination:							
	2020	2019	2018	2017	2016	Prior	Revolving Loans - Amortized Cost Basis	Total
	(in thousands)							
Rural Utilities[1]:								
Internally Assigned Risk Rating:								
Acceptable	$ 470,419	$ 827,336	$ 8,337	$ 92,440	$ 31,829	$ 658,827	$ 7,366	$2,096,554
Special mention[2]	—	—	—	—	—	—	—	—
Substandard[3]	—	—	—	—	—	5,014	—	5,014
Total	$ 470,419	$ 827,336	$ 8,337	$ 92,440	$ 31,829	$ 663,841	$ 7,366	$2,101,568
For the Three Months Ended:								
Current period charge-offs	$ —	$ —	$ —	$ —	$ —	$ —	$ —	$ —
Current period recoveries	—	—	—	—	—	—	—	—
Current period Rural Utilities net charge-offs	$ —	$ —	$ —	$ —	$ —	$ —	$ —	$ —
For the Six Months Ended:								
Current period charge-offs	$ —	$ —	$ —	$ —	$ —	$ —	$ —	$ —
Current period recoveries	—	—	—	—	—	—	—	—
Current period Rural Utilities net charge-offs	$ —	$ —	$ —	$ —	$ —	$ —	$ —	$ —

(1) Amounts represent unpaid principal balance of risk-rated loans, which is the basis Farmer Mac uses to analyze its portfolio, and recorded investment of past due loans.
(2) Assets in the "Special mention" category generally have potential weaknesses due to performance issues but are currently considered to be adequately secured.
(3) Substandard assets have a well-defined weakness or weaknesses and there is a distinct possibility that some loss will be sustained if deficiencies are not corrected.

The following table presents credit quality indicators related to Farm & Ranch loans held as of December 31, 2019:

Table 5.10

	As of December 31, 2019						
	Crops	Permanent Plantings	Livestock	Part-time Farm	Ag. Storage and Processing	Other	Total
	(in thousands)						
Internally Assigned Risk Rating[1]							
Acceptable	$ 2,556,956	$ 1,050,160	$ 825,234	$ 343,329	$ 10,360	$ 4,597	$ 4,790,636
Special mention[2]	107,406	111,739	46,107	13,591	—	—	278,843
Substandard[3]	108,815	51,257	39,962	7,044	—	—	207,078
Total	$ 2,773,177	$ 1,213,156	$ 911,303	$ 363,964	$ 10,360	$ 4,597	$ 5,276,557
Commodity analysis of past due loans[1]	$ 21,167	$ 15,828	$ 19,354	$ 1,370	$ —	$ —	$ 57,719

(1) Amounts represent unpaid principal balance of risk-rated loans, which is the basis Farmer Mac uses to analyze its portfolio, and recorded investment of past due loans.
(2) Assets in the "Special mention" category generally have potential weaknesses due to performance issues but are currently considered to be adequately secured.
(3) Substandard assets have a well-defined weakness or weaknesses and there is a distinct possibility that some loss will be sustained if deficiencies are not corrected.

6. GUARANTEES

The following table presents the maximum principal amount of potential undiscounted future payments that Farmer Mac could be required to make under all off-balance sheet Farmer Mac Guaranteed Securities as of June 30, 2020 and December 31, 2019, not including offsets provided by any recourse provisions, recoveries from third parties, or collateral for the underlying loans:

Table 6.1

Outstanding Balance of Off-Balance Sheet Farmer Mac Guaranteed Securities				
	As of June 30, 2020		As of December 31, 2019	
	(in thousands)			
Farm & Ranch:				
Farmer Mac Guaranteed Securities	$	90,225	$	107,322
USDA Guarantees:				
Farmer Mac Guaranteed USDA Securities		330,309		389,216
Institutional Credit:				
AgVantage Securities		6,068		7,567
Total off-balance sheet Farmer Mac Guaranteed Securities	$	426,602	$	504,105

Eligible loans and other eligible assets may be placed into trusts that are used as vehicles for the securitization of the transferred assets and the Farmer Mac-guaranteed beneficial interests in the trusts are sold to investors. The following table summarizes the significant cash flows received from and paid to trusts used for Farmer Mac securitizations:

Table 6.2

	For the Six Months Ended			
	June 30, 2020		June 30, 2019	
	(in thousands)			
Proceeds from new securitizations	$	28,050	$	166,351
Guarantee fees received		894		861

Farmer Mac presents a liability for its obligation to stand ready under its guarantee in "Guarantee and commitment obligation" on the consolidated balance sheets. The following table presents the liability and the weighted-average remaining maturity of all loans underlying off-balance sheet Farmer Mac Guaranteed Securities:

Table 6.3

	As of June 30, 2020		As of December 31, 2019	
	(dollars in thousands)			
Guarantee and commitment obligation	$	1,890	$	2,230
Weighted average remaining maturity:				
Farmer Mac Guaranteed Securities		9.6 years		9.8 years
AgVantage Securities		4.5 years		5.0 years

Long-Term Standby Purchase Commitments

Farmer Mac has recorded a liability for its obligation to stand ready under the guarantee in the guarantee and commitment obligation on the consolidated balance sheets. The following table presents the liability, the maximum principal amount of potential undiscounted future payments that Farmer Mac could be requested to make under all LTSPCs, not including offsets provided by any recourse provisions, recoveries from third parties, or collateral for the underlying loans, as well as the weighted-average remaining maturity of all loans underlying LTSPCs:

Table 6.4

	As of June 30, 2020	As of December 31, 2019
	(dollars in thousands)	
Guarantee and commitment obligation[1]	$ 33,273	$ 34,470
Maximum principal amount	2,900,166	3,002,349
Weighted-average remaining maturity	15.2 years	15.2 years

[1] Relates to LTSPCs issued or modified on or after January 1, 2003.

Reserve for Losses

The following table is a summary, by asset type, of the reserve for losses as of June 30, 2020 and December 31, 2019:

Table 6.5

	June 30, 2020[(1)]	December 31, 2019[(2)]
	Reserve for Losses	Reserve for Losses
	(in thousands)	
Farm & Ranch:		
LTSPCs and Farmer Mac Guaranteed Securities	$ 1,650	$ 2,164
Rural Utilities		
LTSPCs	1,370	—
Total	$ 3,020	$ 2,164

(1) Reserve for losses reflects the adoption of ASU 2016-13, "Financial Instruments - Credit Losses," in first quarter 2020.
(2) Prior to the adoption of ASU 2016-13, "Financial Instruments - Credit Losses," in first quarter 2020, Farmer Mac maintained a reserve for losses to cover estimated probable incurred losses on loans underlying LTSPCs and off-balance sheet Farm & Ranch Farmer Mac Guaranteed Securities.

The following is a summary of the changes in the reserve for losses for the three and six month period ended June 30, 2020 and 2019:

Table 6.6

	For the Three Months Ended		For the Six Months Ended	
	June 30, 2020[(1)]	June 30, 2019[(2)]	June 30, 2020[(1)]	June 30, 2019[(2)]
	Reserve for Losses	Reserve for Losses	Reserve for Losses	Reserve for Losses
	(in thousands)			
Farm & Ranch:				
Beginning Balance	$ 2,020	$ 2,038	$ 2,164	$ 2,167
Cumulative effect adjustment from adoption of current expected credit loss standard	—	—	(148)	—
Adjusted Beginning Balance	2,020	2,038	2,016	2,167
Release of losses	$ (370)	$ (158)	$ (366)	$ (287)
Charge-offs	—	—	—	—
Ending Balance	$ 1,650	$ 1,880	$ 1,650	$ 1,880
Rural Utilities:				
Beginning Balance	$ 1,400	$ —	$ —	$ —
Cumulative effect adjustment from adoption of current expected credit loss standard	—	—	1,011	—
Adjusted Beginning Balance	1,400	—	1,011	—
(Release of)/provision for losses	$ (30)	$ —	$ 359	$ —
Charge-offs	—	—	—	—
Ending Balance	$ 1,370	$ —	$ 1,370	$ —

(1) Reserve for losses reflects the adoption of ASU 2016-13, "Financial Instruments - Credit Losses," in first quarter 2020.
(2) Prior to the adoption of ASU 2016-13, "Financial Instruments - Credit Losses," in first quarter 2020, Farmer Mac maintained a reserve for losses to cover estimated probable incurred losses on loans underlying LTSPCs and off-balance sheet Farm & Ranch Farmer Mac Guaranteed Securities.

The release from the reserve for losses recorded during the three and six months ended June 30, 2020 was primarily due to the net decreases in LTSPC volume of $58.5 million and $119.3 million, respectively.

The following table presents the unpaid principal balances by delinquency status of Farm & Ranch loans underlying LTSPCs. Farm & Ranch Farmer Mac Guaranteed Securities, Rural Utilities loans underlying LTSPCs, and non-performing assets as of June 30, 2020:

Table 6.7

	As of June 30, 2020					
	Current(2)	30-59 Days	60-89 Days	90 Days and Greater(1)	Total Past Due	Total Loans
	(in thousands)					
Farm and Ranch:						
LTSPCs and Farmer Mac Guaranteed Securities	$ 2,374,988	$ 9,947	$ 12,587	$ 2,816	$ 25,350	$ 2,400,338
Rural Utilities:						
LTSPCs	$ 590,053	$ —	$ —	$ —	$ —	$ 590,053

(1) Includes loans underlying off-balance sheet Farm & Ranch Guaranteed Securities and LTSPCs that are 90 days of more past due, in foreclosure, or in bankruptcy with at least one missed payment, excluding loans performing under either their original loan terms or a court-approved bankruptcy plan.
(2) Includes $109.5 million of unpaid principal balance related to Farm & Ranch LTSPCs for which the lender has notified Farmer Mac of an executed COVID-19 payment deferment.

The following tables present the unpaid principal balances of Farm & Ranch loans underlying LTSPCs and off-balance sheet Farmer Mac Guaranteed Securities (excluding AgVantage securities) and the related reserve for losses by impairment method and commodity type as of December 31, 2019:

Table 6.8

	As of December 31, 2019						
	Crops	Permanent Plantings	Livestock	Part-time Farm	Ag. Storage and Processing	Other	Total
	(in thousands)						
Ending Balance:							
Collectively evaluated for impairment:	$ 1,151,983	$ 511,991	$ 581,377	$ 167,395	$ 66,106	$ 2,760	$ 2,481,612
Individually evaluated for impairment:	5,698	2,114	10,207	706	—	56	18,781
Total Farm & Ranch	$ 1,157,681	$ 514,105	$ 591,584	$ 168,101	$ 66,106	$ 2,816	$ 2,500,393
Allowance for Losses:							
Collectively evaluated for impairment:	$ 599	$ 96	$ 308	$ 50	$ 767	$ 1	$ 1,821
Individually evaluated for impairment:	97	43	189	14	—	—	343
Total Farm & Ranch	$ 696	$ 139	$ 497	$ 64	$ 767	$ 1	$ 2,164

Net credit losses and 90-day delinquencies as of and for the periods indicated for loans underlying off-balance sheet securities representing interests in pools of eligible Farm & Ranch LTSPCs are presented in the table below. As of December 31, 2019, there were no delinquencies and no probable losses inherent in Farmer Mac's Rural Utilities LTSPCs portfolio and Farmer Mac had not experienced credit losses on any Rural Utilities LTSPCs.

Table 6.9

	90-Day Delinquencies[1]	Net Credit Losses/(Recoveries)
	As of	For the Six Months Ended
	December 31, 2019	June 30, 2019
	(in thousands)	
Farm & Ranch LTSPCs and Farmer Mac Guaranteed Securities	$ 3,235	$ —

(1) Includes loans underlying off-balance sheet Farm & Ranch Guaranteed Securities and LTSPCs that are 90 days or more past due, in foreclosure, or in bankruptcy with at least one missed payment, excluding loans performing under either their original loan terms or a court-approved bankruptcy plan.

Credit Quality Indicators

The following tables present credit quality indicators related to Farm & Ranch loans underlying LTSPCs, Farm & Ranch Farmer Mac Guaranteed Securities, and Rural Utilities loans underlying LTSPCs as of June 30, 2020, by year of origination:

Table 6.10

	As of June 30, 2020							
	Year of Origination:							
	2020	2019	2018	2017	2016	Prior	Revolving Loans - Amortized Cost Basis	Total
	(in thousands)							
Farm & Ranch LTSPCs and Farmer Mac Guaranteed Securities:								
Internally Assigned Risk Rating:								
Acceptable	$ 71,569	$ 206,177	$ 177,787	$ 251,149	$ 222,988	$1,072,259	$ 172,509	$2,174,438
Special mention[1]	—	10,250	7,835	24,518	16,090	61,674	10,359	130,726
Substandard[2]	286	—	3,982	15,277	11,619	59,342	4,668	95,174
Total	$ 71,855	$ 216,427	$ 189,604	$ 290,944	$ 250,697	$1,193,275	$ 187,536	$2,400,338
For the Three Months Ended:								
Current period charge-offs	$ —	$ —	$ —	$ —	$ —	$ —	$ —	$ —
Current period recoveries	—	—	—	—	—	—	—	—
Current period Farm & Ranch net charge-offs	$ —	$ —	$ —	$ —	$ —	$ —	$ —	$ —
For the Six Months Ended:								
Current period charge-offs	$ —	$ —	$ —	$ —	$ —	$ —	$ —	$ —
Current period recoveries	—	—	—	—	—	—	—	—
Current period Farm & Ranch net charge-offs	$ —	$ —	$ —	$ —	$ —	$ —	$ —	$ —

(1) Assets in the "Special mention" category generally have potential weaknesses due to performance issues but are currently considered to be adequately secured.

(2) Substandard assets have a well-defined weakness or weaknesses and there is a distinct possibility that some loss will be sustained if deficiencies are not corrected.

	As of June 30, 2020							
	Year of Origination:							
	2020	2019	2018	2017	2016	Prior	Revolving Loans - Amortized Cost Basis	Total
	(in thousands)							
Rural Utilities LTSPCs:								
Internally Assigned Risk Rating:								
Acceptable	$ —	$ —	$ —	$ —	$ —	$ 577,920	$ 12,133	$ 590,053
Special mention(1)	—	—	—	—	—	—	—	—
Substandard(2)	—	—	—	—	—	—	—	—
Total	$ —	$ —	$ —	$ —	$ —	$ 577,920	$ 12,133	$ 590,053
For the Three Months Ended								
Current period charge-offs	$ —	$ —	$ —	$ —	$ —	$ —	$ —	$ —
Current period recoveries	—	—	—	—	—	—	—	—
Current period Rural Utilities net charge-offs	$ —	$ —	$ —	$ —	$ —	$ —	$ —	$ —
For the Six Months Ended:								
Current period charge-offs	$ —	$ —	$ —	$ —	$ —	$ —	$ —	$ —
Current period recoveries	—	—	—	—	—	—	—	—
Current period Rural Utilities net charge-offs	$ —	$ —	$ —	$ —	$ —	$ —	$ —	$ —

(1) Assets in the "Special mention" category generally have potential weaknesses due to performance issues but are currently considered to be adequately secured.
(2) Substandard assets have a well-defined weakness or weaknesses and there is a distinct possibility that some loss will be sustained if deficiencies are not corrected.

The following table presents credit quality indicators related to Farm & Ranch loans underlying LTSPCs and off-balance sheet Farm & Ranch Farmer Mac Guaranteed Securities as of December 31, 2019:

Table 6.11

	As of December 31, 2019						
	Crops	Permanent Plantings	Livestock	Part-time Farm	Ag. Storage and Processing	Other	Total
	(in thousands)						
Internally Assigned Risk Rating(1)							
Acceptable	$ 1,033,002	$ 484,601	$ 521,341	$ 161,361	$ 66,106	$ 2,594	$ 2,269,005
Special mention(2)	68,372	22,909	35,618	1,612	—	—	128,511
Substandard(3)	56,307	6,595	34,625	5,128	—	222	102,877
Total	$ 1,157,681	$ 514,105	$ 591,584	$ 168,101	$ 66,106	$ 2,816	$ 2,500,393
Commodity analysis of past due loans(1)	$ 1,493	$ 196	$ 1,066	$ 480	$ —	$ —	$ 3,235

(1) Amounts represent unpaid principal balance of risk-rated loans, which is the basis Farmer Mac uses to analyze its portfolio, and recorded investment of past due loans.
(2) Assets in the "Special mention" category generally have potential weaknesses due to performance issues but are currently considered to be adequately secured.
(3) Substandard assets have a well-defined weakness or weaknesses and there is a distinct possibility that some loss will be sustained if deficiencies are not corrected.

7. NOTES PAYABLE

Farmer Mac's borrowings consist of discount notes and medium-term notes, both of which are unsecured general obligations of Farmer Mac. Discount notes generally have original maturities of 1.0 year or less, whereas medium-term notes generally have maturities of 0.5 years to 15.0 years.

The following tables set forth information related to Farmer Mac's borrowings as of June 30, 2020 and December 31, 2019:

Table 7.1

	June 30, 2020			
	Outstanding as of June 30		Average Outstanding During the First Six Months	
	Amount	Weighted-Average Rate	Amount	Weighted-Average Rate
	(dollars in thousands)			
Due within one year:				
Discount notes	$ 2,507,363	0.44 %	$ 2,221,571	1.05 %
Medium-term notes	1,394,857	0.47 %	1,120,213	1.16 %
Current portion of medium-term notes	6,985,303	0.93 %		
Total due within one year	$ 10,887,523	0.76 %		
Due after one year:				
Medium-term notes due in:				
Two years	$ 3,764,817	1.08 %		
Three years	1,839,291	1.70 %		
Four years	1,204,584	1.78 %		
Five years	1,213,467	1.56 %		
Thereafter	2,511,868	2.28 %		
Total due after one year	10,534,027	1.61 %		
Total	$ 21,421,550	1.18 %		

	December 31, 2019			
	Outstanding as of December 31		Average Outstanding During the Year	
	Amount	Weighted-Average Rate	Amount	Weighted-Average Rate
	(dollars in thousands)			
Due within one year:				
Discount notes	$ 2,194,177	1.72 %	$ 1,977,214	2.25 %
Medium-term notes	1,152,770	1.98 %	1,780,517	2.33 %
Current portion of medium-term notes	6,672,135	1.85 %		
Total due within one year	$ 10,019,082	1.84 %		
Due after one year:				
Medium-term notes due in:				
Two years	$ 3,700,835	2.04 %		
Three years	1,594,709	2.15 %		
Four years	1,205,276	2.27 %		
Five years	760,887	2.25 %		
Thereafter	1,817,859	2.89 %		
Total due after one year	9,079,566	2.28 %		
Total	$ 19,098,648	2.05 %		

During the six months ended June 30, 2020, Farmer Mac increased its use of short-term funding in order to fund the growth of short-term assets in its liquidity portfolio. The maximum amount of Farmer Mac's discount notes outstanding at any month end during the six months ended June 30, 2020 and 2019 was $2.6 billion and $2.1 billion, respectively.

Callable medium-term notes give Farmer Mac the option to redeem the debt at par value on a specified call date or at any time on or after a specified call date. The following table summarizes by maturity date the amounts and costs for Farmer Mac debt callable in 2020 as of June 30, 2020:

Table 7.2

Debt Callable in 2020 as of June 30, 2020, by Maturity

	Amount	Weighted-Average Rate
	(dollars in thousands)	
Maturity:		
2021	$ 491,862	1.02 %
2022	203,845	1.43 %
2023	37,953	0.82 %
2024	143,832	1.80 %
Thereafter	399,489	2.25 %
Total	$ 1,276,981	1.56 %

The following schedule summarizes the earliest interest rate reset date, or debt maturities, of total borrowings outstanding as of June 30, 2020, including callable and non-callable medium-term notes, assuming callable notes are redeemed at the initial call date:

Table 7.3

	Earliest Interest Rate Reset Date, or Debt Maturities, of Borrowings Outstanding	
	Amount	Weighted-Average Rate
	(dollars in thousands)	
Debt with interest rate resets, or debt maturities in:		
2020	$ 11,227,000	0.48 %
2021	3,047,823	1.79 %
2022	1,745,399	1.74 %
2023	1,706,568	1.88 %
2024	965,056	1.86 %
Thereafter	2,729,704	2.31 %
Total	$ 21,421,550	1.18 %

During the six months ended June 30, 2020 and 2019, Farmer Mac called $1.9 billion and $0.3 billion of callable medium-term notes, respectively. The decrease in market interest rates throughout 2019 and continuing into the first half of 2020 led to an increase in called medium-term notes compared to the prior year.

Authority to Borrow from the U.S. Treasury

Farmer Mac's statutory charter authorizes it, upon satisfying certain conditions, to borrow up to $1.5 billion from the U.S. Treasury through the issuance of debt obligations to the U.S. Treasury. Any funds borrowed from the U.S. Treasury may be used solely for the purpose of fulfilling Farmer Mac's guarantee obligations. Any debt obligations issued by Farmer Mac under this authority would bear interest at a rate determined by the U.S. Treasury, taking into consideration the average rate on outstanding marketable obligations of the United States as of the last day of the last calendar month ending before the date of the purchase of the obligations from Farmer Mac. The charter requires Farmer Mac to repurchase any of its debt obligations held by the U.S. Treasury within a reasonable time. As of June 30, 2020, Farmer Mac had not used this borrowing authority.

Gains on Repurchase of Outstanding Debt

No outstanding debt repurchases were made in the six months ended June 30, 2020 or 2019.

8. EQUITY

Preferred Stock

In May 2020, Farmer Mac issued 3.2 million shares of 5.750% non-cumulative perpetual Series E preferred stock, par value $25.00 per share. Farmer Mac incurred direct costs of $2.5 million related to the issuance of the Series E preferred stock. The dividend rate on the Series E preferred stock will remain at a non-cumulative, fixed rate of 5.750% per year, when, as, and if a dividend is declared by the Board of Directors of Farmer Mac, for so long as the Series E preferred stock remains outstanding. The Series E preferred stock has no maturity date, but Farmer Mac has the option to redeem the preferred stock at any time on any dividend payment date on and after July 17, 2025.

Common Stock

During first and second quarter 2020, Farmer Mac paid a quarterly dividend of $0.80 per share on all classes of its common stock. For each quarter in 2019, Farmer Mac paid a quarterly dividend of $0.70 per share on all classes of its common stock.

Farmer Mac's board of directors approved a share repurchase program during third quarter 2015 authorizing Farmer Mac to repurchase up to $25.0 million of its outstanding Class C non-voting common stock. The share repurchase program, last modified on March 14, 2019, authorized Farmer Mac to repurchase up to $10.0 million of Farmer Mac's outstanding Class C non-voting common stock. During first quarter 2020, Farmer Mac repurchased approximately 4,000 shares of Class C non-voting common stock at a cost of approximately $0.2 million. Shortly after these repurchases were completed, Farmer Mac indefinitely suspended its share repurchase program in an effort to preserve capital and liquidity in view of market volatility and uncertainty caused by the COVID-19 pandemic. As of June 30, 2020, Farmer Mac had repurchased approximately 673,000 shares of Class C non-voting common stock at a cost of approximately $19.8 million under the share repurchase program since 2015. The program expires at the end of March 2021.

Capital Requirements

Farmer Mac is required to comply with the higher of the minimum capital requirement and the risk-based capital requirement. As of both June 30, 2020 and December 31, 2019, the minimum capital requirement was greater than the risk-based capital requirement. Farmer Mac's ability to declare and pay dividends could be restricted if it fails to comply with applicable capital requirements.

As of June 30, 2020, Farmer Mac's minimum capital requirement was $667.7 million and its core capital level was $915.6 million, which was $247.9 million above the minimum capital requirement as of that date. As of December 31, 2019, Farmer Mac's minimum capital requirement was $618.8 million and its core capital level was $815.4 million, which was $196.6 million above the minimum capital requirement as of that date.

In accordance with the Farm Credit Administration's rule on Farmer Mac's capital planning, and as part of Farmer Mac's capital plan, Farmer Mac has adopted a policy for maintaining a sufficient level of Tier 1 capital (consisting of retained earnings, paid-in-capital, common stock, and qualifying preferred stock) and imposing restrictions on Tier 1-eligible dividends and any discretionary bonus payments in the event that this capital falls below specified thresholds.

9. FAIR VALUE DISCLOSURES

Fair Value Classification and Transfers

The following tables present information about Farmer Mac's assets and liabilities measured at fair value on a recurring basis as of June 30, 2020 and December 31, 2019, respectively, and indicate the fair value hierarchy of the valuation techniques used by Farmer Mac to determine such fair value:

Table 9.1

Assets and Liabilities Measured at Fair Value as of June 30, 2020

	Level 1	Level 2	Level 3[(1)]	Total
		(in thousands)		
Recurring:				
Assets:				
Investment Securities:				
Available-for-sale:				
Floating rate auction-rate certificates backed by Government guaranteed student loans	$ —	$ —	$ 18,283	$ 18,283
Floating rate asset-backed securities	—	9,807	—	9,807
Floating rate Government/GSE guaranteed mortgage-backed securities	—	2,112,377	—	2,112,377
Fixed rate GSE guaranteed mortgage-backed securities	—	322	—	322
Fixed rate U.S. Treasuries	1,326,589	—	—	1,326,589
Total Investment Securities	1,326,589	2,122,506	18,283	3,467,378
Farmer Mac Guaranteed Securities:				
Available-for-sale:				
AgVantage	—	—	7,898,387	7,898,387
Total Farmer Mac Guaranteed Securities	—	—	7,898,387	7,898,387
USDA Securities:				
Trading	—	—	7,786	7,786
Total USDA Securities	—	—	7,786	7,786
Financial derivatives	—	16,588	—	16,588
Total Assets at fair value	$ 1,326,589	$ 2,139,094	$ 7,924,456	$ 11,390,139
Liabilities:				
Financial derivatives	$ 9	$ 47,534	$ —	$ 47,543
Total Liabilities at fair value	$ 9	$ 47,534	$ —	$ 47,543

(1) Level 3 assets represent 33% of total assets and 69% of financial instruments measured at fair value.

Assets and Liabilities Measured at Fair Value as of December 31, 2019

	Level 1	Level 2	Level 3[1]	Total
		(in thousands)		
Recurring:				
Assets:				
Investment Securities:				
Available-for-sale:				
Floating rate auction-rate certificates backed by Government guaranteed student loans	$ —	$ —	$ 18,912	$ 18,912
Floating rate asset-backed securities	—	11,085	—	11,085
Floating rate Government/GSE guaranteed mortgage-backed securities	—	1,632,583	—	1,632,583
Fixed rate GSE guaranteed mortgage-backed securities	—	340	—	340
Fixed rate U.S. Treasuries	1,296,923	—	—	1,296,923
Total available-for-sale	1,296,923	1,644,008	18,912	2,959,843
Farmer Mac Guaranteed Securities:				
Available-for-sale:				
AgVantage	—	—	7,143,025	7,143,025
Total Farmer Mac Guaranteed Securities	—	—	7,143,025	7,143,025
USDA Securities:				
Trading	—	—	8,913	8,913
Total USDA Securities	—	—	8,913	8,913
Financial derivatives	—	10,519	—	10,519
Total Assets at fair value	$ 1,296,923	$ 1,654,527	$ 7,170,850	$ 10,122,300
Liabilities:				
Financial derivatives	$ 51	$ 26,991	$ —	$ 27,042
Total Liabilities at fair value	$ 51	$ 26,991	$ —	$ 27,042

[1] Level 3 assets represent 33% of total assets and 71% of financial instruments measured at fair value.

There were no significant assets or liabilities measured at fair value on a non-recurring basis as of June 30, 2020 or December 31, 2019.

Transfers in and/or out of the different levels within the fair value hierarchy are based on the fair values of the assets and liabilities as of the beginning of the reporting period. During the first half of 2020 and 2019, there were no transfers within the fair value hierarchy for fair value measurements of Farmer Mac's investment securities, Farmer Mac Guaranteed Securities, USDA Securities, and financial derivatives.

The following tables present additional information about assets and liabilities measured at fair value on a recurring basis for which Farmer Mac has used significant unobservable inputs to determine fair value. Net transfers in and/or out of Level 3 are based on the fair values of the assets and liabilities as of the beginning of the reporting period. There were no liabilities measured at fair value using significant unobservable inputs during the three and six months ended June 30, 2020 and 2019.

Table 9.2

Level 3 Assets and Liabilities Measured at Fair Value for the Three Months Ended June 30, 2020

	Beginning Balance	Purchases	Sales	Settlements	Allowance for losses	Realized and unrealized gains/(losses) included in Income	Unrealized gains/(losses) included in Other Comprehensive Income	Ending Balance
					(in thousands)			
Recurring:								
Assets:								
Investment Securities:								
Available-for-sale:								
Floating rate auction-rate certificates backed by Government guaranteed student loans	$ 16,721	$ —	$ —	$ —	$ (15)	$ —	$ 1,577	$ 18,283
Total available-for-sale	16,721	—	—	—	(15)	—	1,577	18,283
Farmer Mac Guaranteed Securities:								
Available-for-sale:								
AgVantage	7,587,186	351,896	—	(85,261)	(69)	9,050	35,585	7,898,387
Total available-for-sale	7,587,186	351,896	—	(85,261)	(69)	9,050	35,585	7,898,387
USDA Securities:								
Trading	8,408	—	—	(602)	—	(20)	—	7,786
Total USDA Securities	8,408	—	—	(602)		(20)	—	7,786
Total Assets at fair value	$7,612,315	$ 351,896	$ —	$ (85,863)	$ (84)	$ 9,030	$ 37,162	$ 7,924,456

Level 3 Assets and Liabilities Measured at Fair Value for the Three Months Ended June 30, 2019

	Beginning Balance	Purchases	Sales	Settlements	Realized and unrealized gains/(losses) included in Income	Unrealized gains/(losses) included in Other Comprehensive Income	Ending Balance
				(in thousands)			
Recurring:							
Assets:							
Investment Securities:							
Available-for-sale:							
Floating rate auction-rate certificates backed by Government guaranteed student loans	$ 18,912	$ —	$ —	$ —	$ —	$ 296	$ 19,208
Total available-for-sale	18,912	—	—	—	—	296	19,208
Farmer Mac Guaranteed Securities:							
Available-for-sale:							
AgVantage	6,441,624	613,764	—	(98,579)	114,638	(35,779)	7,035,668
Total available-for-sale	6,441,624	613,764	—	(98,579)	114,638	(35,779)	7,035,668
USDA Securities:							
Available-for-sale	—	29,419	(29,419)	—	—	—	—
Trading	9,487	—	—	(347)	61	—	9,201
Total USDA Securities	9,487	29,419	(29,419)	(347)	61	—	9,201
Total Assets at fair value	$ 6,470,023	$ 643,183	$ (29,419)	$ (98,926)	$ 114,699	$ (35,483)	$ 7,064,077

Level 3 Assets and Liabilities Measured at Fair Value for the Six Months Ended June 30, 2020

	Beginning Balance	Purchases	Sales	Settlements	Allowance for Losses	Realized and unrealized gains/(losses) included in Income	Unrealized gains/(losses) included in Other Comprehensive Income	Ending Balance
					(in thousands)			
Recurring:								
Assets:								
Investment Securities:								
Available-for-sale:								
Floating rate auction-rate certificates backed by Government guaranteed student loans	$ 18,912	$ —	$ —	$ —	$ (38)	$ —	$ (591)	$ 18,283
Total available-for-sale	18,912	—	—	—	(38)	—	(591)	18,283
Farmer Mac Guaranteed Securities:								
Available-for-sale:								
AgVantage	7,143,025	835,476	—	(312,516)	(234)	299,429	(66,793)	7,898,387
Total available-for-sale	7,143,025	835,476	—	(312,516)	(234)	299,429	(66,793)	7,898,387
USDA Securities:								
Trading	8,913	—	—	(1,213)	—	86	—	7,786
Total USDA Securities	8,913	—	—	(1,213)		86	—	7,786
Total Assets at fair value	$ 7,170,850	$ 835,476	$ —	$ (313,729)	$ (272)	$ 299,515	$ (67,384)	$ 7,924,456

Level 3 Assets and Liabilities Measured at Fair Value for the Six Months Ended June 30, 2019

	Beginning Balance	Purchases	Sales	Settlements	Realized and unrealized gains/(losses) included in Income	Unrealized gains/(losses) included in Other Comprehensive Income	Ending Balance
				(in thousands)			
Recurring:							
Assets:							
Investment Securities:							
Available-for-sale:							
Floating rate auction-rate certificates backed by Government guaranteed student loans	$ 18,715	$ —	$ —	$ —	$ —	$ 493	$ 19,208
Total available-for-sale	18,715	—	—	—	—	493	19,208
Farmer Mac Guaranteed Securities:							
Available-for-sale:							
AgVantage	5,974,497	1,390,096	—	(470,312)	173,990	(32,603)	7,035,668
Total available-for-sale	5,974,497	1,390,096	—	(470,312)	173,990	(32,603)	7,035,668
USDA Securities:							
Available-for-sale	—	48,347	(48,347)	—	—	—	—
Trading	9,999	—	—	(903)	105	—	9,201
Total USDA Securities	9,999	48,347	(48,347)	(903)	105	—	9,201
Total Assets at fair value	$ 6,003,211	$1,438,443	$ (48,347)	$ (471,215)	$ 174,095	$ (32,110)	$ 7,064,077

The following tables present additional information about the significant unobservable inputs, such as discount rates and constant prepayment rates ("CPR"), used in the fair value measurements categorized in Level 3 of the fair value hierarchy as of June 30, 2020 and December 31, 2019:

Table 9.3

	As of June 30, 2020			
Financial Instruments	Fair Value	Valuation Technique	Unobservable Input	Range (Weighted-Average)
			(in thousands)	
Assets:				
Investment securities:				
Floating rate auction-rate certificates backed by Government guaranteed student loans	$ 18,283	Indicative bids	Range of broker quotes	93.0% - 93.0% (93.0%)
Farmer Mac Guaranteed Securities:				
AgVantage	$ 7,898,387	Discounted cash flow	Discount rate	0.9% - 4.0% (1.2%)
USDA Securities	$ 7,786	Discounted cash flow	Discount rate	1.5% - 2.2% (1.6%)
			CPR	14% - 23% (22%)

Financial Instruments	Fair Value	Valuation Technique	Unobservable Input	Range (Weighted-Average)
	As of December 31, 2019			
			(in thousands)	
Assets:				
Investment securities:				
Floating rate auction-rate certificates backed by Government guaranteed student loans	$ 18,912	Indicative bids	Range of broker quotes	96.0% - 96.0% (96.0%)
Farmer Mac Guaranteed Securities:				
AgVantage	$ 7,143,025	Discounted cash flow	Discount rate	2.3% - 5.5% (2.6%)
USDA Securities	$ 8,913	Discounted cash flow	Discount rate	2.3% - 2.6% (2.1%)
			CPR	10% - 21% (19%)

The significant unobservable input used in the fair value measurements of AgVantage Farmer Mac Guaranteed Securities is the discount rate commensurate with the risks involved. Typically, significant increases (decreases) in this input in isolation may result in materially lower (higher) fair value measurements. Generally, in a rising interest rate environment, Farmer Mac would expect average discount rates to increase. Conversely, in a declining interest rate environment, Farmer Mac would expect average discount rates to decrease. Prepayment rates are not presented in the table above for AgVantage securities because they generally have fixed maturity dates when the secured general obligations are due and don't prepay.

The significant unobservable inputs used in the fair value measurements of USDA Securities are the prepayment rate and discount rate commensurate with the risks involved. Typically, significant increases (decreases) in any of these inputs in isolation may result in materially lower (higher) fair value measurements. Generally, in a rising interest rate environment, Farmer Mac would expect average discount rates to increase and would likely expect a corresponding decrease in forecasted prepayment rates. Conversely, in a declining interest rate environment, Farmer Mac would expect average discount rates to decrease and would likely expect a corresponding increase in forecasted prepayment rates.

Disclosures on Fair Value of Financial Instruments

The following table sets forth the estimated fair values and carrying values for financial assets, liabilities, and guarantees and commitments as of June 30, 2020 and December 31, 2019:

Table 9.4

	As of June 30, 2020		As of December 31, 2019	
	Fair Value	Carrying Amount	Fair Value	Carrying Amount
	(in thousands)			
Financial assets:				
Cash and cash equivalents	$ 827,600	$ 827,600	$ 604,381	$ 604,381
Investment securities	3,513,060	3,512,410	3,005,828	3,004,875
Farmer Mac Guaranteed Securities	9,070,424	9,039,105	8,606,451	8,590,476
USDA Securities	2,432,674	2,347,709	2,294,671	2,241,073
Loans	8,214,871	7,891,148	7,317,091	6,981,440
Financial derivatives	16,588	16,588	10,519	10,519
Guarantee and commitment fees receivable	32,254	36,612	36,732	38,442
Financial liabilities:				
Notes payable	21,736,245	21,421,550	19,234,079	19,098,648
Debt securities of consolidated trusts held by third parties	1,499,947	1,476,964	1,663,177	1,616,504
Financial derivatives	47,543	47,543	27,042	27,042
Guarantee and commitment obligations	30,804	35,162	34,990	36,700

The carrying value of cash and cash equivalents is a reasonable estimate of their approximate fair value and is classified as Level 1. The fair value of investments in U.S. Treasuries are valued based on unadjusted quoted prices in active markets and are classified as Level 1. A significant portion of Farmer Mac's investment portfolio is valued using a reputable nationally recognized third-party pricing service. The prices obtained are non-binding and generally representative of recent market trades and are classified as Level 2. Farmer Mac internally models the fair value of its loan portfolio, including loans held for investment and loans held for investment in consolidated trusts, Farmer Mac Guaranteed Securities, and USDA Securities by discounting the projected cash flows of these instruments at projected interest rates. The fair values are based on the present value of expected cash flows using management's best estimate of certain key assumptions, which include prepayment speeds, forward yield curves and discount rates commensurate with the risks involved. These fair value measurements do not take into consideration the fair value of the underlying property and are classified as Level 3. Financial derivatives primarily are valued using unadjusted counterparty valuations and are classified as Level 2. The fair value of the guarantee fees receivable/obligation and debt securities of consolidated trusts are estimated based on the present value of expected future cash flows of the underlying mortgage assets using management's best estimate of certain key assumptions, which include prepayments speeds, forward yield curves, and discount rates commensurate with the risks involved and are classified as Level 3. Notes payable are valued by discounting the expected cash flows of these instruments using a yield curve derived from market prices observed for similar agency securities and are also classified as Level 3. Because the cash flows of Farmer Mac's financial instruments may be interest rate path dependent, estimated fair values and projected discount rates for Level 3 financial instruments are derived using a Monte Carlo simulation model. Different market assumptions and estimation methodologies could significantly affect estimated fair value amounts.

10. BUSINESS SEGMENT REPORTING

The following tables present core earnings for Farmer Mac's operating segments and a reconciliation to consolidated net income for the three and six months ended June 30, 2020 and 2019:

Table 10.1

Core Earnings by Business Segment

For the Three Months Ended June 30, 2020

	Farm & Ranch	USDA Guarantees	Rural Utilities	Institutional Credit	Corporate	Reconciling Adjustments	Consolidated Net Income
				(in thousands)			
Net interest income	$ 19,310	$ 5,403	$ 2,322	$ 20,084	$ 1,229	$ —	$ 48,348
Less: reconciling adjustments(1)(2)(3)	(2,577)	(714)	3,194	(1,302)	(480)	1,879	—
Net effective spread	16,733	4,689	5,516	18,782	749	1,879	—
Guarantee and commitment fees(2)	4,394	210	332	7	—	(1,803)	3,140
Other income/(expense)(3)	585	617	5	—	(159)	6,683	7,731
Non-interest income/(loss)	4,979	827	337	7	(159)	4,880	10,871
Provision for loan losses	920	—	(1,397)	41	(15)	—	(451)
Provision for reserve for losses	370	—	30	—	—	—	400
Other non-interest expense	(5,254)	(1,584)	(1,386)	(2,083)	(3,800)	—	(14,107)
Non-interest expense(4)	(4,884)	(1,584)	(1,356)	(2,083)	(3,800)	—	(13,707)
Core earnings before income taxes	17,748	3,932	3,100	16,747	(3,225)	6,759 (5)	45,061
Income tax (expense)/benefit	(3,727)	(826)	(651)	(3,517)	705	(1,419)	(9,435)
Core earnings before preferred stock dividends	14,021	3,106	2,449	13,230	(2,520)	5,340 (5)	35,626
Preferred stock dividends	—	—	—	—	(3,939)	—	(3,939)
Segment core earnings/(losses)	$ 14,021	$ 3,106	$ 2,449	$ 13,230	$ (6,459)	$ 5,340 (5)	$ 31,687
Total assets at carrying value	$ 5,746,556	$ 2,408,713	$ 2,281,490	$ 9,049,393	$ 4,446,504	$ —	$ 23,932,656
Total on- and off-balance sheet program assets at principal balance	$ 8,017,850	$ 2,677,807	$ 2,691,621	$ 8,654,830	$ —	$ —	$ 22,042,108

(1) Includes the amortization of premiums and discounts on assets consolidated at fair value, originally included in interest income, to reflect core earnings amounts.

(2) Includes the reclassification of interest income and interest expense from consolidated trusts owned by third parties to guarantee and commitment fees, to reflect management's view that the net interest income Farmer Mac earns is effectively a guarantee fee.

(3) Includes the reclassification of interest expense related to interest rate swaps not designated as hedges, which are included in "Gains/(losses) on financial derivatives" on the consolidated financial statements, to determine the effective funding cost for each operating segment.

(4) Includes directly attributable costs and an allocation of indirectly attributable costs based on employee headcount.

(5) Net adjustments to reconcile to the corresponding income measures: core earnings before income taxes reconciled to income before income taxes; core earnings before preferred stock dividends reconciled to net income; and segment core earnings reconciled to net income attributable to common stockholders.

Core Earnings by Business Segment

For the Three Months Ended June 30, 2019

	Farm & Ranch	USDA Guarantees	Rural Utilities	Institutional Credit	Corporate	Reconciling Adjustments	Consolidated Net Income
				(in thousands)			
Net interest income	$ 15,797	$ 4,112	$ 3,936	$ 16,385	$ 2,824	$ —	$ 43,054
Less: reconciling adjustments[(1)(2)(3)]	(2,462)	(15)	60	986	(268)	1,699	—
Net effective spread	13,335	4,097	3,996	17,371	2,556	1,699	—
Guarantee and commitment fees[(2)]	4,594	238	358	86	—	(1,873)	3,403
Other income/(expense)[(3)]	188	—	7	—	582	8,552	9,329
Non-interest income/(loss)	4,782	238	365	86	582	6,679	12,732
Provision for loan losses	(578)	—	—	—	—	—	(578)
Release of reserve for losses	158	—	—	—	—	—	158
Other non-interest expense	(4,587)	(1,345)	(816)	(2,034)	(3,428)	—	(12,210)
Non-interest expense[(4)]	(4,429)	(1,345)	(816)	(2,034)	(3,428)	—	(12,052)
Core earnings before income taxes	13,110	2,990	3,545	15,423	(290)	8,378 [(5)]	43,156
Income tax (expense)/benefit	(2,753)	(628)	(744)	(3,239)	13	(1,760)	(9,111)
Core earnings before preferred stock dividends	10,357	2,362	2,801	12,184	(277)	6,618 [(5)]	34,045
Preferred stock dividends	—	—	—	—	(3,785)	—	(3,785)
Loss on retirement of preferred stock	—	—	—	—	—	(1,956)	(1,956)
Segment core earnings/(losses)	$ 10,357	$ 2,362	$ 2,801	$ 12,184	$ (4,062)	$ 4,662 [(5)]	$ 28,304
Total assets at carrying value	$4,872,766	$ 2,198,514	$1,580,979	$ 8,633,059	$ 3,452,842	$ —	$ 20,738,160
Total on- and off-balance sheet program assets at principal balance	$7,291,352	$ 2,521,394	$2,155,671	$ 8,778,318	$ —	$ —	$ 20,746,735

(1) Includes the amortization of premiums and discounts on assets consolidated at fair value, originally included in interest income, to reflect core earnings amounts.

(2) Includes the reclassification of interest income and interest expense from consolidated trusts owned by third parties to guarantee and commitment fees, to reflect management's view that the net interest income Farmer Mac earns is effectively a guarantee fee.

(3) Includes the reclassification of interest expense related to interest rate swaps not designated as hedges, which are included in "Gains/(losses) on financial derivatives" on the consolidated financial statements, to determine the effective funding cost for each operating segment.

(4) Includes directly attributable costs and an allocation of indirectly attributable costs based on employee headcount.

(5) Net adjustments to reconcile to the corresponding income measures: core earnings before income taxes reconciled to income before income taxes; core earnings before preferred stock dividends reconciled to net income; and segment core earnings reconciled to net income attributable to common stockholders.

Core Earnings by Business Segment

For the Six Months Ended June 30, 2020

	Farm & Ranch	USDA Guarantees	Rural Utilities	Institutional Credit	Corporate	Reconciling Adjustments	Consolidated Net Income
				(in thousands)			
Net interest income	$ 35,675	$ 9,944	$ 7,069	$ 33,888	$ 3,084	$ —	$ 89,660
Less: reconciling adjustments(1)(2)(3)	(4,004)	(630)	3,367	2,596	(357)	(972)	—
Net effective spread	31,671	9,314	10,436	36,484	2,727	(972)	—
Guarantee and commitment fees(2)	8,711	445	667	16	—	(3,503)	6,336
Other income/(expense)(3)	1,754	729	12	—	(288)	(2,367)	(160)
Non-interest income/(loss)	10,465	1,174	679	16	(288)	(5,870)	6,176
Provision for loan losses	112	—	(3,522)	(450)	(29)	—	(3,889)
Provision for reserve for losses	366	—	(359)	—	—	—	7
Other non-interest expense	(11,251)	(3,402)	(2,990)	(4,446)	(8,233)	—	(30,322)
Non-interest expense(4)	(10,885)	(3,402)	(3,349)	(4,446)	(8,233)	—	(30,315)
Core earnings before income taxes	31,363	7,086	4,244	31,604	(5,823)	(6,842) (5)	61,632
Income tax (expense)/benefit	(6,586)	(1,488)	(891)	(6,637)	988	1,438	(13,176)
Core earnings before preferred stock dividends	24,777	5,598	3,353	24,967	(4,835)	(5,404) (5)	48,456
Preferred stock dividends	—	—	—	—	(7,370)	—	(7,370)
Segment core earnings/(losses)	$ 24,777	$ 5,598	$ 3,353	$ 24,967	$ (12,205)	$ (5,404) (5)	$ 41,086
Total assets at carrying value	$ 5,746,556	$ 2,408,713	$ 2,281,490	$ 9,049,393	$ 4,446,504	$ —	$ 23,932,656
Total on- and off-balance sheet program assets at principal balance	$ 8,017,850	$ 2,677,807	$ 2,691,621	$ 8,654,830	$ —	$ —	$ 22,042,108

(1) Includes the amortization of premiums and discounts on assets consolidated at fair value, originally included in interest income, to reflect core earnings amounts.

(2) Includes the reclassification of interest income and interest expense from consolidated trusts owned by third parties to guarantee and commitment fees, to reflect management's view that the net interest income Farmer Mac earns is effectively a guarantee fee.

(3) Includes the reclassification of interest expense related to interest rate swaps not designated as hedges, which are included in "Gains/(losses) on financial derivatives" on the consolidated financial statements, to determine the effective funding cost for each operating segment.

(4) Includes directly attributable costs and an allocation of indirectly attributable costs based on employee headcount.

(5) Net adjustments to reconcile to the corresponding income measures: core earnings before income taxes reconciled to income before income taxes; core earnings before preferred stock dividends reconciled to net income; and segment core earnings reconciled to net income attributable to common stockholders.

Core Earnings by Business Segment

For the Six Months Ended June 30, 2019

	Farm & Ranch	USDA Guarantees	Rural Utilities	Institutional Credit	Corporate	Reconciling Adjustments	Consolidated Net Income
				(in thousands)			
Net interest income	$ 31,079	$ 8,554	$ 3,662	$ 34,572	$ 5,786	$ —	$ 83,653
Less: reconciling adjustments(1)(2)(3)	(5,007)	(493)	3,567	(828)	(736)	3,497	—
Net effective spread	26,072	8,061	7,229	33,744	5,050	3,497	—
Guarantee and commitment fees(2)	9,338	462	721	174	—	(3,779)	6,916
Other income/(expense)(3)	668	—	14	—	604	8,220	9,506
Non-interest income/(loss)	10,006	462	735	174	604	4,441	16,422
Provision for loan losses	(314)	—	—	—	—	—	(314)
Release of reserve for losses	287	—	—	—	—	—	287
Other non-interest expense	(9,386)	(2,773)	(1,682)	(4,193)	(7,066)	—	(25,100)
Non-interest expense(4)	(9,099)	(2,773)	(1,682)	(4,193)	(7,066)	—	(24,813)
Core earnings before income taxes	26,665	5,750	6,282	29,725	(1,412)	7,938 (5)	74,948
Income tax (expense)/benefit	(5,600)	(1,208)	(1,319)	(6,242)	303	(1,667)	(15,733)
Core earnings before preferred stock dividends	21,065	4,542	4,963	23,483	(1,109)	6,271 (5)	59,215
Preferred stock dividends	—	—	—	—	(7,081)	—	(7,081)
Loss on retirement of preferred stock	—	—	—	—	—	(1,956)	(1,956)
Segment core earnings/(losses)	$ 21,065	$ 4,542	$ 4,963	$ 23,483	$ (8,190)	$ 4,315 (5)	$ 50,178
Total assets at carrying value	$4,872,766	$ 2,198,514	$1,580,979	$ 8,633,059	$ 3,452,842	$ —	$ 20,738,160
Total on- and off-balance sheet program assets at principal balance	$7,291,352	$ 2,521,394	$2,155,671	$ 8,778,318	$ —	$ —	$ 20,746,735

(1) Includes the amortization of premiums and discounts on assets consolidated at fair value, originally included in interest income, to reflect core earnings amounts.

(2) Includes the reclassification of interest income and interest expense from consolidated trusts owned by third parties to guarantee and commitment fees, to reflect management's view that the net interest income Farmer Mac earns is effectively a guarantee fee.

(3) Includes the reclassification of interest expense related to interest rate swaps not designated as hedges, which are included in "Gains/(losses) on financial derivatives" on the consolidated financial statements, to determine the effective funding cost for each operating segment.

(4) Includes directly attributable costs and an allocation of indirectly attributable costs based on employee headcount.

(5) Net adjustments to reconcile to the corresponding income measures: core earnings before income taxes reconciled to income before income taxes; core earnings before preferred stock dividends reconciled to net income; and segment core earnings reconciled to net income attributable to common stockholders.

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

Financial information included in this report is consolidated to include the accounts of Farmer Mac and its two subsidiaries – Farmer Mac Mortgage Securities Corporation and Farmer Mac II LLC. This discussion and analysis of financial condition and results of operations should be read together with: (1) the interim unaudited consolidated financial statements and the related notes that appear elsewhere in this report; and (2) Farmer Mac's Annual Report on Form 10-K for the fiscal year ended December 31, 2019, as filed with the SEC on February 25, 2020.

FORWARD-LOOKING STATEMENTS

In this report, the words "Farmer Mac," "we," "our," and "us" refer to the Federal Agricultural Mortgage Corporation unless otherwise stated or unless the context otherwise requires.

Some statements made in this report, such as in the "Management's Discussion and Analysis of Financial Condition and Results of Operations" section, are "forward-looking statements" as defined in the Private Securities Litigation Reform Act of 1995 about management's current expectations for Farmer Mac's future financial results, business prospects, and business developments. Forward-looking statements include, without limitation, any statement, including statements about COVID-19 and the impact of the pandemic on Farmer Mac, that may predict, forecast, indicate, or imply future results, performance, or achievements. These statements typically include terms such as "anticipates," "believes," "continues," "estimates," "expects," "forecasts," "intends," "outlook," "plans," "potential," "project," "target" and similar terms, and future or conditional tense verbs like "could," "may," "might," "should," "will," and "would." This report includes forward-looking statements addressing Farmer Mac's:

- prospects for earnings;
- prospects for growth in business volume;
- assessment of the impact of the COVID-19 pandemic on our business, financial results, financial condition, and business plans and strategies;
- trends in net interest income and net effective spread;
- trends in portfolio credit quality, delinquencies, substandard assets, credit losses, and provisions for losses;
- trends in expenses;
- trends in investment securities;
- prospects for asset impairments and allowance for losses;
- changes in capital position;
- future dividend payments; and
- other business and financial matters.

Management's expectations for Farmer Mac's future necessarily involve assumptions, estimates, and the evaluation of risks and uncertainties. Various factors or events, both known and unknown, could cause Farmer Mac's actual results to differ materially from the expectations as expressed or implied by the forward-looking statements, including the factors discussed under "Risk Factors" in Part I, Item 1A of Farmer Mac's Annual Report on Form 10-K for the fiscal period ended December 31, 2019 filed with the

SEC on February 25, 2020, the factors discussed under "Risk Factors" in Part II, Item 1A of this report, and uncertainties about:

- the duration, spread, and severity of the COVID-19 pandemic;
- the actions taken to address the COVID-19 pandemic, including government actions to mitigate the economic impact of the pandemic, how quickly and to what extent normal economic and operating conditions can resume, the possibility of future disruptions to economic recovery caused by additional outbreaks, regulatory measures or voluntary actions that may be put in place to limit the spread of COVID-19, and the duration and efficacy of such restrictions;
- the effects of the COVID-19 pandemic on the business operations of agricultural and rural borrowers, the capital markets, and Farmer Mac's business operations;
- the availability to Farmer Mac of debt and equity financing and, if available, the reasonableness of rates and terms;
- legislative or regulatory developments that could affect Farmer Mac, its sources of business, or the agricultural or rural utilities industries;
- fluctuations in the fair value of assets held by Farmer Mac and its subsidiaries;
- the level of lender interest in Farmer Mac's products and the secondary market provided by Farmer Mac;
- the general rate of growth in agricultural mortgage and rural utilities indebtedness;
- the effect of economic conditions and geopolitics on agricultural mortgage or rural utilities lending, borrower repayment capacity, or collateral values, including fluctuations in interest rates, changes in U.S. trade policies, fluctuations in export demand for U.S. agricultural products, and volatility in commodity prices;
- the degree to which Farmer Mac is exposed to interest rate risk resulting from fluctuations in Farmer Mac's borrowing costs relative to market indexes;
- developments in the financial markets, including possible investor, analyst, and rating agency reactions to events involving government-sponsored enterprises, including Farmer Mac;
- the effect of any changes in Farmer Mac's executive leadership; and
- other factors that could have a negative effect on agricultural mortgage lending or borrower repayment capacity, including the effects of weather and fluctuations in agricultural real estate values.

Considering these potential risks and uncertainties, no undue reliance should be placed on any forward-looking statements expressed in this report. Farmer Mac undertakes no obligation to release publicly the results of revisions to any forward-looking statements to reflect new information or any future events or circumstances, except as otherwise required by applicable law. The information in this report is not necessarily indicative of future results.

Overview

The discussion below of Farmer Mac's financial information includes "non-GAAP measures," which are measures of financial performance that are not presented in accordance with generally accepted accounting principles in the United States ("GAAP"). For more information about the non-GAAP measures Farmer Mac uses, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Use of Non-GAAP Measures."

COVID-19 Update

Farmer Mac continues to closely monitor the effect of the COVID-19 pandemic on our financial condition and operations. We have maintained uninterrupted continuity of our operations while operating entirely remotely and our liquidity levels remain well above regulatory requirements, which has enabled us to execute our mission to support rural America during this pandemic. For example:

- we have maintained uninterrupted access to the debt capital markets;
- we provided a total of $1.7 billion in liquidity and lending capacity to lenders serving rural America during the quarter-ended June 30, 2020;
- we are working with our loan servicers, and other partners, to respond to and facilitate payment deferment requests from borrowers; as of June 30, 2020, we had executed COVID-19 payment deferments for $241.7 million of unpaid principal balance related to Farm & Ranch loans, Farm & Ranch LTSPCs, and USDA Securities to provide relief to borrowers;
- we are maintaining strong liquidity in our investment portfolio, as evidenced by our quarter-end cash position of $0.8 billion; and
- we have built and preserved capital and liquidity by issuing $79.5 million of preferred stock in the second quarter and indefinitely suspending our share repurchase program in the first quarter.

The economic deterioration from the COVID-19 pandemic caused our total allowance for credit losses to remain elevated in the second quarter and continues to be higher than it would have been without the economic effects from the pandemic. On January 1, 2020, we adopted Accounting Standards Update 2016-13, Financial Instruments - Credit Loss (Topic 326): Measurement of Credit Losses on Financial Instruments ("CECL"). Under CECL, our allowances and reserve for credit losses reflect our estimate of expected losses over the lives of our financial instruments based on historical information and reasonable and supportable forecasts. Both the adoption of this new accounting standard and the economic effects from the COVID-19 pandemic combined to increase the amount of our total allowance for losses from December 31, 2019 to June 30, 2020. The economic effects from the COVID-19 pandemic that most affected our estimate of expected credit losses were the effects on credit spreads and expectations for higher unemployment. Of the $3.9 million credit loss provision that we recorded in the first six months of 2020, $1.2 million was attributable to updated economic factors, predominantly related to COVID-19. For more information about the impact of COVID-19 on Farmer Mac's expected credit losses, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Risk Management—Credit Risk – Loans & Guarantees."

We have also observed an increase in payment deferment requests from our loan servicers on behalf of borrowers in our loan portfolio, as well as from our AgVantage counterparties for loans collateralizing their obligations. For more information about Farm & Ranch payment deferments, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Risk Management—Credit Risk – Loans and Guarantees." For more information about AgVantage loan collateral payment deferments, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Risk Management—Credit Risk – Institutional."

Net Income and Core Earnings

The following table shows our net income attributable to common stockholders and core earnings for the periods presented. Core earnings and core earnings per share are non-GAAP measures that principally differ from net income attributable to common stockholders and earnings per common share, respectively, by excluding the effects of fair value fluctuations as well as the effects of specified infrequent or unusual transactions.

Table 1

	For the Three Months Ended		
	June 30, 2020	March 31, 2020	June 30, 2019
		(in thousands)	
Net income attributable to common stockholders	$ 31,687	$ 9,399	$ 28,304
Core earnings	26,347	20,143	23,642

The $22.3 million sequential increase in net income attributable to common stockholders was primarily due to a $12.5 million after-tax increase in the fair value of financial derivatives not designated as hedging instruments in hedge accounting relationships (undesignated financial derivatives) due to fluctuations in long-term interest rates, a $5.6 million after-tax increase in net interest income, a $3.0 million after-tax decrease in the total provision for credit losses, and a $1.7 million after-tax decrease in operating expenses.

The $3.4 million year-over-year increase in net income attributable to common stockholders was primarily due to a $4.2 million after-tax increase in net interest income, the absence of $2.0 million in deferred issuance costs related to the redemption of Series B Preferred Stock in the prior period, and a $0.7 after-tax increase in other income. These increases were partially offset by a $1.9 million after-tax decrease in the fair value of undesignated financial derivatives due to fluctuations in long-term interest rates and a $1.6 million after-tax increase in operating expenses.

The $6.2 million sequential increase in core earnings was primarily due to a $3.0 million after-tax decrease in the total provision for credit losses, a $1.8 million after-tax increase in net effective spread, and a $1.7 million after-tax decrease in operating expenses.

The $2.7 million year-over-year increase in core earnings was primarily due to a $4.0 million after-tax increase in net effective spread and a $0.3 million after-tax decrease in the total provision for losses. These increases were partially offset by a $1.6 million after-tax increase in operating expenses.

For more information about net income attributable to common stockholders, the composition of core earnings, and a reconciliation of net income attributable to common stockholders to core earnings, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Results of Operations." For more information about the non-GAAP measures Farmer Mac uses, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Use of Non-GAAP Measures."

Net Interest Income and Net Effective Spread

The following table shows our net interest income and net effective spread in both dollars and percentage yield or spread for the periods presented. Farmer Mac uses net effective spread, a non-GAAP measure, as an alternative to net interest income because management believes it is a useful metric that reflects the economics of the net spread between all the assets owned by Farmer Mac and all related funding, including any associated derivatives, some of which may not be included in net interest income.

Table 2

	For the Three Months Ended		
	June 30, 2020	March 31, 2020	June 30, 2019
		(in thousands)	
Net interest income	$ 48,348	$ 41,312	$ 43,054
Net interest yield %	0.87 %	0.78 %	0.87 %
Net effective spread	46,469	44,163	41,355
Net effective spread %	0.89 %	0.89 %	0.91 %

The $7.0 million sequential increase in net interest income was primarily due to a $3.3 million decrease in net fair value losses from derivatives designated in fair value hedge accounting relationships (designated financial derivatives), a $2.3 million increase related to net volume growth across most lines of business, an $0.8 million increase in cash-basis interest income received from past due loans that are on nonaccrual status, and a $0.5 million decrease in funding and liquidity costs. In percentage terms, the increase of 0.09% was primarily attributable to an increase of 0.06% in net fair value changes from designated financial derivatives, an increase of 0.01% related to other income, an increase of 0.1% in funding and liquidity costs, and an increase of 0.01% related to net volume growth.

The $5.3 million year-over-year increase in net interest income was primarily due to net growth across most lines of business, which contributed to a $5.5 million increase in net interest income, and a $0.7 million decrease in funding and liquidity costs. These increases were partially offset by the decrease of $1.0 million in net fair value gains from designated financial derivatives due to fluctuations in long-term interest rates. In percentage terms, net interest income remained at 0.87% in both second quarter 2020 and second quarter 2019.

The $2.3 million sequential increase in net effective spread was primarily due to a $2.3 million increase related to net volume growth across most lines of business. In percentage terms, net effective spread remained at 0.89% in both second quarter 2020 and first quarter 2020.

The $5.1 million year-over-year increase in net effective spread was primarily due to growth in outstanding business volume, which increased net effective spread by approximately $5.5 million. In percentage terms, the decrease of 0.02% was primarily attributable to an increase in funding and liquidity costs of 0.05%, offset by an increase of 0.03% related to net volume growth.

For more information about Farmer Mac's use of net effective spread as a financial measure, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Use of Non-GAAP Measures." For a reconciliation of net interest income to net effective spread, see Table 11 in "Management's Discussion and Analysis of Financial Condition and Results of Operations—Results of Operations—Net Interest Income."

Business Volume

Our outstanding business volume was $22.0 billion as of June 30, 2020, a net increase of $502.8 million from March 31, 2020, after taking into account all new business, maturities, and paydowns on existing assets. This net increase was attributable to three lines of business: $306.2 million in Rural Utilities, $206.3 million in Farm & Ranch, and $31.6 million in USDA Guarantees. These increases were partially offset by a net decrease of $41.3 million in Institutional Credit.

Farmer Mac's net business volume growth of $502.8 million in second quarter 2020 was $263.0 million more than the $239.8 million of net growth achieved in second quarter 2019. The increase in second quarter 2020 was primarily attributable to historically low interest rates and pent-up demand that drove strong market demand from borrowers taking advantage of low interest rates on long-term funding. We experienced strong demand from our two main Rural Utilities counterparties as well as widespread robust demand among our network of active Farm & Ranch sellers. We achieved this growth by offering competitive pricing while maintaining our credit underwriting standards and profitable spreads, that improved toward the end of the quarter. We recorded more than half of our net business volume growth for the quarter in June, which will not be fully reflected in core earnings and net effective spread until the third quarter.

For more information about Farmer Mac's business volume, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Results of Operations—Business Volume."

Capital

Table 3

	As of	
	June 30, 2020	December 31, 2019
	(in thousands)	
Core capital	$ 915,613	$ 815,437
Capital in excess of minimum capital level required	247,916	196,669

The increase in capital in excess of the minimum capital level required was primarily due to the Board-authorized issuance of Series E Preferred Stock and the increase in retained earnings, partially offset by growth in our outstanding business volume.

Current Expected Credit Loss

As noted above, Farmer Mac adopted CECL on January 1, 2020. Under CECL, we estimate and recognize expected credit losses over the lives of our financial assets. We base our estimate of expected losses on historical loss information and reasonable and supportable forecasts. In second quarter 2020, our reasonable and supportable forecasts included the impact of the COVID-19 pandemic on economic factors such as credit spreads and unemployment. Thus, our total provision for credit losses during the three months ended June 30, 2020 was affected by the ongoing economic effects of the COVID-19 pandemic.

As of June 30, 2020, Farmer Mac's allowance for losses on its on-balance sheet loan portfolio was $14.9 million (0.19% of all loans), compared to $14.9 million (0.20% of all loans) as of March 31, 2020 and $10.5 million (0.15% of all loans) as of December 31, 2019. In first quarter 2020, Farmer Mac recorded a transition adjustment of $1.5 million. Farmer Mac also recorded a provision of $2.9 million to the allowance for loan losses in first quarter 2020 related to a decline in expected economic factors. In second quarter 2020, Farmer Mac recorded a provision to its allowance for loan losses of $0.5 million, which was mostly offset by a direct charge-off of $0.4 million to the allowance. The charge-off was related to the foreclosure of a single Farm & Ranch loan during the quarter.

As of June 30, 2020, Farmer Mac's reserve for losses on its off-balance sheet LTSPCs and Guaranteed Securities was $3.0 million (0.09% of all off-balance sheet LTSPCs and Guaranteed Securities), compared to $3.4 million (0.10% of all off-balance sheet LTSPCs and Guaranteed Securities) as of March 31, 2020 and $2.2 million (0.06% of all off-balance sheet LTSPCs and Guaranteed Securities) on December 31, 2019. The first quarter increase was comprised of a $0.9 million transition adjustment related to the adoption of CECL on January 1, 2020 and an additional $0.4 million provision to the reserve. The second quarter release from the reserve for losses of $0.4 million was primarily related to repayments and payoffs that occurred in the LTSPC portfolio during the quarter.

Credit Quality

The following table presents Farm & Ranch substandard assets, in dollars and as a percentage of the Farm & Ranch portfolio, for both on- and off-balance sheet assets as of June 30, 2020, March 31, 2020, and December 31, 2019:

Table 4

	Farm & Ranch Line of Business			
	On-Balance Sheet		Off-Balance Sheet	
	Substandard Assets	% of Portfolio	Substandard Assets	% of Portfolio
	(dollars in thousands)			
June 30, 2020	$ 209,690	3.7 %	$ 95,174	4.0 %
March 31, 2020	211,376	3.9 %	100,964	4.1 %
December 31, 2019	207,078	3.9 %	102,877	4.1 %
Increase/(decrease) from prior quarter-ending	$ (1,686)	(0.2)%	$ (5,790)	(0.1)%
Increase/(decrease) from prior year-ending	$ 2,612	(0.2)%	$ (7,703)	(0.1)%

The decrease of $1.7 million in on-balance sheet substandard assets during second quarter 2020 was primarily driven by repayments during the quarter on loans that were classified as substandard as of the first quarter, partially offset by downgrades during the quarter. The overall portfolio grew by $259.1 million, which caused substandard assets as a percentage of the total on-balance sheet portfolio to decrease. The $5.8 million decrease in substandard assets in our off-balance sheet portfolio during second quarter 2020 was primarily due to a net decrease in business volume in that portfolio, with a slight improvement in credit quality overall during the period. For an analysis of current loan-to-value ratios across substandard and other internally assigned risk ratings, see Table 27 in "Management's Discussion and Analysis of Financial Condition and Results of Operations—Risk Management—Credit Risk – Loans and Guarantees."

The following table presents Farm & Ranch 90-day delinquencies, in dollars and as a percentage of the Farm & Ranch portfolio, for both on- and off-balance sheet assets as of June 30, 2020 and December 31, 2019:

Table 5

	Farm & Ranch Line of Business			
	On-Balance Sheet		Off-Balance Sheet	
	90-Day Delinquencies	% of Portfolio	90-Day Delinquencies	% of Portfolio
	(dollars in thousands)			
June 30, 2020	$ 65,866	1.17 %	$ 2,816	0.12 %
March 31, 2020	75,117	1.40 %	4,605	0.19 %
December 31, 2019	57,719	1.09 %	3,235	0.13 %
Increase/(decrease) from prior quarter-ending	$ (9,251)	(0.23)%	$ (1,789)	(0.07)%
Increase/(decrease) from prior year-ending	$ 8,147	0.08 %	$ (419)	(0.01)%

The sequential decrease in 90-day delinquencies is primarily due to the seasonal payment pattern associated with loans that have annual (January 1st) and semi-annual (January 1st and July 1st) payment terms, which account for most of the loans in the Farm & Ranch portfolio. In addition, the sequential decrease was primarily driven by two commodity groups – permanent plantings and crops. Other commodity groups also experienced smaller decreases or remained constant. The top ten borrower exposures over 90 days delinquent represented over half of the 90-day delinquencies as of June 30, 2020.

In the Rural Utilities portfolio, one $5.0 million loan was downgraded to substandard and there were no delinquencies as of June 30, 2020.

For more information about Farmer Mac's credit metrics, including 90-day delinquencies, the total allowance for losses, and substandard assets, as well as the effects of the COVID-19 pandemic on loan payment deferments, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Risk Management—Credit Risk – Loans and Guarantees."

Use of Non-GAAP Measures

In the accompanying analysis of its financial information, Farmer Mac uses "non-GAAP measures," which are measures of financial performance that are not presented in accordance with GAAP. Specifically, Farmer Mac uses the following non-GAAP measures: "core earnings," "core earnings per share," and "net effective spread." Farmer Mac uses these non-GAAP measures to measure corporate economic performance and develop financial plans because, in management's view, they are useful alternative measures in understanding Farmer Mac's economic performance, transaction economics, and business trends.

The non-GAAP financial measures that Farmer Mac uses may not be comparable to similarly labeled non-GAAP financial measures disclosed by other companies. Farmer Mac's disclosure of these non-GAAP measures is intended to be supplemental in nature and is not meant to be considered in isolation from, as a substitute for, or as more important than, the related financial information prepared in accordance with GAAP.

Core Earnings and Core Earnings Per Share

Core earnings and core earnings per share principally differ from net income attributable to common stockholders and earnings per common share, respectively, by excluding the effects of fair value fluctuations. These fluctuations are not expected to have a cumulative net impact on Farmer Mac's financial condition or results of operations reported in accordance with GAAP if the related financial instruments are held to maturity, as is expected.

Core earnings and core earnings per share also differ from net income attributable to common stockholders and earnings per common share, respectively, by excluding specified infrequent or unusual transactions that we believe are not indicative of future operating results and that may not reflect the trends and economic financial performance of Farmer Mac's core business. For example, in prior periods we have excluded from core earnings losses on retirement of preferred stock and the re-measurement of the deferred tax asset. For a reconciliation of Farmer Mac's net income attributable to common stockholders to core earnings and of earnings per common share to core earnings per share, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Results of Operations."

Net Effective Spread

Farmer Mac uses net effective spread to measure the net spread Farmer Mac earns between its interest-earning assets and the related net funding costs of these assets. Net effective spread differs from net interest income and net interest yield because it excludes: (1) the amortization of premiums and discounts on assets consolidated at fair value that are amortized as adjustments to yield in interest income over the contractual or estimated remaining lives of the underlying assets; (2) interest income and interest expense related to consolidated trusts with beneficial interests owned by third parties, which are presented on Farmer Mac's consolidated balance sheets as "Loans held for investment in consolidated trusts, at amortized cost"; and (3) the fair value changes of financial derivatives and the corresponding assets or liabilities designated in a fair value hedge accounting relationship.

Farmer Mac excludes from net effective spread the premiums and discounts on assets consolidated at fair value because they either do not reflect actual cash premiums paid for the assets at acquisition or are not expected to have an economic effect on Farmer Mac's financial performance if the assets are held to maturity, as is expected. Farmer Mac also excludes from net effective spread the interest income and interest expense associated with the consolidated trusts and the average balance of the loans underlying these trusts to reflect management's view that the net interest income Farmer Mac earns on the related Farmer Mac Guaranteed Securities owned by third parties is effectively a guarantee fee. Accordingly, the excluded interest income and interest expense associated with consolidated trusts is reclassified to guarantee and commitment fees in determining Farmer Mac's core earnings. Farmer Mac also excludes from net effective spread the fair value changes of financial derivatives and the corresponding assets or liabilities designated in fair value hedge relationships because they are not expected to have an economic effect on Farmer Mac's financial performance, as we expect to hold the financial derivatives and corresponding hedged items to maturity.

Net effective spread also principally differs from net interest income and net interest yield because it includes the accrual of income and expense related to the contractual amounts due on financial derivatives that are not designated in hedge accounting relationships ("undesignated financial derivatives"). Farmer Mac uses interest rate swaps to manage its interest rate risk exposure by synthetically modifying the interest rate reset or maturity characteristics of certain assets and liabilities. The accrual of the contractual amounts due on interest rate swaps designated in hedge accounting relationships is included as an adjustment to the yield or cost of the hedged item and is included in net interest income. For undesignated financial derivatives, Farmer Mac records the income or expense related to the accrual of the contractual amounts due in "Gains/(losses) on financial derivatives" on the consolidated statements of operations. However, the accrual of the contractual amounts due for undesignated financial derivatives are included in Farmer Mac's calculation of net effective spread.

Net effective spread also differs from net interest income and net interest yield because it includes the net effects of terminations or net settlements on financial derivatives, which consist of: (1) the net effects of cash settlements on agency forward contracts on the debt of other GSEs and U.S. Treasury security futures that we use as short-term economic hedges on the issuance of debt; and (2) the net effects of initial cash payments that Farmer Mac receives upon the inception of certain swaps. The inclusion of these items in net effective spread is intended to reflect our view of the complete net spread between an asset and all of its related funding, including any associated derivatives, whether or not they are designated in a hedge accounting relationship.

For a reconciliation of net interest income and net interest yield to net effective spread, see Table 11 in "Management's Discussion and Analysis of Financial Condition and Results of Operations—Results of Operations—Net Interest Income."

Results of Operations

Reconciliations of Farmer Mac's net income attributable to common stockholders to core earnings and core earnings per share are presented in the following tables along with information about the composition of core earnings:

Table 6

Reconciliation of Net Income Attributable to Common Stockholders to Core Earnings	For the Three Months Ended	
	June 30, 2020	June 30, 2019
	(in thousands, except per share amounts)	
Net income attributable to common stockholders	$ 31,687	$ 28,304
Less reconciling items:		
Gains on undesignated financial derivatives due to fair value changes (see Table 14)	8,700	10,485
Losses on hedging activities due to fair value changes	(2,676)	(1,438)
Unrealized (losses)/gains on trading securities	(20)	61
Amortization of premiums/discounts and deferred gains on assets consolidated at fair value	35	(139)
Net effects of terminations or net settlements on financial derivatives	720	(592)
Issuance costs on the retirement of preferred stock	—	(1,956)
Income tax effect related to reconciling items	(1,419)	(1,759)
Sub-total	5,340	4,662
Core earnings	$ 26,347	$ 23,642
Composition of Core Earnings:		
Revenues:		
Net effective spread[(1)]	$ 46,469	$ 41,355
Guarantee and commitment fees[(2)]	4,943	5,276
Other[(3)]	1,048	777
Total revenues	52,460	47,408
Credit related expense (GAAP):		
Provision for losses	51	420
REO operating expenses	—	64
Total credit related expense	51	484
Operating expenses (GAAP):		
Compensation and employee benefits	8,087	6,770
General and administrative	5,295	4,689
Regulatory fees	725	687
Total operating expenses	14,107	12,146
Net earnings	38,302	34,778
Income tax expense[(4)]	8,016	7,351
Preferred stock dividends (GAAP)	3,939	3,785
Core earnings	$ 26,347	$ 23,642
Core earnings per share:		
Basic	$ 2.46	$ 2.21
Diluted	2.45	2.20
Weighted-average shares:		
Basic	10,730	10,698
Diluted	10,776	10,770

(1) Net effective spread is a non-GAAP measure. See "Management's Discussion and Analysis of Financial Condition and Results of Operations—Use of Non-GAAP Measures—Net Effective Spread" for an explanation of net effective spread. See Table 11 for a reconciliation of net interest income to net effective spread.

(2) Includes interest income and interest expense related to consolidated trusts owned by third parties reclassified from net interest income to guarantee and commitment fees to reflect management's view that the net interest income Farmer Mac earns is effectively a guarantee fee on the consolidated Farmer Mac Guaranteed Securities.

(3) Reflects reconciling adjustments for the reclassification to exclude expenses related to interest rate swaps not designated as hedges and terminations or net settlements on financial derivatives, and reconciling adjustments to exclude fair value adjustments on financial derivatives and trading assets and the recognition of deferred gains over the estimated lives of certain Farmer Mac Guaranteed Securities and USDA Securities.

(4) Includes the tax impact of non-GAAP reconciling items between net income attributable to common stockholders and core earnings.

Reconciliation of Net Income Attributable to Common Stockholders to Core Earnings

	For the Six Months Ended	
	June 30, 2020	June 30, 2019
	(in thousands, except per share amounts)	
Net income attributable to common stockholders	$ 41,086	$ 50,178
Less reconciling items:		
Gains on undesignated financial derivatives due to fair value changes (see Table 14)	2,216	12,725
Losses on hedging activities due to fair value changes	(8,601)	(4,255)
Unrealized gains on trading securities	86	105
Amortization of premiums/discounts and deferred gains on assets consolidated at fair value	38	(155)
Net effects of terminations or net settlements on financial derivatives	(580)	(482)
Issuance costs on the retirement of preferred stock	—	(1,956)
Income tax effect related to reconciling items	1,437	(1,667)
Sub-total	(5,404)	4,315
Core earnings	$ 46,490	$ 45,863
Composition of Core Earnings:		
Revenues:		
Net effective spread(1)	$ 90,632	$ 80,156
Guarantee and commitment fees(2)	9,839	10,695
Other(3)	1,722	1,286
Total revenues	102,193	92,137
Credit related expense (GAAP):		
Provision for losses	3,882	27
REO operating expenses	—	64
Gains on sale of REO	(485)	—
Total credit related expense	3,397	91
Operating expenses (GAAP):		
Compensation and employee benefits	18,214	14,376
General and administrative	10,658	9,285
Regulatory fees	1,450	1,375
Total operating expenses	30,322	25,036
Net earnings	68,474	67,010
Income tax expense(4)	14,614	14,066
Preferred stock dividends (GAAP)	7,370	7,081
Core earnings	$ 46,490	$ 45,863
Core earnings per share:		
Basic	$ 4.34	$ 4.29
Diluted	4.31	4.26
Weighted-average shares:		
Basic	10,721	10,684
Diluted	10,779	10,774

(1) Net effective spread is a non-GAAP measure. See "Management's Discussion and Analysis of Financial Condition and Results of Operations—Use of Non-GAAP Measures—Net Effective Spread" for an explanation of net effective spread. See Table 11 for a reconciliation of net interest income to net effective spread.

(2) Includes interest income and interest expense related to consolidated trusts owned by third parties reclassified from net interest income to guarantee and commitment fees to reflect management's view that the net interest income Farmer Mac earns is effectively a guarantee fee on the consolidated Farmer Mac Guaranteed Securities.

(3) Reflects reconciling adjustments for the reclassification to exclude expenses related to interest rate swaps not designated as hedges and terminations or net settlements on financial derivatives, and reconciling adjustments to exclude fair value adjustments on financial derivatives and trading assets and the recognition of deferred gains over the estimated lives of certain Farmer Mac Guaranteed Securities and USDA Securities.

(4) Includes the tax impact of non-GAAP reconciling items between net income attributable to common stockholders and core earnings.

Table 7

Reconciliation of GAAP Basic Earnings Per Share to Core Earnings - Basic Earnings Per Share

	For the Three Months Ended		For the Six Months Ended	
	June 30, 2020	June 30, 2019	June 30, 2020	June 30, 2019
	(in thousands, except per share amounts)			
GAAP - Basic EPS	$ 2.95	$ 2.65	$ 3.83	$ 4.70
Less reconciling items:				
Gains on undesignated financial derivatives due to fair value changes (see Table 14)	0.81	0.98	0.21	1.19
Losses on hedging activities due to fair value changes	(0.25)	(0.13)	(0.80)	(0.39)
Unrealized gains on trading securities	—	0.01	0.01	0.01
Amortization of premiums/discounts and deferred gains on assets consolidated at fair value	—	(0.01)	—	(0.01)
Net effects of terminations or net settlements on financial derivatives	0.06	(0.06)	(0.06)	(0.05)
Issuance costs on the retirement of preferred stock	—	(0.18)	—	(0.18)
Income tax effect related to reconciling items	(0.13)	(0.17)	0.13	(0.16)
Sub-total	0.49	0.44	(0.51)	0.41
Core Earnings - Basic EPS	$ 2.46	$ 2.21	$ 4.34	$ 4.29
Shares used in per share calculation (GAAP and Core Earnings)	10,730	10,698	10,721	10,684

Reconciliation of GAAP Diluted Earnings Per Share to Core Earnings - Diluted Earnings Per Share

	For the Three Months Ended		For the Six Months Ended	
	June 30, 2020	June 30, 2019	June 30, 2020	June 30, 2019
	(in thousands, except per share amounts)			
GAAP - Diluted EPS	$ 2.94	$ 2.63	$ 3.81	$ 4.66
Less reconciling items:				
Gains on undesignated financial derivatives due to fair value changes (see Table 14)	0.81	0.96	0.21	1.17
Losses on hedging activities due to fair value changes	(0.25)	(0.14)	(0.80)	(0.40)
Unrealized gains on trading securities	—	0.01	0.01	0.01
Amortization of premiums/discounts and deferred gains on assets consolidated at fair value	—	(0.01)	—	(0.01)
Net effects of terminations or net settlements on financial derivatives	0.06	(0.05)	(0.05)	(0.04)
Issuance costs on the retirement of preferred stock	—	(0.18)	—	(0.18)
Income tax effect related to reconciling items	(0.13)	(0.16)	0.13	(0.15)
Sub-total	0.49	0.43	(0.50)	0.40
Core Earnings - Diluted EPS	$ 2.45	$ 2.20	$ 4.31	$ 4.26
Shares used in per share calculation (GAAP and Core Earnings)	10,776	10,770	10,779	10,774

The non-GAAP reconciling items between net income attributable to common stockholders and core earnings are:

1. Losses on financial derivatives due to fair value changes are presented by two reconciling items in Table 6 above: (a) (Losses)/gains on undesignated financial derivatives due to fair value changes; and (b) Losses on hedging activities due to fair value changes. The table below calculates the non-GAAP reconciling item for losses on hedging activities due to fair value changes:

Table 8

Non-GAAP Reconciling Items for (Losses)/Gains on Hedging Activities due to Fair Value Changes

	For the Three Months Ended		For the Six Months Ended	
	June 30, 2020	June 30, 2019	June 30, 2020	June 30, 2019
	(in thousands)			
Losses due to fair value changes (see Table 4.2)	$ (2,381)	$ (1,428)	$ (8,062)	$ (4,128)
Initial cash payment (received) at inception of swap	(295)	(10)	(539)	(127)
Losses on hedging activities due to fair value changes	$ (2,676)	$ (1,438)	$ (8,601)	$ (4,255)

2. Unrealized gains/(losses) on trading securities. The unrealized gains/(losses) on trading securities are reported on Farmer Mac's consolidated statements of operations, which represent changes during the period in fair values for trading assets remaining on Farmer Mac's balance sheet as of the end of the reporting period.

3. Amortization of premiums/discounts and deferred gains on assets consolidated at fair value. The amount of this non-GAAP reconciling item is the recorded amount of premium, discount, or deferred gain amortization during the reporting period on those assets for which the premium, discount, or deferred gain was based on the application of an accounting principle (e.g., consolidation of variable interest entities) rather than on a cash transaction (e.g., a purchase price premium or discount).

4. The net effects of terminations or net settlements on financial derivatives. These terminations or net settlements relate to:

- Forward contracts on the debt of other GSEs and futures contracts on U.S. Treasury securities. These contracts are used as a short-term economic hedge of the issuance of debt. For GAAP purposes, realized gains or losses on settlements of these contracts are reported in the consolidated statements of operations in the period in which they occur. For core earnings purposes, these realized gains or losses are deferred and amortized as net yield adjustments over the term of the related debt, which generally ranges from 3 to 15 years.
- Initial cash payments received by Farmer Mac upon the inception of certain swaps. When there is no direct payment arrangement between a swap dealer counterparty and a debt dealer issuing Farmer Mac's medium-term notes for a particular transaction, Farmer Mac may receive an initial cash payment from the swap dealer at the inception of the swap to offset dollar-for-dollar the amount of the discount on the associated hedged debt. For GAAP purposes, changes in fair value of the swaps are recognized in "Gains on financial derivatives," while the economically offsetting discount on the associated hedged debt is amortized over the term of the debt as an adjustment to its yield. For purposes of core earnings, these initial cash payments are deferred and amortized as net yield adjustments over the term of the related debt, which generally ranges from 3 to 15 years.

5. The recognition of deferred issuance costs on the retirement of the Series B Preferred Stock in second quarter 2019 has been excluded from core earnings because it is not a frequently occurring transaction, nor

is it indicative of future operating results. This is consistent with Farmer Mac's previous treatment of deferred issuance costs associated with the retirement of preferred stock.

The following sections provide more detail about specific components of Farmer Mac's results of operations.

Net Interest Income. The following table provides information about interest-earning assets and funding for the six months ended June 30, 2020 and 2019. The average balance of non-accruing loans is included in the average balance of loans, Farmer Mac Guaranteed Securities, and USDA Securities presented, though the related income is accounted for on a cash basis. Therefore, as the average balance of non-accruing loans and the income received increases or decreases, the net interest income and yield will fluctuate accordingly. The average balance of loans in consolidated trusts with beneficial interests owned by third parties is disclosed in the net effect of consolidated trusts and is not included in the average balances of interest-earning assets and interest-bearing liabilities. The interest income and expense associated with these trusts are shown in the net effect of consolidated trusts.

Table 9

	For the Six Months Ended					
	June 30, 2020			June 30, 2019		
	Average Balance	Income/ Expense	Average Rate	Average Balance	Income/ Expense	Average Rate
	(dollars in thousands)					
Interest-earning assets:						
Cash and investments	$ 3,839,155	$ 28,140	1.47 %	$ 2,894,225	$ 38,863	2.69 %
Loans, Farmer Mac Guaranteed Securities and USDA Securities[1]	16,464,280	220,035	2.67 %	14,853,973	251,338	3.38 %
Total interest-earning assets	20,303,435	248,175	2.44 %	17,748,198	290,201	3.27 %
Funding:						
Notes payable due within one year	3,341,975	18,122	1.08 %	3,667,842	44,848	2.45 %
Notes payable due after one year[2]	16,676,078	143,897	1.73 %	13,421,483	165,479	2.47 %
Total interest-bearing liabilities[3]	20,018,053	162,019	1.62 %	17,089,325	210,327	2.46 %
Net non-interest-bearing funding	285,382	—		658,873	—	
Total funding	20,303,435	162,019	1.60 %	17,748,198	210,327	2.37 %
Net interest income/yield prior to consolidation of certain trusts	20,303,435	86,156	0.85 %	17,748,198	79,874	0.90 %
Net effect of consolidated trusts[4]	1,499,758	3,504	0.47 %	1,553,815	3,779	0.49 %
Net interest income/yield	$ 21,803,193	$ 89,660	0.82 %	$ 19,302,013	$ 83,653	0.87 %

(1) Excludes interest income of $29.3 million and $30.4 million, in the first half of 2020 and 2019, respectively, related to consolidated trusts with beneficial interests owned by third parties.
(2) Includes current portion of long-term notes.
(3) Excludes interest expense of $25.8 million and $26.7 million in the first half of 2020 and 2019, respectively, related to consolidated trusts with beneficial interests owned by third parties.
(4) Includes the effect of consolidated trusts with beneficial interests owned by third parties.

The $6.0 million year-over-year increase in net interest income was primarily due to net growth across all lines of business, which contributed $10.0 million towards the increase in net interest income. This increase was partially offset by the decrease of $3.9 million in net fair value changes from fair value hedge accounting relationships as a result of material changes in market interest rates.

In percentage terms, the decrease of 0.05% was primarily attributable to a decrease of 0.04% in net fair value changes from fair value hedge accounting relationships and an increase of 0.04% in funding and liquidity costs. These decreases were partially offset by an increase of 0.03% related to net volume growth.

The following table sets forth information about changes in the components of Farmer Mac's net interest income prior to consolidation of certain trusts for the periods indicated. For each category, information is provided on changes attributable to changes in volume (change in volume multiplied by old rate) and changes in rate (change in rate multiplied by old volume). Combined rate/volume variances, the third element of the calculation, are allocated based on their relative size.

Table 10

	For the Six Months Ended June 30, 2020 Compared to Same Period in 2019		
	Increase/(Decrease) Due to		
	Rate	Volume	Total
		(in thousands)	
Income from interest-earning assets:			
Cash and investments	$ (21,001)	$ 10,278	$ (10,723)
Loans, Farmer Mac Guaranteed Securities and USDA Securities	(56,602)	25,299	(31,303)
Total	(77,603)	35,577	(42,026)
Expense from other interest-bearing liabilities	(80,236)	31,928	(48,308)
Change in net interest income prior to consolidation of certain trusts[1]	$ 2,633	$ 3,649	$ 6,282

(1) Excludes the effect of debt in consolidated trusts with beneficial interests owned by third parties.

The following table presents a reconciliation of net interest income and net interest yield to net effective spread. Net effective spread is measured by: including (1) expenses related to undesignated financial derivatives, which consists of income or expense related to contractual amounts due on financial derivatives not designated in hedge relationships (the income or expense related to financial derivatives designated in hedge accounting relationships is already included in net interest income), and (2) the amortization of losses due to terminations or net settlements of financial derivatives; and excluding (3) the amortization of premiums and discounts on assets consolidated at fair value, (4) the net effects of consolidated trusts with beneficial interests owned by third parties, and (5) the fair value changes of financial derivatives and corresponding financial assets or liabilities in fair value hedge relationships. See "Management's Discussion and Analysis of Financial Condition and Results of Operations—Use of Non-GAAP Measures—Net Effective Spread" for more information about net effective spread.

Table 11

	For the Three Months Ended				For the Six Months Ended			
	June 30, 2020		June 30, 2019		June 30, 2020		June 30, 2019	
	Dollars	Yield	Dollars	Yield	Dollars	Yield	Dollars	Yield
	(dollars in thousands)							
Net interest income/yield	$ 48,348	0.87 %	$ 43,054	0.87 %	$ 89,660	0.82 %	$ 83,653	0.87 %
Net effects of consolidated trusts	(1,804)	0.02 %	(1,873)	0.03 %	(3,505)	0.03 %	(3,778)	0.03 %
Expense related to undesignated financial derivatives	(2,413)	(0.05)%	(1,557)	(0.03)%	(3,603)	(0.04)%	(4,102)	(0.05)%
Amortization of premiums/discounts on assets consolidated at fair value	(21)	— %	289	0.01 %	(10)	— %	311	— %
Amortization of losses due to terminations or net settlements on financial derivatives	(22)	— %	14	— %	27	— %	(56)	— %
Fair value changes on fair value hedge relationships	2,381	0.05 %	1,428	0.03 %	8,063	0.08 %	4,128	0.05 %
Net effective spread	$ 46,469	0.89 %	$ 41,355	0.91 %	$ 90,632	0.89 %	$ 80,156	0.90 %

For the three months ended June 30, 2020 compared to the same period in 2019, the $5.1 million increase in net effective spread in dollars was primarily due to growth in outstanding business volume, which increased net effective spread by approximately $5.5 million.

For the first six months of 2020 compared to the same period in 2019, the $10.5 million increase in net effective spread in dollars was primarily due to growth in outstanding business volume, which increased net effective spread by approximately $10.0 million.

See Note 10 to the consolidated financial statements for more information about net interest income and net effective spread from Farmer Mac's individual business segments. See "Management's Discussion and Analysis of Financial Condition and Results of Operations—Supplemental Information" for quarterly net effective spread by line of business.

Provision for and Release of Allowance for Losses and Reserve for Losses. The following table summarizes the components of Farmer Mac's total allowance for losses for the three and six months ended June 30, 2020 and 2019:

Table 12

	As of June 30, 2020			As of June 30, 2019		
	Allowance for Losses	Reserve for Losses	Total Allowance for Losses	Allowance for Losses	Reserve for Losses	Total Allowance for Losses
	(in thousands)					
For the Three Months Ended:						
Beginning balance	$ 15,685	$ 3,420	$ 19,105	$ 6,753	$ 2,038	$ 8,791
Provision for/(release of) losses	467	(400)	67	578	(158)	420
Charge-offs	(394)	—	(394)	(67)	—	(67)
Ending Balance	$ 15,758	$ 3,020	$ 18,778	$ 7,264	$ 1,880	$ 9,144
For the Six Months Ended:						
Beginning balance	$ 10,454	$ 2,164	$ 12,618	$ 7,017	$ 2,167	$ 9,184
Cumulative effect adjustment from adoption of current expected credit loss standard	1,793	863	2,656	—	—	—
Adjusted beginning balance	12,247	3,027	15,274	7,017	2,167	9,184
Provision for/(release of) losses	3,905	(7)	3,898	314	(287)	27
Charge-offs	(394)	—	(394)	(67)	—	(67)
Ending balance	$ 15,758	$ 3,020	$ 18,778	$ 7,264	$ 1,880	$ 9,144

The cumulative effect adjustment from the adoption of CECL on January 1, 2020 was $2.7 million and was recorded directly to retained earnings, net of tax. The transition adjustment was the difference between (1) the total allowance for losses on December 31, 2019 that reflected probable incurred losses and (2) the total allowance for losses on January 1, 2020 that reflected expected losses.

The cumulative effect adjustment for credit losses on on-balance sheet assets was $1.8 million and was comprised of an increase of $5.4 million to the allowance for losses on Rural Utilities loans and Farmer Mac Guaranteed Securities and a $3.6 million decrease in the allowance for losses on Farm & Ranch loans and Farmer Mac Guaranteed Securities. Although Farmer Mac has never experienced any credit losses in its portfolio of Rural Utilities loans and Farmer Mac Guaranteed Securities, our estimate of expected losses is based upon reasonable and supportable forecasts over the expected lives of these assets. The reduction in the allowance for losses on Farm & Ranch loans and Farmer Mac Guaranteed Securities reflects the expected recovery rate based on loan-to-value ratios in those portfolios.

The cumulative effect adjustment for credit losses on LTSPCs was $0.9 million and was comprised of an increase of $1.0 million on Rural Utilities LTSPCs and a decrease of $0.1 million on Farm & Ranch LTSPCs.

In second quarter 2020, our forecasts continue to include the effects of the COVID-19 pandemic on economic factors such as land values, gross domestic product, credit spreads, and unemployment. Primarily due to the stabilization of credit spreads in the second quarter, Farmer Mac recorded a lower total provision for losses than in the first quarter. The total provision for loan losses in the second quarter was approximately $0.1 million.

The provision to Farmer Mac's allowance for losses for on-balance sheet assets was $0.5 million and was comprised of $1.4 million for expected losses on Rural Utilities loans and Farmer Mac Guaranteed Securities and a release of $0.9 million on Farm & Ranch loans and Farmer Mac Guaranteed Securities. Updates to our economic factor forecast in the second quarter had a negative impact on the Rural Utilities portfolio, where the positive impacts of stabilizing credit spreads were more than offset by net business volume growth and continued uncertainty surrounding unemployment expectations for the next 12 months. Conversely, updated second quarter economic factors had a positive impact on our Farm & Ranch portfolio where improving commodity prices and lower expected volatility in land values decreased expected losses for our lowest risk-rated assets. The release from Farmer Mac's reserve for losses on LTSPCs was $0.4 million, was primarily related to Farm & Ranch LTSPCs, and was driven by decreased volume in that portfolio in the second quarter.

Our estimates of expected losses are based on historical information and reasonable and supportable forecasts. Our reasonable and supportable forecasts incorporate economic factor forecasts and are sensitive to changes in those economics factor forecasts. As of June 30, 2020, our estimate of expected credit losses considered the economic volatility from the COVID-19 pandemic. In particular, the stabilization of credit spreads and continued uncertainty in unemployment expectations were the two economic factors that had the most significant impact. These economic factors also had a more significant impact on our estimate of expected losses in Farmer Mac's Rural Utilities portfolio than in the Farm & Ranch portfolio because of stable farm land values and stable credit quality in the Farm & Ranch portfolio during both the first and second quarters. Notwithstanding the impact of improved economic conditions as of the end of the second quarter, growth in net outstanding business volume across three of our portfolios caused Farmer Mac to record a provision for expected credit losses of approximately $0.1 million. However, a charge-off to the allowance of $0.4 million decreased Farmer Mac's total allowance for losses by $0.4 million compared to the end of the first quarter.

See Notes 5 and 6 to the consolidated financial statements and "Management's Discussion and Analysis of Financial Condition and Results of Operations—Risk Management—Credit Risk – Loans and Guarantees."

Guarantee and Commitment Fees. The following table presents guarantee and commitment fees, which compensate Farmer Mac for assuming the credit risk on loans underlying off-balance sheet Farmer Mac Guaranteed Securities and LTSPCs, for the three and six months ended June 30, 2020 and 2019:

Table 13

	For the Three Months Ended				For the Six Months Ended			
			Change				Change	
	June 30, 2020	June 30, 2019	$	%	June 30, 2020	June 30, 2019	$	%
				(dollars in thousands)				
Guarantee and commitment fees	3,140	3,403	$ (263)	(8)%	$ 6,336	$ 6,916	$ (580)	(8)%

In Farmer Mac's presentation of core earnings, guarantee and commitment fees include interest income and interest expense related to consolidated trusts owned by third parties to reflect management's view that the net interest income Farmer Mac earns is effectively a guarantee fee on the consolidated Farmer Mac Guaranteed Securities. The decrease in guarantee and commitment fees for the three and six months ended June 30, 2020 compared to the same periods in 2019 was primarily due to decreased LTSPC volume. As adjusted for the core earnings presentation, guarantee and commitment fees were $4.9 million and $9.8 million for the three and six months ended June 30, 2020, respectively, compared to $5.3 million and $10.7 million for the three and six months ended June 30, 2019, respectively.

For more information about net income attributable to common stockholders, the composition of core earnings, and a reconciliation of net income attributable to common stockholders to core earnings, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Results of Operations." For more information about the non-GAAP measures Farmer Mac uses, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Use of Non-GAAP Measures."

Gains/(losses) on financial derivatives. The components of gains and losses on financial derivatives for the three and six months ended June 30, 2020 and 2019 are summarized in the following table:

Table 14

	For the Three Months Ended				For the Six Months Ended			
			Change				Change	
	June 30, 2020	June 30, 2019	$	%	June 30, 2020	June 30, 2019	$	%
	(dollars in thousands)							
Gains due to fair value changes	$ 8,700	$ 10,485	$ (1,785)	(17)%	$ 2,216	$ 12,725	$ (10,509)	(83)%
Accrual of contractual payments	(2,413)	(1,557)	(856)	55 %	(3,603)	(4,101)	498	(12)%
Gains/(losses) due to terminations or net settlements	236	(15)	251	(1,673)%	(1,388)	(71)	(1,317)	1,855 %
Gains/(losses) on financial derivatives	$ 6,523	$ 8,913	$ (2,390)	(27)%	$ (2,775)	$ 8,553	$ (11,328)	(132)%

These changes in fair value are primarily the result of fluctuations in long-term interest rates. The accrual of periodic cash settlements for interest paid or received from Farmer Mac's interest rate swaps that are undesignated financial derivatives is shown as expense related to financial derivatives. Payments or receipts to terminate undesignated derivative positions or net cash settled forward sales contracts on the debt of other GSEs and undesignated U.S. Treasury security futures and initial cash payments received upon the inception of certain undesignated swaps are included in "Gains/(losses) due to terminations or net settlements" in the table above. For undesignated swaps, when there is no direct payment arrangement between a swap dealer counterparty and a debt dealer issuing Farmer Mac's medium-term notes for a particular transaction, Farmer Mac may receive an initial cash payment from the swap dealer at the inception of the swap to offset dollar-for-dollar the amount of the discount on the associated hedged debt. Changes in the fair value of these swaps are recognized immediately in "Gains/(losses) on financial derivatives," while the offsetting discount on the hedged debt is amortized over the term of the debt as an adjustment to its yield. The amounts of initial cash payments received by Farmer Mac vary depending on the number of the aforementioned type of swaps it executes during a quarter.

Other Income. The following table presents other income for the three and six months ended June 30, 2020 and 2019:

Table 15

	For the Three Months Ended				For the Six Months Ended			
			Change				Change	
	June 30, 2020	June 30, 2019	$	%	June 30, 2020	June 30, 2019	$	%
	(dollars in thousands)							
Late fees	$ 296	$ 154	$ 142	92 %	$ 887	$ 569	$ 318	56 %
Other	933	201	732	364 %	1,158	279	879	315 %
Total other income	$ 1,229	$ 355	$ 874	246 %	$ 2,045	$ 848	$ 1,197	141 %

The increase in other fees is primarily due to an increase in the fees received from borrowers to modify their long-term fixed borrowing rate to a new lower rate.

Operating Expenses. The components of operating expenses for the three and six months ended June 30, 2020 and 2019 are summarized in the following table:

Table 16

	For the Three Months Ended				For the Six Months Ended			
			Change				Change	
	June 30, 2020	June 30, 2019	$	%	June 30, 2020	June 30, 2019	$	%
	(dollars in thousands)							
Compensation and employee benefits	8,087	$ 6,770	$ 1,317	19 %	$ 18,214	$ 14,376	$ 3,838	27 %
General and administrative	5,295	4,689	606	13 %	10,658	9,285	1,373	15 %
Regulatory fees	725	687	38	6 %	1,450	1,375	75	5 %
Total Operating Expenses	$ 14,107	$ 12,146	$ 1,961	16 %	$ 30,322	$ 25,036	$ 5,286	21 %

a. Compensation and Employee Benefits. The increase in compensation and employee benefits expenses for the three months ended June 30, 2020 compared to the same period in 2019 was primarily due to lower than expected bonus payments in the prior year period and increased headcount in the current period. The increase in compensation and employee benefits expenses for the six months ended June 30, 2020 compared to the same period in 2019 was primarily due to an increase in bonus expense in first quarter 2020 due to 2019 financial performance and the severance payments made to an executive who resigned in first quarter 2020.

b. General and Administrative Expenses (G&A). The increase in G&A expenses for the three and six months ended June 30, 2020 compared to the same periods in 2019 was primarily due to increased spending on software licenses and information technology consultants to support growth and strategic initiatives.

Income Tax Expense. The following table presents income tax expense and the effective income tax rate for the three and six months ended June 30, 2020 and 2019:

Table 17

	For the Three Months Ended				For the Six Months Ended			
			Change				Change	
	June 30, 2020	June 30, 2019	$	%	June 30, 2020	June 30, 2019	$	%
	(dollars in thousands)							
Income tax expense	$ 9,435	$ 9,111	$ 324	4 %	$ 13,176	$ 15,733	$ (2,557)	(16)%
Effective tax rate	20.9 %	21.1 %		(0.2)%	21.4 %	21.0 %		0.4 %

Business Volume.

The following table sets forth the net growth or decrease under Farmer Mac's lines of business for the three and six months ended June 30, 2020 and 2019:

Table 18

Net New Business Volume – Farmer Mac Loan Purchases, Guarantees, LTSPCs, and AgVantage Securities

	For the Three Months Ended		For the Six Months Ended	
	June 30, 2020	June 30, 2019	June 30, 2020	June 30, 2019
	Net Growth/ (Decrease)	Net Growth/ (Decrease)	Net Growth/ (Decrease)	Net Growth/ (Decrease)
	(in thousands)			
Farm & Ranch:				
Loans	$ 259,130	$ 143,361	$ 340,956	$ 165,936
LTSPCs	(52,874)	(67,594)	(100,055)	(108,556)
USDA Guarantees:				
USDA Securities	72,194	14,392	116,538	(25,252)
Farmer Mac Guaranteed USDA Securities	(40,594)	22,223	(58,907)	31,026
Rural Utilities:				
Loans	311,843	98,049	430,276	588,307
LTSPCs	(5,632)	(17,092)	(19,226)	(24,752)
Institutional Credit:				
AgVantage securities	(41,271)	46,483	214,584	395,501
Total purchases, guarantees, LTSPCs, and AgVantage securities	$ 502,796	$ 239,822	$ 924,166	$ 1,022,210

Farmer Mac's net business volume growth of $502.8 million in second quarter 2020 was $263.0 million more than the $239.8 million of net growth achieved in second quarter 2019. The increase in second quarter 2020 was primarily attributable to historically low interest rates that drove strong market demand by borrowers seeking to take advantage of low interest rates on long-term funding.

Our outstanding business volume was $22.0 billion as of June 30, 2020, a net increase of $502.8 million from March 31, 2020, after taking into account all new business, maturities, and repayments on existing assets. This net increase consisted of increases of $306.2 million in Rural Utilities, $206.3 million in Farm & Ranch, and $31.6 million in the USDA Guarantees line of business, partially offset by a decrease of $41.3 million in Institutional Credit.

The $306.2 million net growth in our Rural Utilities line of business during second quarter 2020 was primarily due to the purchase of $339.4 million in loans from the two main counterparties in that line of business, partially offset by regularly scheduled payments, prepayments, and maturities of loans previously purchased and loans under LTSPCs.

The $206.3 million net increase in our Farm & Ranch line of business was comprised of a $259.1 million net increase in outstanding loan purchase volume, partially offset by a $52.8 million net decrease in loans under LTSPCs. The net growth in second quarter 2020 reflected our ability to retain borrowers in a decreasing interest rate environment by proactively engaging with our customers and adjusting their rates and loan sizes to reflect current market conditions and their specific funding needs. Our net growth of 18.2% in Farm & Ranch loan purchases over the twelve months ended June 30, 2020 is significantly higher than the 3.1% net growth of the overall agricultural mortgage loan market over the twelve months ended March 31, 2020 (based on our analysis of bank and Farm Credit System call report data).

Our USDA Guarantees line of business grew by $31.6 million in second quarter 2020. The second quarter gross volume of $224.0 million was the highest gross volume that we have ever recorded in any quarter. When added to the $147.9 million, it is the most gross business volume in USDA Guarantees that Farmer Mac has recorded in any six-month period. This growth reflected the positive effect of adjustments that we made to our product structure in the second half of 2019 to more effectively meet customer demands in an increasingly competitive environment and in response to increased loan limits mandated by the 2018 Farm Bill described in "Management's Discussion and Analysis of Financial Condition and Results of Operations—Outlook" in this report.

The $41.3 million net decrease in the Institutional Credit line of business during second quarter 2020 was due primarily to two large counterparties who reduced their amount of outstanding credit in connection with the maturity of one bond and regularly scheduled payments on multiple bonds. We also experienced a slight net increase from smaller fund counterparties.

For more information about potential growth opportunities in Farmer Mac's lines of business, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Outlook" in this report.

The following table sets forth information about the Farmer Mac Guaranteed Securities issued during the periods indicated:

Table 19

	For the Three Months Ended		For the Six Months Ended	
	June 30, 2020	June 30, 2019	June 30, 2020	June 30, 2019
	(in thousands)			
Loans securitized and sold as Farm & Ranch Guaranteed Securities	$ —	$ 20,224	$ 28,050	$ 118,004
Farmer Mac Guaranteed USDA Securities	—	29,419	28,050	48,347
AgVantage securities	430,024	659,447	990,419	1,484,864
Total Farmer Mac Guaranteed Securities Issuances	$ 430,024	$ 709,090	$ 1,046,519	$ 1,651,215

Farmer Mac either retains the loans it purchases or securitizes them and retains or sells Farmer Mac Guaranteed Securities backed by those loans. The weighted-average age of the Farm & Ranch non-delinquent eligible loans purchased and retained (excluding the purchases of defaulted loans) during both second quarter 2020 and 2019 was less than one year. Of those loans, 25% and 63% had principal amortization periods longer than the maturity date, resulting in balloon payments at maturity, with a weighted-average remaining term to maturity of 15.0 years for both periods.

During second quarter 2020 and 2019, Farmer Mac securitized some of the Farm & Ranch loans it had purchased and sold the resulting Farmer Mac Guaranteed Securities, as shown below. During the three and six months ended June 30, 2020 and 2019, Farmer Mac realized no gains or losses from the sale of Farmer Mac Guaranteed Securities or USDA Securities. Farmer Mac consolidates these loans and presents them as "Loans held for investment in consolidated trusts, at amortized cost" on the consolidated balance sheets. For the three and six months ended June 30, 2020, none of our Farmer Mac Guaranteed Securities were sold to a related party to Farmer Mac, compared to none and $63.1 million of our Farmer Mac Guaranteed Securities were sold to a related party to Farmer Mac (which is related by virtue of its owning more than 10% of Farmer Mac's Class A voting common stock) for the same periods in 2019, respectively.

The following table sets forth information about outstanding volume in each of Farmer Mac's four lines of business as of the dates indicated:

Table 20

Lines of Business - Outstanding Business Volume

	As of June 30, 2020	As of December 31, 2019
	(in thousands)	
Farm & Ranch:		
Loans	$ 4,181,422	$ 3,675,640
Loans held in trusts:		
Beneficial interests owned by third party investors	1,436,090	1,600,917
LTSPCs	2,310,113	2,393,071
Guaranteed Securities	90,225	107,322
USDA Guarantees:		
USDA Securities	2,314,961	2,199,072
Farmer Mac Guaranteed USDA Securities	362,846	421,103
Rural Utilities:		
Loans	2,101,568	1,671,293
LTSPCs[(1)]	590,053	609,278
Institutional Credit		
AgVantage Securities	8,654,830	8,440,246
Total	$ 22,042,108	$ 21,117,942

(1) As of both June 30, 2020 and December 31, 2019, includes $20.0 million related to one-year loan purchase commitments on which Farmer Mac receives a nominal unused commitment fee.

The following table summarizes by maturity date the scheduled principal amortization of loans held, loans underlying off-balance sheet Farmer Mac Guaranteed Securities (excluding AgVantage securities) and LTSPCs, USDA Securities, and Farmer Mac Guaranteed USDA Securities as of June 30, 2020:

Table 21

Schedule of Principal Amortization as of June 30, 2020

	Loans Held	Loans Underlying Off-Balance Sheet Farmer Mac Guaranteed Securities and LTSPCs	USDA Securities and Farmer Mac Guaranteed USDA Securities	Total
		(in thousands)		
2020	$ 152,425	$ 106,391	$ 59,137	$ 317,953
2021	336,225	281,270	116,557	734,052
2022	330,914	224,825	117,421	673,160
2023	333,244	210,451	121,362	665,057
2024	328,160	176,133	119,630	623,923
Thereafter	6,238,112	1,991,321	2,143,700	10,373,133
Total	$ 7,719,080	$ 2,990,391	$ 2,677,807	$ 13,387,278

Of the $22.0 billion outstanding principal balance of volume included in Farmer Mac's four lines of business as of June 30, 2020, $8.7 billion were AgVantage securities included in the Institutional Credit line of business. Unlike business volume in the form of purchased loans, USDA Securities, and loans underlying LTSPCs and non-AgVantage Farmer Mac Guaranteed Securities, most AgVantage securities do not require periodic payments of principal based on amortization schedules and instead have fixed maturity dates when the secured general obligation is due. The following table summarizes by maturity date the outstanding principal amount of both on- and off-balance sheet AgVantage securities as of June 30, 2020:

Table 22

AgVantage Balances by Year of Maturity

	As of June 30, 2020
	(in thousands)
2020	$ 1,157,737
2021	1,692,298
2022	1,582,868
2023	964,527
2024	828,108
Thereafter[1]	2,429,292
Total	$ 8,654,830

(1) Includes various maturities ranging from 2025 to 2044.

The weighted-average remaining maturity of the outstanding AgVantage securities shown in the table above was 4.7 years as of June 30, 2020.

Outlook

Farmer Mac continues to provide a stable source of liquidity, capital, and risk management tools as the secondary market that helps meet the financing needs of rural America. The pace of Farmer Mac's growth will depend on the capital and liquidity needs of the lending institutions in the agricultural and rural financing business as well as the overall health of agriculture and rural borrowers in the sectors we serve. Farmer Mac foresees opportunities for growth across our lines of business driven by several key factors:

- As agricultural and rural utilities lenders seek to manage equity capital and return on equity capital requirements or seek to reduce exposure due to lending limits or concentration limits, Farmer Mac can provide relief for those institutions through loan and portfolio purchases, participations, guarantees, LTSPCs, or wholesale funding.

- While overall loan growth within the rural utilities industry appears to be moderate in the near term due to generally flat demand for capital, future growth opportunities may increase in Farmer Mac's Rural Utilities line of business from deepening business relationships with eligible counterparties and exploring new types of loan products. These opportunities may be limited by sector growth, credit quality, and the competitiveness of Farmer Mac's products.

- As a result of business and product development efforts, and continued interest in the agricultural asset class from institutional investors, Farmer Mac's customer base and product set continue to expand, which may generate more demand for Farmer Mac's products from new sources.

- Consolidation within the agricultural finance industry, coupled with Farmer Mac's relationships with larger regional and national lenders, continue to provide opportunities that could influence Farmer Mac's loan demand and increase the average transaction size within Farmer Mac's Farm & Ranch line of business.

- Expansion and refinancing opportunities for agricultural producers resulting from a decrease in interest rates have increased financing requirements for mergers and acquisitions, consolidation, and vertical integration across many sectors of the agricultural industry, which may also generate demand for Farmer Mac's loan products.

The COVID-19 pandemic and related efforts to contain it continue to create disruptions to the global economy. Government stimulus programs designed to mitigate the economic impacts of the pandemic as well as significant liquidity support by the Federal Reserve to facilitate the functioning of the capital markets has endeavored to reduce volatility to the economy and the sectors we serve. However, the duration, severity, and continued spread of the pandemic and the effectiveness of government efforts taken to contain COVID-19 and mitigate public health and economic effects continue to evolve and remain uncertain. For a further discussion of the uncertainties and risks associated with the COVID-19 pandemic on Farmer Mac and its business, see the factors discussed under "Risk Factors" in Part II, Item 1A of this report,

The pandemic's effect on our growth objectives and outlook will depend on many factors, including:

- How quickly and to what extent affected rural borrowers can recover from the negative economic impact of the pandemic and recession, how quickly normal economic and operating conditions can resume, and whether there are lingering effects to the economy after the COVID-19 pandemic is over as a result of the disruption to the global economy, the domestic agricultural economy, and recession.

- Increasing borrowers' payment deferral requests and the duration of approved deferrals, including payments made to holders of Farmer Mac Guaranteed Securities to cover principal and interest shortfalls, could consume some capital which would otherwise have been available for certain planned growth initiatives. For more information about the impact of COVID-19 on Farmer Mac's payment deferral requests received to date, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Risk Management—Credit Risk – Loans and Guarantees."

- Stress on commodity and agriculture exports as a result of global trade disruptions caused by the COVID-19 pandemic and geopolitical trade disputes, which could create downward pressure on commodity prices and further stress borrowers' liquidity and negatively impact loan growth opportunities.

- The inability of borrowers in the pandemic to close on agricultural or renewable energy loans due to limited access to local or state administrative offices, delays in receiving equipment components, installation inefficiencies caused by social distancing among workers, and difficulties in obtaining inspections and grid interconnection on a timely basis could limit our opportunities to purchase agricultural or renewable energy loans.

- Delays and postponements of planned or potential mergers and acquisitions, consolidations, and vertical integrations as a result of COVID-19 and, consequently, a potential reduction in the need for Farmer Mac's products and services until the global economy recovers and the flow of transactions returns to pre-pandemic levels.

- Disruptions in the capital markets and the widening of credit spreads could impact Farmer Mac's funding costs and could result in higher interest rates charged for our products and services, which could adversely affect our competitiveness in the sectors we serve.

- Farmer Mac's mission is to support rural America during this pandemic, and the disruptions caused by COVID-19 may present some new and expanded opportunities for Farmer Mac to help meet the financing needs of rural America. Rural electric cooperatives financed by Farmer Mac could have an increased demand for temporary liquidity if COVID-19 related state moratoriums protecting consumers against utility providers taking actions due to non-payment of power bills continue for a significant period of time. If borrowers seek to obtain additional financing and liquidity from lenders to maintain operations and production during this time, or to make up for lost productivity due to shutdowns, delays, and social distancing requirements, these short-term funding requirements could create additional growth opportunities for Farmer Mac as other lenders look to manage lending limits and credit concentrations as short-term financing demands arise.

- Financial market volatility, coupled with uncertainty regarding the long-term impacts of the pandemic, is causing some financial institutions to delay or cease capital deployment to many sectors that Farmer Mac serves. While these reductions could reduce our loan purchase opportunities, Farmer Mac could also provide a much-needed source of secondary market liquidity to help stimulate capital deployment during this time of uncertainty.

Operating Expense. Farmer Mac continues to expand its investments in human capital, technology, and business infrastructure to increase capacity and efficiency as it seeks to accommodate its growth opportunities and achieve its long-term strategic objectives. Accordingly, Farmer Mac expects continued increases in its operating expenses over the next several years corresponding to business and revenue growth. We expect these efforts to continue and increase through 2020 as we innovate and grow our business.

Operations. On March 12, 2020, Farmer Mac activated its business continuity plan and has been operating uninterruptedly since then, with all of its employees working remotely from their homes. Farmer Mac has provided guidance and support to all of its employees to ensure that they have the tools and knowledge needed to effectively work from home, and Farmer Mac's technology platform and business continuity plan have been functioning as designed in support of all functions of the organization with no material disruption of business. As a secondary market participant in the agricultural and rural utility lending space, Farmer Mac's business model is already based on a remote interface with its customers and vendors. We do not expect Farmer Mac's remote-working environment to have a material effect on our operations either in the near term or for the foreseeable future.

Agricultural Industry. The agricultural industry includes many diverse sectors that respond in different ways to changes in economic conditions. Those individual sectors often are affected differently, sometimes positively and sometimes negatively, by prevailing domestic and global economic factors and regional weather conditions. The interconnectedness between sectors typically results in cycles where one or more segments may be under stress while others are not.

The COVID-19 pandemic continues to impact the agricultural sector, although economic conditions improved somewhat during second quarter 2020. Sudden school and restaurant closures in March and April dramatically altered the supply and demand functions for food. U.S. Census Advance Retail Sales Data indicates that, after dropping 50 percent in April, U.S. consumer spending for food services away from home rebounded to 75 percent of normal. Much of the decline has been picked up in consumer spending at grocery stores, which was up more than 10 percent in June 2020 compared to the prior year. Farm production and food processing take a higher net margin of the food dollar spent at home, so the shift of consumer spending on food at home could offset some of the losses from sales to restaurants and schools. According to data from the U.S. Energy Information Administration, after dropping nearly 50 percent in April, ethanol production rebounded to 89 percent of pre-pandemic levels in June and July as drivers returned to the roads. Ethanol is a primary demand driver for corn. Agricultural commodity prices, although still down significantly in 2020, pared losses in May and June as markets adjusted to the economic shocks. Farm labor and food processing worker health and availability remain a top industry concern as a resurgence of COVID-19 cases could adversely affect the harvest of fresh fruit and produce as well as food processing in the second half of the year.

The decline in revenue during the first half of 2020 has multiple potential offsets to help support producers' profitability. First, farm expenses fell for many producers during the first half of 2020. Lower energy prices improved the cost of fuel and fertilizer ahead of the planting season. Lower grain prices led to a decrease in animal feed input costs, and lower replacement animal prices improved the cost structure for many protein producers. Second, USDA issued a final $3.7 billion Market Facilitation Program (MFP) cash payment in April and May 2020 to address market losses from trade disruptions. Third, in response to the COVID-19 pandemic, Congress passed a series of measures, including the CARES Act on March 27, 2020, which provided over $2 trillion in economic stimulus to support various aspects of the U.S. economy. The CARES Act contained a $9.5 billion emergency fund for the USDA aimed toward providing help to livestock, dairy, and produce providers who sell locally. It also included a $14 billion replenishment of the Commodity Credit Corporation ("CCC"), a line of credit at the U.S. Treasury Department that USDA can use to help crop and livestock producers. In April 2020, the USDA announced that it would provide $19 billion of assistance through the Coronavirus Food Assistance Program ("CFAP"). CFAP used the funding and authorities provided in the CARES Act, the Families First Coronavirus Response Act, and other USDA existing authorites to provide $16 billion in direct payments to distribute to producers and $3 billion in food purchases. As of July 27, 2020, the USDA had distributed $6.6 billion in CFAP payments. Farmers and ranchers were also eligible to participate in the Small Business Administration's Paycheck Protection Program (PPP). Through July 24, 2020, more than $7.9 billion in PPP loans had been disbursed to businesses involved in agriculture, forestry, fishing, and hunting.

Farmland values have held steady in early 2020 after rising at approximately the rate of inflation for the last two years. Data released in 2019 by the USDA indicates an average decrease in farm real estate values of 0.2% in 2019 in Corn Belt states (Illinois, Indiana, Iowa, Missouri, and Ohio), but an increase of 2.8% in Northern Plains states (Kansas, Nebraska, North Dakota, and South Dakota). In all other regions, farmland value averages are reported to be flat to increasing. The COVID-19 pandemic has slowed public auctions and sales in 2020, but transactions have progressed, and values have been largely level through the first half of the year. While regional averages for farmland values provide a good barometer for the overall movement in U.S. farmland values, economic forces affecting land markets are highly localized, and some markets may experience greater volatility than state or national averages indicate.

Over the past few decades, the U.S. agricultural industry has become increasingly connected to global trade, and agricultural export demand depends significantly on trading relationships in numerous foreign markets, as well as on foreign exchange rates. A prolonged decline in global economic growth or continued tightening in trade policies and agreements could adversely affect the demand for certain U.S. agricultural exports, which may result in downward pressure on commodity prices. Also, the strength of the U.S. dollar relative to trading-partner currencies has been elevated since 2016 (as measured by the U.S. Dollar Index). A strong U.S. dollar decreases the competitiveness of U.S. agricultural exports by raising U.S. prices relative to other countries' producers. The value of the U.S. dollar weakened in June and July, providing some relief to export sales. However, the COVID-19 pandemic has the potential to disrupt global demand for U.S. agriculture into 2021 due to lower incomes and reduced economic activity. Many of the primary trading partners and the U.S. maintain good trade relations evidenced by recently-enacted free trade agreements (e.g., Canada, Mexico, and Japan). Relations have become increasingly tense with China, another top U.S. agricultural trading partner. Agricultural export sales to China are up year-to-date in 2020 compared to 2019, but there exists increasing uncertainty surrounding growth expectations for this market.

Farmer Mac has experienced higher 90-day delinquencies and substandard asset ratings in recent quarters. The increase is a function of agricultural cycles trending toward tighter industry profitability levels compared to peaks experienced from 2012 to 2015. To date, the fluctuations in 90-day delinquencies and the increase in substandard assets have not yet translated into rising credit losses. Farmer Mac believes that its portfolio is highly diversified, both geographically and by commodity and that its portfolio has been underwritten to high credit quality standards. Therefore, Farmer Mac believes that its portfolio is well-positioned to endure reasonably foreseeable volatility in commodity prices and farmland values. However, the COVID-19 pandemic and a subsequent economic downturn increases the level of uncertainty inherent in the agricultural credit sector and could alter the trajectory of the current agricultural cycle. A prolonged disruption may result in elevated loan delinquencies, and a higher percentage of loans rated substandard as more payments reach 90-days past their July 1 payment due date. Loan deferments approved by Farmer Mac through June 30, 2020 represent 1.1% of our total outstanding business volume, as measured by unpaid principal balance. This amount could fluctuate in future quarters based on loan performance and economic conditions in the coming months, but roughly 80 percent of Farm & Ranch and USDA loans had a payment due on July 1. For more information about the loan balances, loan-to-value ratios, 90-day delinquencies, and substandard asset rate for the Farm & Ranch loans in Farmer Mac's portfolio as of June 30, 2020, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Risk Management—Credit Risk – Loans and Guarantees."

Under a provision of the Agricultural Improvement Act of 2018, also referred to as the "Farm Bill," Farmer Mac's charter was amended effective June 18, 2020 to expand the acreage exception to the loan amount limitation on Farm & Ranch loans (currently $13.2 million) from 1,000 acres to 2,000 acres, meaning that the statutory loan amount limitation does not apply to Farm & Ranch loans secured by 2,000 acres of agricultural real estate or less. Farmer Mac will continue to evaluate this increase in the acreage limitation to determine the potential benefits to Farmer Mac's customers and the related effects on our business. The Farm Bill also increased the authorized limit for the amount of new guarantees issued by the USDA under the Consolidated Farm and Rural Development Act (which are eligible for Farmer Mac's USDA Guarantees line of business) from $3.026 billion to $7.0 billion for each government fiscal year through September 2023. Also, the limit for the size of individual loans to which these guarantees are applied was increased from $1.399 million to $1.75 million, which thereby increases the authorized amount of the USDA-guaranteed portion for an individual loan. These higher loan limits likely contributed to additional growth in the USDA Guarantees purchased by Farmer Mac during the first half of 2020, and they could result in more increases in new business volume in our USDA Guarantees line of business in the future.

Farmer Mac also continues to monitor state legislation and regulations that could impact U.S. agriculture. For example, groundwater management regulations, including in California, may result in tighter restrictions on groundwater usage that could affect agricultural producers in the future. Farmer Mac will monitor the effects that any changes in legislation or regulation (federal or state) could have on Farmer Mac or its customers.

Rural Utilities Industry.

The rural energy industry has less cyclicality than the agricultural sector, but it does trend with conditions in the general economy. Higher levels of unemployment and adverse credit markets are typically associated with drops in energy demand (i.e., lower commercial, industrial, or residential demand) and increases in industry ratings downgrades. The economic distress caused by the COVID-19 pandemic has led to historic levels of unemployment as well as reduced demand from the commercial and industrial sectors. According to data from the U.S. Energy Information Administration, electricity sales to commercial and industrial consumers dropped 12 percent in April and May 2020 compared to 2019. However, residential sales during the same period were up nearly 7 percent compared to 2019 as residents spent more time at home during state, local, and self-imposed quarantines. Residential power sales are typically significantly more profitable than those for commercial and industrial consumers, thus some of the profitability reduction from the loss of commercial and industrial sales can be offset by the change in sales mix. Sector sales mix varies from utility to utility based on the characteristics of the region served by the utility, so the degree of profitability offset will differ. Some rural electric cooperatives participated in the Paycheck Protection Program (PPP) and received forgivable loans through that program, which are another potential source to offset any profitability reduction. The COVID-19 pandemic has also highlighted the greater need for and interest in access to broadband internet in rural areas, and there was more than $300 million in support authorized in the CARES Act to support healthcare industry telecommunications and rural broadband grants. Farmer Mac expects the heightened level of uncertainty surrounding the economic impacts of COVID-19 to continue throughout 2020.

During the first half of 2020, the sudden decrease of interest rates to historic lows drove a significant amount of financing activity on the part of rural electric cooperatives. Prospects for loan growth within the rural utilities industry overall appear to be moderate in the short to medium term as capital expenditures for large generation assets have decreased, although ongoing normal-course capital expenditures related to maintaining and upgrading utility infrastructure are expected to continue. Farmer Mac's future growth opportunities for lending to the electrical cooperative industry may be affected by the demand for electric power in rural areas, capital expenditures by electric cooperatives driven by regulatory or technological changes, the continuation of a low interest rate environment, and competitive dynamics within the rural utilities cooperative finance industry. The retirement of coal generation assets, growth in renewable energy generation, deployment of energy storage technologies, expansion of broadband service in rural areas, and the deepening of relationships with new and existing counterparties, all may provide new business opportunities for Farmer Mac. To address some of these trends, Farmer Mac has deployed new financing products tailored to the renewable energy sector, which represents a new market opportunity for Farmer Mac. Under this new program, Farmer Mac purchased a participation interest in a solar project financing in late 2019 and additional solar project participation interests from a new counterparty during first quarter 2020. Farmer Mac anticipates further growth in this area during 2020.

Balance Sheet Review

The following table summarizes the balance sheet as of the periods indicated:

Table 23

	As of		Change	
	June 30, 2020	December 31, 2019	$	%
		(in thousands)		
Assets				
Cash and cash equivalents	$ 827,600	$ 604,381	$ 223,219	37 %
Investment securities, net of allowance	3,512,410	3,004,875	507,535	17 %
Farmer Mac Guaranteed Securities, net of allowance	9,039,105	8,590,476	448,629	5 %
USDA Securities	2,347,709	2,241,073	106,636	5 %
Loans, net of allowance	7,891,148	6,981,440	909,708	13 %
Other	314,684	287,129	27,555	10 %
Total assets	$ 23,932,656	$ 21,709,374	$ 2,223,282	10 %
Liabilities				
Notes Payable	21,421,550	19,098,648	2,322,902	12 %
Other	1,686,990	1,811,450	(124,460)	(7)%
Total liabilities	$ 23,108,540	$ 20,910,098	$ 2,198,442	11 %
Total equity	824,116	799,276	24,840	3 %
Total liabilities and equity	$ 23,932,656	$ 21,709,374	$ 2,223,282	10 %

Assets. The increase in total assets was primarily attributable to the net growth in our outstanding business volume across all lines of business.

The increase in cash and cash equivalents and investment securities was primarily due to a decision to increase our liquidity investment portfolio due to the COVID-19 pandemic and to support our program asset growth.

Liabilities. The increase in total liabilities was primarily due to an increase in total notes payable to support our program asset growth.

Equity. The increase in total equity was primarily due to the issuance of Series E Preferred Stock and an increase in net income. These increases were partially offset by an increase in other comprehensive losses, net of tax, primarily due to decreases in the fair value of available-for-sale securities and financial derivatives designated in cash flow hedge accounting relationships.

Off-Balance Sheet Arrangements

Farmer Mac offers approved lenders two credit enhancement alternatives to increase their liquidity or lending capacity while retaining the cash flow benefits of their loans: (1) Farmer Mac Guaranteed Securities, which are available through each of the Farm & Ranch, USDA Guarantees, Rural Utilities, and Institutional Credit lines of business; and (2) LTSPCs, which are available through the Farm & Ranch and Rural Utilities lines of business. For securitization trusts where Farmer Mac is the primary beneficiary, the trust assets and liabilities are included on Farmer Mac's consolidated balance sheet. For securitization trusts where Farmer Mac is not the primary beneficiary and in the event of de-consolidation, both of these alternatives create off-balance sheet obligations for Farmer Mac. See Note 6 to the consolidated financial statements for more information about consolidation and Farmer Mac's off-balance sheet business activities.

Risk Management

Credit Risk – Loans and Guarantees.

COVID-19

Farmer Mac continues to monitor the effects of the COVID-19 pandemic on Farmer Mac's credit risk related to Farmer Mac's borrower exposures. Since first quarter 2020, Farmer Mac has seen an increase in payment deferment requests from its network of loan servicers on behalf of borrowers in Farmer Mac's Farm & Ranch loan portfolio, although deferment requests have been below our expectations. Our early expectations for payment deferment requests were based on forecasts provided by other GSEs and other Farm Credit System institutions. To address the requests that we have received, Farmer Mac has established criteria for approval of payment deferments for borrowers impacted by the COVID-19 pandemic and have communicated these criteria to key counterparties. Farmer Mac will monitor the criteria as the impact of the pandemic continues to unfold and determine if any changes should be made. Most of the payment deferments Farmer Mac has approved and executed for loans it has purchased or securitized in its Farm & Ranch portfolio have been for up to six months, with the deferred principal and interest payments capitalized into the unpaid principal balance of the loan. The unpaid principal balance is then re-amortized over the remaining term of the loan. Approved and executed payment deferments for loans in LTSPCs have varied from three-month payment deferments for principal and interest to deferred interest-only payments for up to twelve months, depending on the applicable LTSPC lender's deferment policy. As of June 30, 2020, we have executed payment deferments in the Farm & Ranch and USDA Securities portfolios related to an aggregate of $241.7 million of unpaid principal balances, which represents 1.10% of our total outstanding business volume. The period of time covered by the payment deferments is typically in the range of three to six months. At the end of each payment deferment, the principal and interest related to the approved deferments will be re-capitalized into the outstanding unpaid principal balance and re-amortized over the remaining life of the loan.

In addition, FCA has issued regulatory guidance encouraging Farmer Mac to work with its lending and servicing partners in approving and executing servicing actions for borrowers impacted by COVID-19. The table below presents a summary of COVID-19 payment deferments through June 30, 2020 in the Farm & Ranch line of business. Farmer Mac has not received any payment deferment requests in the Rural Utilities line of business. For more information about FCA's regulatory guidance related to the COVID-19 pandemic, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Regulatory Matters."

Table 24

Farm & Ranch COVID-19 Deferments Summary

	As of June 30, 2020[1]			
	Unpaid Principal Balance			
	Requested, but not yet Approved	Approved, but not yet Executed	Not Approved	Approved and Executed
Farm & Ranch:	*(in thousands)*			
On-balance sheet:				
Loans held for investment	$ 2,547	$ 32,292	$ —	$ 44,434
Loans held in consolidated trusts	4,927	5,249	—	37,734
On-balance sheet total	$ 7,474	$ 37,541	$ —	$ 82,168
Off-balance sheet:				
LTSPCs	2,716	49,696	—	109,475
Farm & Ranch Total	$ 10,190	$ 87,237	$ —	$ 191,643
USDA:				
USDA Securities	$ 14,310	$ 10,378	$ 3,387	$ 48,005
Farmer Mac Guaranteed USDA Securities	864	1,015	385	2,087
USDA Total	$ 15,174	$ 11,393	$ 3,772	$ 50,092
Farm & Ranch and USDA Total Deferments	$ 25,364	$ 98,630	$ 3,772	$ 241,735

(1) Loans under a COVID-19 deferment are not considered to be past due.

Farm & Ranch

Farmer Mac's direct credit exposure to Farm & Ranch loans held and loans underlying Farm & Ranch Guaranteed Securities and LTSPCs as of June 30, 2020 was $8.0 billion across 48 states. For more information about Farmer Mac's underwriting and collateral valuation standards for Farm & Ranch loans, see "Business—Farmer Mac's Lines of Business—Farm & Ranch—Underwriting and Collateral Valuation (Appraisal) Standards" in Farmer Mac’s Annual Report on Form 10-K for the fiscal year ended December 31, 2019 filed with the SEC on February 25, 2020.

Farmer Mac has indirect credit exposure to the Farm & Ranch loans that secure AgVantage securities included in the Institutional Credit line of business. As of June 30, 2020, Farmer Mac had not experienced any credit losses on any AgVantage securities. See "Management's Discussion and Analysis of Financial Condition and Results of Operations—Risk Management—Credit Risk – Institutional" for more information about Farmer Mac's credit risk on AgVantage securities.

Farmer Mac considers a loan's original loan-to-value ratio as one of many factors in evaluating loss severity. Loan-to-value ratios depend on the market value of a property, as determined in accordance with Farmer Mac's collateral valuation standards. As of June 30, 2020 and December 31, 2019, the average unpaid principal balances for loans outstanding in the Farm & Ranch line of business was $702,000 and $683,000, respectively. Farmer Mac calculates the "original loan-to-value" ratio of a loan by dividing the original loan principal balance by the original appraised property value. This calculation does not reflect any amortization of the original loan balance or any adjustment to the original appraised value to provide a current market value. The original loan-to-value ratio of any cross-collateralized loans is calculated on a combined basis rather than on a loan-by-loan basis. The weighted-average original loan-to-value ratio for Farm & Ranch loans purchased during second quarter 2020 was 41%, compared to 53% for loans purchased during second quarter 2019. The weighted-average original loan-to-value ratio for all Farm & Ranch loans held and all loans underlying off-balance sheet Farm & Ranch Guaranteed Securities and LTSPCs was 51% as of both June 30, 2020 and December 31, 2019. The weighted-average original loan-to-value ratio for all 90-day delinquencies was 51% and 53% as of June 30, 2020 and December 31, 2019, respectively.

The weighted-average current loan-to-value ratio (the loan to-value ratio based on original appraised value and current outstanding loan amount adjusted to reflect amortization) for Farm & Ranch loans held and loans underlying off-balance sheet Farm & Ranch Guaranteed Securities and LTSPCs was 45% as of both June 30, 2020 and December 31, 2019.

For more information about the credit quality of Farmer Mac's Farm & Ranch portfolio and the associated allowance for losses please refer to Note 5 to the consolidated financial statements. Activity affecting the allowance for loan losses and reserve for losses is discussed in "Management's Discussion and Analysis of Financial Condition and Results of Operations—Results of Operations—Provision for and Release of Allowance for Loan Losses and Reserve for Losses."

Farmer Mac's 90-day delinquency measure includes loans 90 days or more past due, as well as loans in foreclosure and non-performing loans where the borrower is in bankruptcy. As of June 30, 2020, Farmer Mac's 90-day delinquencies were $68.7 million (0.86% of the Farm & Ranch portfolio), compared to $79.7 million (1.02% of the Farm & Ranch portfolio) as of March 31, 2020 and $61.0 million (0.78% of the Farm & Ranch portfolio) as of December 31, 2019. Those 90-day delinquencies were comprised of 54 delinquent loans as of June 30, 2020, compared to 72 delinquent loans as of March 31, 2020 and 57 delinquent loans as of December 31, 2019. The sequential decrease in 90-day delinquencies is primarily due to the seasonal payment pattern associated with loans that have annual (January 1st) and semi-annual (January 1st and July 1st) payment terms, which account for most of the loans in the Farm & Ranch portfolio. Farmer Mac's 90-day delinquencies have historically fluctuated from quarter to quarter, both in dollars and as a percentage of the outstanding Farm & Ranch portfolio, with higher levels generally observed at the end of the first and third quarters and lower levels generally observed at the end of the second and fourth quarters of each year as a result of the annual (January 1st) and semi-annual (January 1st and July 1st) payment terms of most Farm & Ranch loans. In addition, the sequential decrease was driven by two commodity groups – permanent plantings and crops. The other commodity groups either experienced decreases or remained constant. The top ten borrower exposures over 90 days delinquent represented over half of the 90-day delinquencies as of June 30, 2020. Loans under COVID-19 deferment are not considered past due and are not included in our delinquent loan statistics. Farmer Mac believes that it remains adequately collateralized on its delinquent loans.

Our 90-day delinquency rate as of June 30, 2020 approximated Farmer Mac's historical average. In the near-term, our delinquency rate is expected to exceed our historical average (which it did in third quarter 2017) due to the expected impact of the COVID-19 pandemic on the agricultural economy. Farmer Mac's average 90-day delinquency rate as a percentage of its Farm & Ranch portfolio over the last 15 years is approximately 1%. The highest 90-day delinquency rate observed during that period occurred in 2009 at approximately 2%, which coincided with increased delinquencies in loans within Farmer Mac's then-held ethanol loan portfolio that Farmer Mac no longer holds.

The following table presents historical information about Farmer Mac's 90-day delinquencies in the Farm & Ranch line of business compared to the unpaid principal balance of all Farm & Ranch loans held and loans underlying off-balance sheet Farm & Ranch Guaranteed Securities and LTSPCs:

Table 25

	Farm & Ranch Line of Business	90-Day Delinquencies	Percentage
	(dollars in thousands)		
As of:			
June 30, 2020	$ 8,017,850	$ 68,682	0.86 %
March 31, 2020	7,811,594	79,722	1.02 %
December 31, 2019	7,776,950	60,954	0.78 %
September 30, 2019	7,393,728	59,691	0.81 %
June 30, 2019	7,291,352	28,045	0.38 %
March 31, 2019	7,215,585	52,366	0.73 %
December 31, 2018	7,233,971	26,881	0.37 %
September 30, 2018	7,072,018	37,545	0.53 %
June 30, 2018	7,045,397	43,076	0.61 %

Across all of Farmer Mac's lines of business, 90-day delinquencies represented 0.31% of total outstanding business volume as of June 30, 2020, compared to 0.29% as of December 31, 2019 and 0.14% as of June 30, 2019. The following table presents outstanding Farm & Ranch loans held and loans underlying LTSPCs and off-balance sheet Farm & Ranch Guaranteed Securities and 90-day delinquencies as of June 30, 2020 by year of origination, geographic region, commodity/collateral type, original loan-to-value ratio, and range in the size of borrower exposure:

Table 26

Farm & Ranch 90-Day Delinquencies as of June 30, 2020

	Distribution of Farm & Ranch Line of Business	Farm & Ranch Line of Business	90-Day Delinquencies[(1)]	Percentage
		(dollars in thousands)		
By year of origination:				
2010 and prior	8 %	$ 670,088	$ 2,425	0.36 %
2011	2 %	150,148	—	— %
2012	5 %	370,422	966	0.26 %
2013	7 %	577,515	1,961	0.34 %
2014	6 %	462,788	4,185	0.90 %
2015	8 %	633,114	6,688	1.06 %
2016	12 %	964,303	27,263	2.83 %
2017	13 %	1,062,965	22,877	2.15 %
2018	11 %	920,834	2,317	0.25 %
2019	16 %	1,249,509	—	— %
2020	12 %	956,164	—	— %
Total	100 %	$ 8,017,850	$ 68,682	0.86 %
By geographic region[(2)]:				
Northwest	12 %	$ 982,409	$ 12,194	1.24 %
Southwest	33 %	2,652,211	10,055	0.38 %
Mid-North	30 %	2,395,304	23,036	0.96 %
Mid-South	13 %	1,019,365	15,525	1.52 %
Northeast	4 %	354,724	3,936	1.11 %
Southeast	8 %	613,837	3,936	0.64 %
Total	100 %	$ 8,017,850	$ 68,682	0.86 %
By commodity/collateral type:				
Crops	51 %	$ 4,107,839	$ 30,667	0.75 %
Permanent plantings	23 %	1,827,060	9,050	0.50 %
Livestock	19 %	1,486,061	15,699	1.06 %
Part-time farm	6 %	502,738	401	0.08 %
Ag. Storage and Processing	1 %	86,979	12,865	14.79 %
Other	—	7,173	—	— %
Total	100 %	$ 8,017,850	$ 68,682	0.86 %
By original loan-to-value ratio:				
0.00% to 40.00%	18 %	$ 1,413,947	$ 2,017	0.14 %
40.01% to 50.00%	26 %	2,066,788	35,338	1.71 %
50.01% to 60.00%	34 %	2,757,099	28,409	1.03 %
60.01% to 70.00%	18 %	1,449,386	2,808	0.19 %
70.01% to 80.00%[(3)]	4 %	313,883	—	— %
80.01% to 90.00%[(3)]	— %	16,747	110	0.66 %
Total	100 %	$ 8,017,850	$ 68,682	0.86 %
By size of borrower exposure[(4)]:				
Less than $1,000,000	31 %	$ 2,448,289	$ 10,433	0.43 %
$1,000,000 to $4,999,999	36 %	2,907,722	32,982	1.13 %
$5,000,000 to $9,999,999	14 %	1,149,996	6,272	0.55 %
$10,000,000 to $24,999,999	11 %	838,074	18,995	2.27 %
$25,000,000 and greater	8 %	673,769	—	— %
Total	100 %	$ 8,017,850	$ 68,682	0.86 %

(1) Includes loans held and loans underlying off-balance sheet Farm & Ranch Guaranteed Securities and LTSPCs that are 90 days or more past due, in foreclosure, or in bankruptcy with at least one missed payment, excluding loans performing under either their original loan terms or a court-approved bankruptcy plan.

(2) Geographic regions: Northwest (AK, ID, MT, OR, WA, WY); Southwest (AZ, CA, CO, HI, NM, NV, UT); Mid-North (IA, IL, IN, MI, MN, NE, ND, SD, WI); Mid-South (AR, KS, LA, MO, OK, TX); Northeast (CT, DE, KY, MA, MD, ME, NH, NJ, NY, OH, PA, RI, VA, VT, WV); Southeast (AL, FL, GA, MS, NC, SC, TN).

(3) Primarily part-time farm loans. Loans with an original loan-to-value ratio of greater than 80% are required to have private mortgage insurance.

(4) Includes aggregated loans to single borrowers or borrower-related entities.

Another indicator that Farmer Mac considers in analyzing the credit quality of its Farm & Ranch portfolio is the level of internally-rated "substandard" assets, both in dollars and as a percentage of the outstanding Farm & Ranch portfolio. Assets categorized as "substandard" have a well-defined weakness or weaknesses, and there is a distinct possibility that some loss will be sustained if deficiencies are not corrected. As of June 30, 2020, Farmer Mac's substandard assets were $304.9 million (3.8% of the Farm & Ranch portfolio), compared to $312.3 million (4.0% of the Farm & Ranch portfolio) as of March 31, 2020 and $310.0 million (4.0% of the Farm & Ranch portfolio) as of December 31, 2019. Those substandard assets were comprised of 368 loans as of June 30, 2020, 355 loans as of March 31, 2020, and 353 loans as of December 31, 2019.

The decrease of $7.4 million in substandard assets during second quarter 2020 was primarily driven by repayments during the quarter on loans that had been classified as substandard as of the first quarter, partially offset by credit downgrades during the quarter. Substandard assets decreased as a percentage of the total on- and off-balance sheet portfolio not only because of repayments but also because the overall portfolio grew by $206.3 million. The percentage of substandard assets within the portfolio closely approximates the historical average.

Farmer Mac's average substandard assets as a percentage of its Farm & Ranch portfolio over the last 15 years is approximately 4%. Due to the COVID-19 pandemic, we believe that the substandard rate may rise above that historical average in the short-term. The full extent of the impact of the COVID-19 pandemic remains to be seen, and we will continue to monitor its impact on our substandard asset rate. The highest substandard asset rate observed during the last 15 years occurred in 2010 at approximately 8%, which coincided with an increase in substandard loans within Farmer Mac's then-held ethanol portfolio that Farmer Mac no longer holds. If Farmer Mac's substandard asset rate increases from current levels, it is likely that Farmer Mac's provision to the allowance for loan losses and the reserve for losses will also increase.

Although some credit losses are inherent to the business of agricultural lending, Farmer Mac believes that losses associated with the current agricultural credit cycle will be moderated by the strength and diversity of its portfolio, which Farmer Mac believes is adequately collateralized.

The following table presents the current loan-to-value ratios for the Farm & Ranch portfolio, as disaggregated by internally assigned risk ratings:

Table 27

Farm & Ranch current loan-to-value ratio by internally assigned risk rating as of June 30, 2020

	Acceptable	Special Mention	Substandard	Total
	(in thousands)			
Current loan-to-value ratio[1]:				
0.00% to 40.00%	$ 2,512,711	$ 98,178	$ 96,330	$ 2,707,219
40.01% to 50.00%	1,989,690	129,814	83,954	2,203,458
50.01% to 60.00%	1,633,872	102,664	73,391	1,809,927
60.01% to 70.00%	890,407	80,917	29,662	1,000,986
70.01% to 80.00%	217,471	35,690	6,787	259,948
80.01% and greater	17,883	3,689	14,740	36,312
Total	$ 7,262,034	$ 450,952	$ 304,864	$ 8,017,850

(1) The current loan-to-value ratio is based on original appraised value (or most recently obtained appraisal, if available) and current outstanding loan amount adjusted to reflect loan amortization.

The following table presents Farmer Mac's cumulative net credit losses relative to the cumulative original balance for all Farm & Ranch loans purchased and loans underlying LTSPCs and off-balance sheet Farm & Ranch Guaranteed Securities as of June 30, 2020 by year of origination, geographic region, and commodity/collateral type. The purpose of this information is to present information about realized losses relative to original Farm & Ranch purchases, guarantees, and commitments.

Table 28

Farm & Ranch Credit Losses Relative to Cumulative
Original Loans, Guarantees, and LTSPCs as of June 30, 2020

	Cumulative Original Loans, Guarantees and LTSPCs	Cumulative Net Credit Losses/ (Recoveries)	Cumulative Loss Rate
	(dollars in thousands)		
By year of origination:			
2010 and prior	$ 15,329,678	$ 30,103	0.20 %
2011	780,402	3,661	0.47 %
2012	1,159,716	—	— %
2013	1,450,157	—	— %
2014	1,026,726	—	— %
2015	1,183,420	(516)	(0.04)%
2016	1,478,669	—	— %
2017	1,553,646	—	— %
2018	1,267,020	—	— %
2019	1,461,128	—	— %
2020	1,007,172		— %
Total	$ 27,697,734	$ 33,248	0.12 %
By geographic region[1]:			
Northwest	$ 3,611,959	$ 11,191	0.31 %
Southwest	9,774,321	8,520	0.09 %
Mid-North	6,962,016	12,855	0.18 %
Mid-South	3,366,198	(613)	(0.02)%
Northeast	1,562,479	323	0.02 %
Southeast	2,420,761	972	0.04 %
Total	$ 27,697,734	$ 33,248	0.12 %
By commodity/collateral type:			
Crops	$ 12,739,384	$ 2,887	0.02 %
Permanent plantings	6,172,827	9,762	0.16 %
Livestock	6,299,930	3,836	0.06 %
Part-time farm	1,589,997	1,090	0.07 %
Ag. Storage and Processing	740,551	15,673	2.12 %
Other	155,045	—	— %
Total	$ 27,697,734	$ 33,248	0.12 %

(1) Geographic regions: Northwest (AK, ID, MT, OR, WA, WY); Southwest (AZ, CA, CO, HI, NM, NV, UT); Mid-North (IA, IL, IN, MI, MN, NE, ND, SD, WI); Mid-South (AR, KS, LA, MO, OK, TX); Northeast (CT, DE, KY, MA, MD, ME, NH, NJ, NY, OH, PA, RI, VA, VT, WV); Southeast (AL, FL, GA, MS, NC, SC, TN).

Analysis of portfolio performance indicates that commodity type is the primary determinant of Farmer Mac's exposure to loss on a given loan. The following tables present concentrations of Farm & Ranch loans held and loans underlying LTSPCs and off-balance sheet Farm & Ranch Guaranteed Securities by commodity type within geographic region and cumulative credit losses by origination year and commodity type:

Table 29

	As of June 30, 2020						
	Farm & Ranch Concentrations by Commodity Type within Geographic Region						
	Crops	Permanent Plantings	Livestock	Part-time Farm	Ag. Storage and Processing	Other	Total
	(dollars in thousands)						
By geographic region[1]:							
Northwest	$ 454,289	$ 168,634	$ 274,876	$ 79,462	$ 5,089	$ 59	$ 982,409
	5.7 %	2.1 %	3.4 %	1.0 %	0.1 %	— %	12.3 %
Southwest	614,432	1,367,620	519,738	98,387	47,541	4,493	2,652,211
	7.7 %	17.1 %	6.5 %	1.2 %	0.6 %	0.1 %	33.2 %
Mid-North	2,027,533	11,542	210,861	124,673	18,522	2,173	2,395,304
	25.3 %	0.1 %	2.6 %	1.6 %	0.2 %	— %	29.8 %
Mid-South	622,465	44,791	286,076	58,831	7,179	23	1,019,365
	7.7 %	0.6 %	3.6 %	0.7 %	0.1 %	— %	12.7 %
Northeast	154,876	59,872	64,852	71,520	3,604	—	354,724
	1.9 %	0.7 %	0.8 %	0.9 %	— %	— %	4.3 %
Southeast	234,244	174,601	129,658	69,865	5,044	425	613,837
	2.9 %	2.2 %	1.6 %	0.9 %	0.1 %	— %	7.7 %
Total	$ 4,107,839	$ 1,827,060	$1,486,061	$502,738	$ 86,979	$ 7,173	$8,017,850
	51.2 %	22.8 %	18.5 %	6.3 %	1.1 %	0.1 %	100.0 %

(1) Geographic regions: Northwest (AK, ID, MT, OR, WA, WY); Southwest (AZ, CA, CO, HI, NM, NV, UT); Mid-North (IA, IL, IN, MI, MN, NE, ND, SD, WI); Mid-South (AR, KS, LA, MO, OK, TX); Northeast (CT, DE, KY, MA, MD, ME, NH, NJ, NY, OH, PA, RI, VA, VT, WV); Southeast (AL, FL, GA, MS, NC, SC, TN).

Table 30

	As of June 30, 2020					
	Farm & Ranch Cumulative Credit Losses by Origination Year and Commodity Type					
	Crops	Permanent Plantings	Livestock	Part-time Farm	Ag. Storage and Processing	Total
	(in thousands)					
By year of origination:						
2010 and prior	$ 3,427	$ 9,762	$ 3,836	$ 1,066	$ 12,012	$ 30,103
2011	—	—	—	—	3,661	3,661
2012	—	—	—	—	—	—
2013	—	—	—	—	—	—
2014	—	—	—	—	—	—
2015	(540)	—	—	24	—	(516)
2016	—	—	—	—	—	—
2017	—	—	—	—	—	—
2018	—	—	—	—	—	—
2019	—	—	—	—	—	—
2020	—	—	—	—	—	—
Total	$ 2,887	$ 9,762	$ 3,836	$ 1,090	$ 15,673	$ 33,248

Rural Utilities

Farmer Mac's direct credit exposure to Rural Utilities loans held and loans underlying LTSPCs as of June 30, 2020 was $2.7 billion across 43 states. For more information about Farmer Mac's underwriting and collateral valuation standards for Rural Utilities loans, see "Business—Farmer Mac's Lines of Business—Rural Utilities—Underwriting" in Farmer Mac's Annual Report on Form 10-K for the fiscal year ended December 31, 2019 filed with the SEC on February 25, 2020. As of June 30, 2020, there were no delinquencies in Farmer Mac's portfolio of Rural Utilities loans.

Farmer Mac has indirect credit exposure to Rural Utilities loans that secure AgVantage securities included in the Institutional Credit line of business. As of June 30, 2020, Farmer Mac had not experienced any credit losses on any AgVantage securities. See "Management's Discussion and Analysis of Financial Condition and Results of Operations—Risk Management—Credit Risk – Institutional" for more information about Farmer Mac's credit risk on AgVantage securities.

Farmer Mac has never experienced a credit loss in its Rural Utilities line of business. Upon the adoption of the current expected credit loss accounting standard ("CECL") on January 1, 2020, we are now required to forecast and disclose our expected credit losses for the expected life of our Rural Utilities portfolio assets. To do this, Farmer Mac relies upon industry data purchased from ratings agencies as well as publicly available information as disclosed in the securities filings of other major lenders who serve this industry. Activity affecting the allowance for loan losses and reserve for losses is discussed in "Management's Discussion and Analysis of Financial Condition and Results of Operations—Results of Operations—Provision for and Release of Allowance for Loan Losses and Reserve for Losses."

Farmer Mac evaluates credit risk for these assets by reviewing a variety of borrower credit risk characteristics. These characteristics can include (but is not limited to) financial metrics, internal risk ratings, ratings assigned by ratings agencies, types of customers served, sources of power supply, and the regulatory environment.

The following table presents Farmer Mac’s portfolio of generation and transmission ("G&T") and distribution cooperative borrowers, as well as renewable energy loans, disaggregated by internally assigned risk ratings.

Table 31

	Rural Utilities portfolio by internally assigned risk rating as of June 30, 2020			
	Acceptable	Special Mention	Substandard	Total
	(in thousands)			
Distribution Cooperative	$ 2,098,958	$ —	$ 5,014	$ 2,103,972
G&T Cooperative	568,087	—	—	568,087
Renewable Energy	19,562	—	—	19,562
Rural Utilities Total	$ 2,686,607	$ —	$ 5,014	$ 2,691,621

For more information about the credit quality of Farmer Mac's Rural Utilities portfolio and the associated allowance for losses please refer to Notes 5 and 6 of the consolidated financial statements.

Other Considerations Regarding Credit Risk Related to Loans and Guarantees

The credit exposure on USDA Securities, including those underlying Farmer Mac Guaranteed USDA Securities, is guaranteed by the full faith and credit of the United States. Therefore, Farmer Mac believes that we have little or no credit risk exposure in the USDA Guarantees line of business because of the USDA guarantee. As of June 30, 2020, Farmer Mac had not experienced any credit losses on any securities under the USDA Guarantees line of business and does not expect to incur any such losses in the future. Because we do not expect credit losses on this portfolio, Farmer Mac does not provide an allowance for losses on its portfolio of USDA Guaranteed Securities. As of June 30, 2020, Farmer Mac had executed COVID-19 payment deferments on loans with unpaid principal balances of $50.1 million underlying USDA Securities.

Farmer Mac requires most approved lenders to make representations and warranties about the conformity of eligible agricultural mortgage and Rural Utilities loans to Farmer Mac's standards, the accuracy of loan data provided to Farmer Mac, and other requirements related to the loans. Sellers who make these representations and warranties are responsible to Farmer Mac for breaches of those representations and warranties. Farmer Mac has the ability to require a seller to cure, replace, or repurchase a loan sold or transferred to Farmer Mac if any breach of a representation or warranty is discovered that was material to Farmer Mac's decision to purchase the loan or that directly or indirectly causes a default or potential loss on a loan sold or transferred by the seller to Farmer Mac. During the previous three years ended June 30, 2020, there have been no breaches of representations and warranties by sellers that resulted in Farmer Mac requiring a seller to cure, replace, or repurchase a loan. In addition to relying on the representations and warranties of sellers, Farmer Mac also underwrites the agricultural real estate mortgage loans (other than rural housing and part-time farm mortgage loans) and Rural Utilities loans on which it has direct credit exposure. For rural housing and part-time farm mortgage loans, Farmer Mac relies on representations and warranties from the seller that those loans conform to Farmer Mac's specified underwriting criteria without exception. For more information about Farmer Mac's loan eligibility requirements and underwriting standards, see "Business—Farmer Mac's Lines of Business—Farm & Ranch—Loan Eligibility," "Business—Farmer Mac's Lines of Business—Farm & Ranch—Underwriting and Collateral Valuation (Appraisal) Standards," "Business—Farmer Mac's Lines of Business—Rural Utilities—Loan Eligibility," and "Business—Farmer Mac's Lines of Business—Rural Utilities—Underwriting" in Farmer Mac’s Annual Report on Form 10-K for the fiscal year ended December 31, 2019, as filed with the SEC on February 25, 2020.

Under contracts with Farmer Mac and in consideration for servicing fees, Farmer Mac-approved servicers service loans in accordance with Farmer Mac's requirements. Servicers are responsible to Farmer Mac for serious errors in the servicing of those loans. If a servicer materially breaches the terms of its servicing agreement with Farmer Mac, such as failing to forward payments received or releasing collateral without Farmer Mac's consent, or experiences insolvency or bankruptcy, the servicer is responsible for any corresponding damages to Farmer Mac and, in most cases, Farmer Mac has the right to terminate the servicing relationship for a particular loan or the entire portfolio serviced by the servicer. Farmer Mac also can proceed against the servicer in arbitration or exercise any remedies available to it under law. During the previous three years ended June 30, 2020, Farmer Mac had not exercised any remedies or taken any formal action against any servicers. For more information about Farmer Mac's servicing requirements, see "Business—Farmer Mac's Lines of Business—Farm & Ranch—Servicing" and "Business—Farmer Mac's Lines of Business—Rural Utilities—Servicing" in Farmer Mac's Annual Report on Form 10-K for the fiscal year ended December 31, 2019 filed with the SEC on February 25, 2020.

Credit Risk – Institutional. Farmer Mac is exposed to credit risk arising from its business relationships with other institutions, which include:

- issuers of AgVantage securities;
- approved lenders and servicers; and
- interest rate swap counterparties.

Farmer Mac approves AgVantage counterparties and manages institutional credit risk related to those AgVantage counterparties by requiring them to meet Farmer Mac's standards for creditworthiness for the particular counterparty type and transaction. The required collateralization level is established when the AgVantage facility is entered into with the counterparty and does not change during the life of the AgVantage securities issued under the facility without Farmer Mac's consent. In AgVantage transactions, the corporate obligor is typically required to remove from the pool of pledged collateral any loan that becomes more than 30 days delinquent in the payment of principal or interest and to substitute an eligible loan that is current in payment to maintain the minimum required collateralization level. Since the onset of the COVID-19 pandemic, Farmer Mac has approved and expects to continue to approve payment deferments on loans collateralizing AgVantage securities, allowing the AgVantage counterparty to keep these loans in its collateral pool without replacing them. The criteria currently in place for approving payment deferments for these loans is similar to the criteria Farmer Mac has established for loans in its Farm & Ranch portfolio that are affected by the COVID-19 pandemic.

In the event of a default on an AgVantage security, Farmer Mac would have recourse to the pledged collateral and have rights to the ongoing borrower payments of principal and interest. For Farm Equity AgVantage counterparties and smaller financial funds or entities, Farmer Mac also requires that the counterparty generally (1) maintain a higher collateralization level through lower loan-to-value ratio thresholds than required for traditional AgVantage securities and (2) comply with specified financial covenants for the life of the related AgVantage security to avoid default. For a more detailed description of AgVantage securities, see "Business—Farmer Mac's Lines of Business—Institutional Credit" in Farmer Mac's Annual Report on Form 10-K for the fiscal year ended December 31, 2019 filed with the SEC on February 25, 2020.

The unpaid principal balance of outstanding on-balance sheet AgVantage securities secured by loans eligible for the Farm & Ranch line of business totaled $5.6 billion as of June 30, 2020 and $5.5 billion as of December 31, 2019. The unpaid principal balance of on-balance sheet AgVantage securities secured by loans eligible for the Rural Utilities line of business totaled $3.1 billion as of June 30, 2020 and $2.9 billion as of December 31, 2019. The unpaid principal balance of outstanding off-balance sheet AgVantage securities totaled $6.1 million as of June 30, 2020 and $7.6 million as of December 31, 2019. A $0.3 billion off-balance sheet AgVantage revolving line of credit facility was terminated during fourth quarter 2019.

The following table provides information about the issuers of AgVantage securities, as well as the required collateralization levels for those transactions as of June 30, 2020 and December 31, 2019:

Table 32

	As of June 30, 2020			As of December 31, 2019		
Counterparty	Balance	Credit Rating	Required Collateralization	Balance	Credit Rating	Required Collateralization
			(dollars in thousands)			
AgVantage:						
CFC	$ 3,062,635	A	100%	$ 2,949,500	A	100%
MetLife	2,550,000	AA-	103%	2,550,000	AA-	103%
Rabo AgriFinance	2,275,000	None	110%	2,225,000	None	110%
Other[(1)]	494,190	None	106% to 125%	436,041	None	106% to 125%
Farm Equity AgVantage[(2)]	273,005	None	110%	279,705	None	110%
Total outstanding	$ 8,654,830			$ 8,440,246		

(1) Consists of AgVantage securities issued by 6 and 5 different issuers as of June 30, 2020 and December 31, 2019, respectively.
(2) Consists of AgVantage securities issued by 5 different issuers as of both June 30, 2020 and December 31, 2019.

Farmer Mac manages institutional credit risk related to lenders and servicers by requiring those institutions to meet Farmer Mac's standards for creditworthiness. Farmer Mac monitors the financial condition of those institutions by evaluating financial statements and bank credit rating agency reports. For more information about Farmer Mac's lender eligibility requirements, see "Business—Farmer Mac's Lines of Business—Farm & Ranch—Approved Lenders" and "Business—Farmer Mac's Lines of Business—Rural Utilities—Approved Lenders" in Farmer Mac's Annual Report on Form 10-K for the fiscal year ended December 31, 2019, as filed with the SEC on February 25, 2020.

Farmer Mac manages institutional credit risk related to its interest rate swap counterparties through collateralization provisions contained in each of its swap agreements that varies based on the market value of its swap portfolio with each counterparty. Farmer Mac and its interest rate swap counterparties are required to fully collateralize their derivatives positions without any minimum threshold for cleared swap transactions, as well as for non-cleared swap transactions entered into after March 1, 2017. Farmer Mac transacts interest rate swaps with multiple counterparties to reduce counterparty credit exposure concentration. Farmer Mac's usage of cleared derivatives has increased over time as has its exposure to clearinghouses. The usage of cleared swap transactions reduces Farmer Mac's exposure to individual counterparties with the central clearinghouse acting to settle the change in value of contracts on a daily basis. Credit risk related to interest rate swap contracts is discussed in "Management's Discussion and Analysis of Financial Condition and Results of Operations—Risk Management—Interest Rate Risk" and Note 4 to the consolidated financial statements.

Credit Risk – Other Investments. As of June 30, 2020, Farmer Mac had $0.8 billion of cash and cash equivalents and $3.5 billion of investment securities. The management of the credit risk inherent in these investments is governed by Farmer Mac's internal policies as well as the liquidity and investment regulations for Farmer Mac, which were issued by FCA and which establish criteria for investments that are eligible for Farmer Mac's investment portfolio, including limitations on asset class, dollar amount, issuer concentration, and credit quality. In addition to establishing a portfolio of highly liquid investments as an available source of cash, the goals of Farmer Mac's investment policies are designed to minimize Farmer Mac's exposure to financial market volatility, preserve capital, and support Farmer Mac's access to the debt markets.

Farmer Mac's liquidity and investment regulations and internal policies require that investments held in Farmer Mac's investment portfolio meet the following creditworthiness standards: (1) at a minimum, at least one obligor of the investment must have a very strong capacity to meet financial commitments for the life of the investment, even under severely adverse or stressful conditions, and generally present a very low risk of default; (2) if the obligor whose capacity to meet financial commitments is being relied upon to meet the standard set forth in subparagraph (1) is located outside of the United States, the investment must also be fully guaranteed by a U.S. government agency; and (3) the investment must exhibit low credit risk and other risk characteristics consistent with the purpose or purposes for which it is held.

Farmer Mac's liquidity and investment regulations and internal policies also establish concentration limits, which are intended to limit exposure to any single entity, issuer, or obligor. Farmer Mac's liquidity and investment regulations limit Farmer Mac's total credit exposure to any single entity, issuer, or obligor of securities to 10% of Farmer Mac's regulatory capital ($93.4 million as of June 30, 2020). However, Farmer Mac's current policy limits this total credit exposure to 5% of its regulatory capital ($46.7 million as of June 30, 2020). These exposure limits do not apply to obligations of U.S. government agencies or GSEs, although Farmer Mac's current policy restricts investing more than 100% of regulatory capital in the senior non-convertible debt securities of any one GSE.

Although the Liquidity and Investments Regulations do not establish limits on the maximum amount, expressed as a percentage of Farmer Mac's investment portfolio, that can be invested in each eligible asset class, Farmer Mac's internal policies set forth asset class limits as part of Farmer Mac's overall risk management framework.

Interest Rate Risk. Farmer Mac is subject to interest rate risk on all assets retained on its balance sheet because of timing differences in the cash flows of the assets and related liabilities. This risk is primarily related to loans, loan participation interests, Farmer Mac Guaranteed Securities, and USDA Securities due to the ability of borrowers to prepay their loans before the scheduled maturities. Cash flow mismatches in a changing interest rate environment can reduce the earnings of Farmer Mac if assets prepay sooner than expected and the resulting cash flows must be reinvested in lower-yielding investments when Farmer Mac's funding costs cannot be correspondingly reduced. Alternatively, Farmer Mac could see a drop in income if assets repay more slowly than expected in a rising interest rate environment and the associated debt must be replaced by higher-cost debt.

Interest Rate Risk Management

The goal of interest rate risk management at Farmer Mac is to create and maintain a portfolio that generates stable earnings and value across a variety of interest rate environments. Recognizing that interest rate sensitivity may change with the passage of time and as interest rates change, Farmer Mac assesses this exposure regularly and, if necessary, adjusts its portfolio of assets and liabilities.

Farmer Mac's objective is to ensure exposure to interest rate risk is within appropriate limits, as approved by Farmer Mac's board of directors. Farmer Mac's management-level Asset and Liability Committee

("ALCO") is tasked with oversight and approval of strategies to ensure interest rate risk remains within the board-established limits.

Farmer Mac's primary strategy for managing interest rate risk is to fund asset purchases with liabilities that have similar duration and convexity characteristics so that they will perform in a similar fashion as interest rates change. As part of the liability issuance strategy, Farmer Mac seeks to issue a blend of liabilities across a variety of maturities to help better align the liability cashflows with the asset cashflows. Along with the liability issuance strategy, Farmer Mac uses interest rate derivatives to minimize its economic exposure to cashflow mismatches.

Farmer Mac issues discount notes and both callable and non-callable medium-term notes across a spectrum of maturities to execute its liability issuance strategy. Callable debt is issued to minimize prepayment risk associated with assets held on balance sheet. By using a blend of liabilities that includes callable debt, the interest rate sensitivities of the liabilities tend to increase or decrease as interest rates change in a manner similar to changes in the interest rate sensitivities of the assets. Farmer Mac uses financial derivatives, primarily interest rate swaps, as another tool to better match the durations of Farmer Mac's assets and liabilities, thereby reducing overall interest rate sensitivity.

Taking into consideration the prepayment provisions and the default probabilities associated with its loan assets, Farmer Mac uses prepayment models when projecting and valuing cash flows associated with these assets. Because borrowers' behaviors in various interest rate environments may change over time, Farmer Mac periodically evaluates the effectiveness of these models compared to actual prepayment experience and adjusts and refines the models as necessary to improve the precision of future prepayment forecasts.

Changes in interest rates may affect loan prepayment rates which may, in turn, affect durations and values of the loans. Declining interest rates generally increase prepayment rates, which shortens the duration of these assets, while rising interest rates tend to slow loan prepayments, thereby extending the duration of the loans.

Farmer Mac is subject to interest rate risk on loans that Farmer Mac has committed to acquire but has not yet purchased (other than delinquent loans purchased through LTSPCs or loans designated for securitization under a forward purchase agreement). When Farmer Mac commits to purchase these loans, it is exposed to interest rate risk between the time it commits to purchase the loans and the time it issues debt to fund the purchase of those loans. Farmer Mac manages the interest rate risk related to these loans by using futures contracts involving U.S. Treasury securities and other financial derivatives. Farmer Mac uses U.S. Treasury futures contracts as a hedge against the level of interest rates.

Farmer Mac's $0.8 billion of cash and cash equivalents mature within three months and are funded with discount notes having similar maturities. As of June 30, 2020, $3.4 billion of the $3.5 billion of investment securities (96%) were floating rate securities with rates that adjust within one year or fixed rate securities with original maturities between three months and one year. Those securities are funded with effectively floating rate debt that closely matches the rate adjustment dates of the associated investments.

Interest Rate Risk Metrics

Farmer Mac regularly stress tests its portfolio for interest rate risk and uses a variety of metrics to quantify and manage its interest rate risk. These metrics include sensitivity to interest rate movements of market value of equity ("MVE") and projected net effective spread ("NES") as well as duration gap analysis.

MVE represents management's estimate of the present value of all future cash flows from on- and off-balance sheet assets, liabilities, and financial derivatives, discounted at current interest rates and appropriate spreads. However, MVE is not indicative of the market value of Farmer Mac as a going concern because these market values are theoretical and do not reflect future business activities. MVE sensitivity analysis is used to measure the degree to which the market values of Farmer Mac's assets and liabilities change for a given change in interest rates. Because this analysis evaluates the effect of interest rate movements on the value of all future cash flows, this measure provides an evaluation of Farmer Mac's long-term interest rate risk.

Farmer Mac's NES simulation represents the difference between projected income from interest-earning assets and interest expense produced by the related funding, including associated derivatives. Farmer Mac's NES may be affected by changes in market interest rates resulting from timing differences between maturities and re-pricing characteristics of assets and liabilities. The direction and magnitude of any such effect depends on the direction and magnitude of the change in interest rates as well as the composition of Farmer Mac's portfolio. The NES forecast represents an estimate of the net effective spread income that Farmer Mac's current portfolio is expected to produce over a twelve-month horizon. As a result, NES sensitivity statistics provide a short-term view of Farmer Mac's interest rate sensitivity.

Duration is a measure of a financial instrument's sensitivity to small changes in interest rates. Duration gap is the difference between the estimated durations of Farmer Mac's assets and liabilities. Because duration is a measure of market value sensitivity, duration gap summarizes the extent to which estimated market value sensitivities for assets and liabilities are matched. Duration gap provides a relatively concise measure of the interest rate risk inherent in Farmer Mac's outstanding portfolio.

A positive duration gap denotes that the duration of Farmer Mac's assets is greater than the duration of its liabilities. A positive duration gap indicates that the market value of Farmer Mac's assets is more sensitive to small interest rate movements than is the market value of its liabilities. Conversely, a negative duration gap indicates that Farmer Mac's assets are less sensitive to small interest rate movements than are its liabilities.

Each of the metrics is produced using asset/liability models and is derived based on management's best estimates of factors such as projected interest rates, interest rate volatility, and prepayment speeds. Accordingly, these metrics should be understood as estimates rather than as precise measurements. Actual results may differ to the extent there are material changes to Farmer Mac's portfolio or changes in strategies undertaken to mitigate unfavorable sensitivities to interest rate changes.

The following schedule summarizes the results of Farmer Mac's MVE and NES sensitivity analysis as of June 30, 2020 and December 31, 2019 to an immediate and instantaneous uniform or "parallel" shift in the yield curve:

Table 33

	Percentage Change in MVE from Base Case	
Interest Rate Scenario[(1)]	As of June 30, 2020	As of December 31, 2019
+100 basis points	7.0 %	2.7 %
-100 basis points	(0.5)%	(8.4)%

	Percentage Change in NES from Base Case	
Interest Rate Scenario[(1)]	As of June 30, 2020	As of December 31, 2019
+100 basis points	4.0 %	0.8 %
-100 basis points	(0.3)%	0.1 %

(1) The Down 100 basis points shock scenario was replaced with a proportional shock relative to 50% of the 3-month Treasury bill rate, with the approval of the Financial Risk Committee of the Board of Directors.

As of June 30, 2020, Farmer Mac's effective duration gap was negative 3.1 months, compared to negative 2.5 months as of December 31, 2019. Interest rates decreased significantly during the first half of 2020. This rate movement reduced the duration of Farmer Mac's assets relative to its liabilities, thereby widening Farmer Mac's duration gap.

Financial Derivatives Transactions

The economic effects of financial derivatives are included in Farmer Mac's MVE, NES, and duration gap analyses. Farmer Mac enters into the following financial derivative transactions principally to protect against risk from the effects of market price or interest rate movements on the value of assets, future cash flows, credit exposure, and debt issuance, not for trading or speculative purposes:

- "pay-fixed" interest rate swaps, in which Farmer Mac pays fixed rates of interest to, and receives floating rates of interest from, counterparties;
- "receive-fixed" interest rate swaps, in which Farmer Mac receives fixed rates of interest from, and pays floating rates of interest to, counterparties; and
- "basis swaps," in which Farmer Mac pays variable rates of interest based on one index to, and receives variable rates of interest based on another index from, counterparties.

As of June 30, 2020, Farmer Mac had $16.1 billion combined notional amount of interest rate swaps, with terms ranging from less than one year to thirty years, of which $6.5 billion were pay-fixed interest rate swaps, $6.0 billion were receive-fixed interest rate swaps, and $3.6 billion were basis swaps.

Farmer Mac enters into interest rate swap contracts to more closely match the cash flow and duration characteristics of its assets with those of its liabilities. Interest rate swaps paired with the issuance of short-term debt can create effectively fixed rate funding that provides a similar duration match with the corresponding assets being funded. Farmer Mac evaluates the overall cost of using the swap market as a funding alternative and uses interest rate swaps to manage interest rate risks across the balance sheet.

Certain financial derivatives are designated as fair value hedges of fixed rate assets classified as available for sale or liabilities to protect against fair value changes in the assets or liabilities related to a benchmark interest rate (e.g., LIBOR). Also, certain financial derivatives are designated as cash flow hedges to mitigate the volatility of future interest rate payments on floating rate debt.

As discussed in Note 4 to the consolidated financial statements, all financial derivatives are recorded on the balance sheet at fair value as derivative assets or as derivative liabilities. Changes in the fair values of financial derivatives are reported in "Gains/(losses) on financial derivatives" in the consolidated statements of operations. For financial derivatives designated in fair value hedge accounting relationships, changes in the fair values of the hedged items related to the risk being hedged are reported in "Net interest income" in the consolidated statements of operations. Interest accruals on derivatives designated in fair value hedge accounting relationships are also recorded in "Net interest income" in the consolidated statements of operations. For financial derivatives designated in cash flow hedge accounting relationships, the unrealized gain or loss on the derivative is recorded in other comprehensive income. Because the hedging instrument is an interest rate swap and the hedged forecasted transactions are future interest payments on variable rate debt, amounts recorded in accumulated other comprehensive income are reclassified to "Total interest expense" in conjunction with the recognition of interest expense on the debt. All of Farmer Mac's financial derivatives transactions are conducted under standard collateralized agreements that limit Farmer Mac's potential credit exposure to any counterparty. As of June 30, 2020 and December 31, 2019, Farmer Mac had no uncollateralized net exposures.

Re-funding and repricing risk

In addition to being exposed to the risk of asset and liability cash flow mismatches, Farmer Mac is exposed to the risk related to changes in its cost of funds relative to floating rate market indexes (such as LIBOR) on many of the floating rate assets it holds. This exposure is referred to as "re-funding and repricing risk." Re-funding and repricing risk arises from the potential changes in funding costs when Farmer Mac funds floating rate, or synthetic floating rate, assets with floating rate liabilities with shorter maturities. Changes in Farmer Mac's funding costs relative to the benchmark rate to which the assets are indexed can cause changes to net interest income from funding those assets.

Farmer Mac is subject to re-funding and repricing risk on any floating rate assets that are not funded to contractual maturity. In addition, many of Farmer Mac's floating rate assets have the ability to prepay before the contractual maturity date. Farmer Mac is also subject to re-funding and repricing risk on some of its fixed rate assets as a result of its use of pay-fixed receive-floating interest rate swaps that effectively convert the required funding needed from fixed rate to floating rate. These fixed rate assets are then effectively synthetically floating rate assets that require floating rate funding.

Farmer Mac can meet floating rate funding needs in several ways, including:

- issuing short-term discount notes with maturities that match the reset period of the assets;
- issuing floating rate medium-term notes with maturities and reset frequencies that match the assets being funded;
- issuing non-maturity matched, floating rate medium-term notes with reset frequencies that match the assets being funded; or
- issuing non-maturity matched, fixed-rate discount notes or medium-term notes swapped to match the interest rate reset dates of the assets as an alternative source of effectively floating rate funding.

To meet floating rate funding needs, Farmer Mac frequently uses shorter-term floating-rate medium-term notes or fixed rate medium-term notes paired with an interest rate swap because these options generally provide a lower cost of funding while generating an effective interest rate match. As funding for these floating rate assets matures, Farmer Mac seeks to refinance the debt associated with these assets in a similar fashion to achieve an appropriate interest rate match in the context of Farmer Mac's overall liability issuance and liquidity management strategies.

However, if the funding cost of Farmer Mac’s discount notes or medium-term notes were to deteriorate relative to LIBOR (or some other market index to which the assets are being funded) during the time between when these floating rate assets were first funded and when Farmer Mac refinanced the associated debt, Farmer Mac would be exposed to a commensurate reduction in its net effective spread on the associated assets. Conversely, if the funding cost on Farmer Mac’s discount notes or medium-term notes were to improve relative to LIBOR during that time, Farmer Mac would benefit from a commensurate increase in its net effective spread on those assets.

Farmer Mac's liability issuance strategy targets balancing liquidity risk and re-funding and repricing risk while maintaining an appropriate liability management profile that is consistent with Farmer Mac's risk tolerance. ALCO regularly reviews Farmer Mac's liability issuance strategy to ensure that re-funding and repricing risk is appropriately managed.

As of June 30, 2020, Farmer Mac held $7.0 billion of floating rate assets in its lines of business and its investment portfolio that reset based on floating rate market indexes, primarily one-month and three-month LIBOR. As of the same date, Farmer Mac also had $6.5 billion of interest rate swaps outstanding where Farmer Mac pays a fixed rate of interest and receives a floating rate of interest.

Throughout the first half of 2020, Farmer Mac's funding relative to LIBOR remained stable with spreads comparable to historical averages. Farmer Mac regularly adjusts its funding strategies to mitigate the effects of spread variability from time to time and seeks to maintain an effective funding cost in the context of its overall liability management and liquidity management strategies.

Discontinuation of LIBOR

As described in "Risk Factors—Market Risk" in Farmer Mac's Annual Report on Form 10-K for the fiscal year ended December 31, 2019 filed with the SEC on February 25, 2020, Farmer Mac faces risks associated with the reform, replacement, or discontinuation of the LIBOR benchmark interest rate and the transition to an alternative benchmark interest rate. We are currently evaluating the potential effect on our business of the replacement of the LIBOR benchmark interest rate, including the possibility of replacement benchmark interest rates. As of June 30, 2020, Farmer Mac held $5.8 billion of floating rate assets in its lines of business and its investment portfolio, had issued $5.2 billion of floating rate debt, and had entered into $15.9 billion notional amount of interest rate swaps, each of which reset based on LIBOR. In addition, our Non-Cumulative Series C Preferred Stock currently pays a fixed rate of interest until July 17, 2024. It becomes redeemable at our option on July 18, 2024 and thereafter pays interest at a floating rate equal to three-month LIBOR plus 3.260%. The market transition away from LIBOR and towards an alternative benchmark interest rate that may be developed is expected to be complicated and may require the development of term and credit adjustments to accommodate for differences between the benchmark interest rates. The transition may also result in different financial performance for previously booked transactions, require different hedging strategies, or require renegotiation of previously booked transactions. As of June 30, 2020, we have issued $1.0 billion in medium-term notes based on the Secured Overnight Financing Rate (SOFR), a potential alternative benchmark interest rate.

Liquidity and Capital Resources

Farmer Mac's primary sources of funds to meet its liquidity and funding needs are the proceeds of its debt issuances, guarantee and commitment fees, net effective spread, loan repayments, and maturities of AgVantage securities. Farmer Mac regularly accesses the capital markets for funding, and Farmer Mac has maintained access to the capital markets at favorable rates through first quarter 2020. Farmer Mac funds its purchases of eligible loan assets, USDA Securities, Farmer Mac Guaranteed Securities, and investment assets and finances its operations primarily by issuing debt obligations of various maturities in the public capital markets. As of June 30, 2020, Farmer Mac had outstanding discount notes of $2.5 billion, medium-term notes that mature within one year of $8.4 billion, and medium-term notes that mature after one year of $10.5 billion.

Assuming continued access to the capital markets, Farmer Mac believes it has sufficient liquidity and capital resources to support its operations for the next 12 months and for the foreseeable future. Farmer Mac also has a contingency funding plan to manage unanticipated disruptions in its access to the capital markets. That plan involves borrowing through repurchase agreement arrangements and the sale of liquid assets. Farmer Mac must maintain a minimum of 90 days of liquidity under its liquidity and investment regulations. Under the methodology for calculating available days of liquidity prescribed by those regulations, Farmer Mac maintained an average of 212 days of liquidity during second quarter 2020 and had 212 days of liquidity as of June 30, 2020. ALCO regularly reviews Farmer Mac's liquidity position and ensures the required minimums are maintained.

Farmer Mac maintains cash, cash equivalents (including U.S. Treasury securities and other short-term money market instruments), and other investment securities that can be drawn upon for liquidity needs. Farmer Mac's current policies authorize liquidity investments in:

- obligations of or fully guaranteed by the United States or a U.S. government agency;
- obligations of or fully guaranteed by GSEs;
- municipal securities;
- international and multilateral development bank obligations;
- money market instruments;
- diversified investment funds;
- asset-backed securities;
- corporate debt securities; and
- mortgage-backed securities.

The following table presents these assets as of June 30, 2020 and December 31, 2019:

Table 34

	As of June 30, 2020	As of December 31, 2019
	(in thousands)	
Cash and cash equivalents	$ 827,600	$ 604,381
Investment securities:		
Guaranteed by U.S. Government and its agencies	1,816,385	1,842,640
Guaranteed by GSEs	1,677,742	1,143,323
Asset-backed securities	18,321	18,912
Total	$ 4,340,048	$ 3,609,256

The increase in the investment portfolio since December 31, 2019 was to provide a greater level of liquidity in response to the COVID-19 pandemic, to prepare for the possibility of future volatility in the debt capital markets, and to support program asset growth as the overall funding needs for the balance sheet increased.

Capital Requirements. Farmer Mac is subject to the following statutory capital requirements – minimum, critical, and risk-based. Farmer Mac must comply with the higher of the minimum capital requirement and the risk-based capital requirement. As of June 30, 2020, Farmer Mac was in compliance with its statutory capital requirements and was classified as within "level I" (the highest compliance level).

In accordance with FCA's rule on capital planning, Farmer Mac's board of directors has adopted a policy for maintaining a sufficient level of "Tier 1" capital (consisting of retained earnings, paid-in capital, common stock, and qualifying preferred stock). That policy restricts Tier 1-eligible dividends and any discretionary bonus payments if Tier 1 capital falls below specified thresholds. As of June 30, 2020 and December 31, 2019, Farmer Mac's Tier 1 capital ratio was 13.4% and 12.9%, respectively. The increase in our Tier 1 capital ratio was due to the fact that capital growth, which reflects the issuance of the Series E Preferred Stock, outpaced the growth in risk-weighted assets during second quarter 2020. As of June 30, 2020, Farmer Mac was in compliance with its capital adequacy policy. Farmer Mac does not expect its compliance on an ongoing basis with FCA's rule on capital planning, including Farmer Mac's policy on Tier 1 capital, to materially affect Farmer Mac's operations or financial condition.

For more information about the capital requirements applicable to Farmer Mac, its capital adequacy policy, and FCA's rule on capital planning, see "Business—Government Regulation of Farmer Mac—Capital Standards" in Farmer Mac's Annual Report on Form 10-K for the fiscal year ended December 31, 2019 filed with the SEC on February 25, 2020. See Note 8 to the consolidated financial statements for more information about Farmer Mac's capital position.

Regulatory Matters

In response to the economic effects of the COVID-19 pandemic, FCA has issued regulatory guidance to encourage Farmer Mac to work with its lending and servicing partners in approving servicing actions for borrowers impacted by COVID-19, including working with other Farm Credit System institutions on approvals for loans to which statutory borrower rights are attached (primarily in LTSPCs). FCA also provided guidance about under what circumstances loans with approved servicing actions due exclusively to the economic effects of the COVID-19 pandemic should not be classified as nonaccrual or troubled debt restructurings.

Also, In response to the COVID-19 pandemic and the related economic effects, Congress passed a series of stimulus measures, including the Coronavirus Aid, Relief, and Economic Security Act (the "CARES Act"), which contained a $9.5 billion emergency fund for the USDA aimed toward providing help to livestock, dairy, and produce providers who sell locally. It also included a $14 billion replenishment of the CCC, a line of credit at the U.S. Treasury Department that USDA can use to help crop and livestock producers. On April 17, 2020, USDA announced that it would provide $19 billion of assistance through the Coronavirus Food Assistance Program ("CFAP"). CFAP used the funding and authorities provided in the CARES Act, the Families First Coronavirus Response Act, and other USDA existing authorities to provide $16 billion in direct support to farmers and ranchers based on actual losses from disruptions to prices and market supply chains and for projected impacts to marketing costs resulting from lost demand and short-term oversupply for the 2020 marketing year caused by the coronavirus. As part of the CFAP, USDA also announced that it would purchase $3 billion in fresh produce, dairy, and meat. These purchases are aimed at propping up commodity prices while providing commodities to food banks, community and faith based organizations, and other non-profits serving Americans in need. Through the end of July, more than $14.5 billion in economic support has been delivered to farm businesses under the CARES Act through a combination of direct payments and loans. In addition to legislation and stimulus in response to COVID-19, Farmer Mac continues to monitor the establishment and evolution of legislation and regulations that could affect farmers, ranchers, rural lenders, and rural America in general.

Under a provision of the Agricultural Improvement Act of 2018, known as the "Farm Bill," Farmer Mac's charter was amended effective June 18, 2020 to expand the acreage exception to the loan amount limitation on Farm & Ranch loans (currently $13.2 million) from 1,000 acres to 2,000 acres, meaning that the statutory loan amount limitation does not apply to Farm & Ranch loans secured by 2,000 acres of agricultural real estate or less. Farmer Mac will continue to evaluate this increase in the acreage limitation to determine the potential benefits to Farmer Mac's customers and the related effects on our business.

Other Matters

The expected effects of recently issued accounting pronouncements on the consolidated financial statements are presented in Note 1(d) to the consolidated financial statements.

Supplemental Information

The following tables present quarterly and annual information about new business volume, repayments, and outstanding business volume:

Table 35

New Business Volume

	Farm & Ranch		USDA Guarantees	Rural Utilities		Institutional Credit	
	Loans	LTSPCs	USDA Securities	Loans	LTSPCs	AgVantage	Total
			(in thousands)				
For the quarter ended:							
June 30, 2020	$ 609,284	$ 85,390	$ 224,016	$ 339,366	$ 19,500	$ 430,024	$ 1,707,580
March 31, 2020	401,853	73,674	147,906	152,668	—	560,395	1,336,496
December 31, 2019	602,750	65,614	143,565	102,900	—	371,075	1,285,904
September 30, 2019	309,805	125,022	113,664	117,279	—	402,611	1,068,381
June 30, 2019	248,152	57,321	118,335	105,000	—	659,447	1,188,255
March 31, 2019	203,156	91,215	57,223	546,198	—	825,417	1,723,209
December 31, 2018	285,008	80,840	90,297	3,000	—	585,814	1,044,959
September 30, 2018	192,628	64,100	116,339	—	—	1,085,953	1,459,020
June 30, 2018	224,101	126,066	129,960	—	—	825,203	1,305,330
For the year ended:							
December 31, 2019	$ 1,363,863	$ 339,172	$ 432,787	$ 871,377	—	$ 2,258,550	$ 5,265,749
December 31, 2018	960,848	430,071	460,121	11,645	—	3,310,307	5,172,992

Table 36

Repayments of Assets by Line of Business

	Farm & Ranch			USDA Guarantees	Rural Utilities		Institutional Credit	
	Loans	Guaranteed Securities	LTSPCs	USDA Securities	Loans	LTSPCs	AgVantage	Total
				(in thousands)				
For the quarter ended:								
Scheduled	$ 101,264	$ 3,043	$ 39,010	$ 37,879	$ 23,589	$ 25,132	$ 471,295	$ 701,212
Unscheduled	248,890	4,034	92,177	154,536	3,935	—	—	503,572
June 30, 2020	$ 350,154	$ 7,077	$131,187	$ 192,415	$ 27,524	$ 25,132	$ 471,295	$ 1,204,784
Scheduled	$ 128,768	$ 6,132	$ 50,393	$ 43,069	$ 34,235	$ 13,593	$ 304,540	$ 580,730
Unscheduled	191,260	3,888	60,442	78,806	—	—	—	334,396
March 31, 2020	$ 320,028	$ 10,020	$110,835	$ 121,875	$ 34,235	$ 13,593	$ 304,540	$ 915,126
Scheduled	$ 57,488	$ 4,737	$ 39,878	$ 25,142	$ 10,317	$ 10,551	$ 656,095	$ 804,208
Unscheduled	105,671	3,247	74,121	66,011	34,063	—	13,000	296,113
December 31, 2019	$ 163,159	$ 7,984	$113,999	$ 91,153	$ 44,380	$ 10,551	$ 669,095	$ 1,100,321
Scheduled	$ 97,421	$ 3,095	$ 22,713	$ 27,853	$ 31,656	$ 8,692	$ 441,575	$ 633,005
Unscheduled	129,676	2,663	76,883	39,442	—	—	1,088	249,752
September 30, 2019	$ 227,097	$ 5,758	$ 99,596	$ 67,295	$ 31,656	$ 8,692	$ 442,663	$ 882,757
Scheduled	$ 39,879	$ 3,758	$ 58,779	$ 38,676	$ 6,951	$ 17,092	$ 612,964	$ 778,099
Unscheduled	64,912	3,399	58,979	43,044	—	—	—	170,334
June 30, 2019	$ 104,791	$ 7,157	$117,758	$ 81,720	$ 6,951	$ 17,092	$ 612,964	$ 948,433
Scheduled	$ 112,973	$ 5,843	$ 74,054	$ 41,266	$ 31,492	$ 7,660	$ 470,812	$ 744,100
Unscheduled	67,608	1,798	50,482	46,798	24,448	—	5,587	196,721
March 31, 2019	$ 180,581	$ 7,641	$124,536	$ 88,064	$ 55,940	$ 7,660	$ 476,399	$ 940,821
Scheduled	$ 36,006	$ 8,331	$ 35,682	$ 24,793	$ 6,321	$ 16,062	$ 568,277	$ 695,472
Unscheduled	56,299	9,257	33,319	21,135	20,538	—	—	140,548
December 31, 2018	$ 92,305	$ 17,588	$ 69,001	$ 45,928	$ 26,859	$ 16,062	$ 568,277	$ 836,020
Scheduled	$ 73,476	$ 5,677	$ 21,742	$ 28,135	$ 25,640	$ 8,286	$ 1,102,798	$ 1,265,754
Unscheduled	77,492	4,562	47,159	35,068	3,476	—	9,760	177,517
September 30, 2018	$ 150,968	$ 10,239	$ 68,901	$ 63,203	$ 29,116	$ 8,286	$ 1,112,558	$ 1,443,271
Scheduled	$ 33,075	$ 8,391	$ 31,067	$ 36,983	$ 353	$ 8,699	$ 759,223	$ 877,791
Unscheduled	86,426	8,273	69,539	66,601	51,306	—	—	282,145
June 30, 2018	$ 119,501	$ 16,664	$100,606	$ 103,584	$ 51,659	$ 8,699	$ 759,223	$ 1,159,936
For the year ended:								
Scheduled	$ 307,761	$ 17,433	$195,424	$ 132,937	$ 80,416	$ 43,995	$ 2,181,446	$ 2,959,412
Unscheduled	367,867	11,107	260,465	195,295	58,511	—	19,675	912,920
December 31, 2019	$ 675,628	$ 28,540	$455,889	$ 328,232	$ 138,927	$ 43,995	$ 2,201,121	$ 3,872,332
Scheduled	$ 253,290	$ 36,484	$158,548	$ 130,722	$ 58,821	$ 33,047	$ 2,822,608	$ 3,493,520
Unscheduled	293,719	27,021	231,221	165,993	90,272	120,022	9,760	938,008
December 31, 2018	$ 547,009	$ 63,505	$389,769	$ 296,715	$ 149,093	$153,069	$ 2,832,368	$ 4,431,528

Table 37

Lines of Business - Outstanding Business Volume

	Farm & Ranch			USDA Guarantees	Rural Utilities		Institutional Credit	
	Loans	Guaranteed Securities	LTSPCs	USDA Securities	Loans	LTSPCs	AgVantage	Total
	(in thousands)							
As of:								
June 30, 2020	$5,617,512	$ 90,225	$2,310,113	$ 2,677,807	$ 2,101,568	$ 590,053	$ 8,654,830	$ 22,042,108
March 31, 2020	5,358,382	97,302	2,355,910	2,646,206	1,789,726	595,685	8,696,101	21,539,312
December 31, 2019	5,276,557	107,322	2,393,071	2,620,175	1,671,293	609,278	8,440,246	21,117,942
September 30, 2019	4,836,966	115,306	2,441,456	2,567,763	1,612,773	619,829	8,738,266	20,932,359
June 30, 2019	4,754,258	121,064	2,416,030	2,521,394	1,527,150	628,521	8,778,318	20,746,735
March 31, 2019	4,610,897	128,221	2,476,467	2,484,779	1,429,101	645,613	8,731,835	20,506,913
December 31, 2018	4,588,322	135,862	2,509,787	2,515,620	938,843	653,273	8,382,817	19,724,524
September 30, 2018	4,420,619	287,594	2,363,805	2,471,251	962,702	669,335	8,365,280	19,540,586
June 30, 2018	4,378,958	297,833	2,368,606	2,418,115	991,819	677,621	8,391,885	19,524,837

Table 38

On-Balance Sheet Outstanding Business Volume

	Fixed Rate	5- to 10-Year ARMs & Resets	1-Month to 3-Year ARMs	Total Held in Portfolio
	(in thousands)			
As of:				
June 30, 2020	$ 10,793,629	$ 2,845,266	$ 5,076,445	18,715,340
March 31, 2020	10,296,598	2,818,869	4,996,478	18,111,945
December 31, 2019	10,045,712	2,863,199	4,702,577	17,611,488
September 30, 2019	9,642,802	2,850,000	4,549,689	17,042,491
June 30, 2019	9,446,117	2,825,151	4,601,917	16,873,185
March 31, 2019	9,206,082	2,720,639	4,643,506	16,570,227
December 31, 2018	8,325,347	2,717,505	4,705,169	15,748,021
September 30, 2018	7,945,007	2,629,612	4,986,987	15,561,606
June 30, 2018	7,551,149	2,594,399	5,398,021	15,543,569

The following table presents the quarterly net effective spread (a non-GAAP measure) by segment:

Table 39

	Net Effective Spread by Line of Business											
	Farm & Ranch		USDA Guarantees		Rural Utilities		Institutional Credit		Corporate		Net Effective Spread	
	Dollars	Yield	Dollars	Yield	Dollars	Yield	Dollars	Yield	Dollars	Yield	Dollars	Yield
	(dollars in thousands)											
For the quarter ended:												
June 30, 2020[1]	$ 16,733	1.71 %	$ 4,689	0.81 %	$ 5,516	1.15 %	$ 18,782	0.86 %	$ 749	0.08 %	$ 46,469	0.89 %
March 31, 2020	14,938	1.64 %	4,625	0.81 %	4,920	1.14 %	17,702	0.84 %	1,978	0.21 %	44,163	0.89 %
December 31, 2019	16,374	1.90 %	4,363	0.78 %	4,871	1.17 %	18,008	0.85 %	2,375	0.27 %	45,991	0.95 %
September 30, 2019	13,181	1.66 %	4,314	0.79 %	4,502	1.16 %	17,807	0.84 %	2,657	0.30 %	42,461	0.90 %
June 30, 2019[1]	13,335	1.72 %	4,097	0.76 %	3,996	1.10 %	17,371	0.82 %	2,556	0.34 %	41,355	0.91 %
March 31, 2019	12,737	1.70 %	3,964	0.74 %	3,233	1.12 %	16,373	0.79 %	2,494	0.35 %	38,801	0.89 %
December 31, 2018	13,288	1.79 %	4,630	0.85 %	2,833	1.19 %	15,751	0.80 %	2,353	0.36 %	38,855	0.93 %
September 30, 2018	13,887	1.91 %	4,627	0.86 %	2,877	1.18 %	15,642	0.78 %	2,044	0.30 %	39,077	0.93 %
June 30, 2018	13,347	1.86 %	4,398	0.83 %	2,923	1.15 %	15,220	0.76 %	274	0.04 %	36,162	0.86 %

(1) See Note 10 to the consolidated financial statements for a reconciliation of GAAP net interest income by line of business to net effective spread by line of business for the three months ended June 30, 2020 and 2019.

The following table presents quarterly core earnings (a non-GAAP measure) reconciled to net income attributable to common stockholders:

Table 40

	Core Earnings by Quarter End								
	June 2020	March 2020	December 2019	September 2019	June 2019	March 2019	December 2018	September 2018	June 2018
	(in thousands)								
Revenues:									
Net effective spread	$ 46,469	$ 44,163	$ 45,991	$ 42,461	$ 41,355	$ 38,801	$ 38,855	$ 39,077	$ 36,162
Guarantee and commitment fees	4,943	4,896	5,432	5,208	5,276	5,419	5,309	5,170	5,171
Other	1,048	674	100	389	777	509	(129)	110	111
Total revenues	52,460	49,733	51,523	48,058	47,408	44,729	44,035	44,357	41,444
Credit related expense/(income):									
Provision for/(release of) losses	51	3,831	2,851	623	420	(393)	166	(3)	582
REO operating expenses	—	—	—	—	64	—	—	—	—
(Gains)/losses on sale of REO	—	(485)	—	—	—	—	—	41	(34)
Total credit related expense/ (income)	51	3,346	2,851	623	484	(393)	166	38	548
Operating expenses:									
Compensation and employee benefits	8,087	10,127	6,732	7,654	6,770	7,606	7,167	6,777	6,936
General and administrative	5,295	5,363	5,773	5,253	4,689	4,596	5,829	4,350	5,202
Regulatory fees	725	725	725	688	687	688	687	625	625
Total operating expenses	14,107	16,215	13,230	13,595	12,146	12,890	13,683	11,752	12,763
Net earnings	38,302	30,172	35,442	33,840	34,778	32,232	30,186	32,567	28,133
Income tax expense	8,016	6,598	7,526	7,018	7,351	6,715	6,431	6,891	5,477
Preferred stock dividends	3,939	3,431	3,432	3,427	3,785	3,296	3,296	3,295	3,296
Core earnings	$ 26,347	$ 20,143	$ 24,484	$ 23,395	$ 23,642	$ 22,221	$ 20,459	$ 22,381	$ 19,360
Reconciling items:									
Gains/(losses) on undesignated financial derivatives due to fair value changes	8,700	(6,484)	4,469	(7,117)	10,485	2,240	(96)	3,625	6,709
(Losses)/gains on hedging activities due to fair value changes	(2,676)	(5,925)	(220)	(4,535)	(1,438)	(2,817)	(853)	1,051	1,687
Unrealized (losses)/gains on trading assets	(20)	106	172	49	61	44	57	(3)	11
Amortization of premiums/ discounts and deferred gains on assets consolidated at fair value	35	3	40	(7)	(139)	(16)	67	(38)	196
Net effects of terminations or net settlements on financial derivatives	720	(1,300)	1,339	232	(592)	110	(312)	546	232
Issuance costs on the retirement of preferred stock	—	—	—	—	(1,956)	—	—	—	—
Income tax effect related to reconciling items	(1,419)	2,856	(1,218)	2,389	(1,759)	92	238	(1,088)	(1,855)
Net income attributable to common stockholders	$ 31,687	$ 9,399	$ 29,066	$ 14,406	$ 28,304	$ 21,874	$ 19,560	$ 26,474	$ 26,340

Item 3. Quantitative and Qualitative Disclosures About Market Risk

Farmer Mac is exposed to market risk from changes in interest rates. Farmer Mac manages this market risk by entering into various financial transactions, including financial derivatives, and by monitoring and measuring its exposure to changes in interest rates. See "Management's Discussion and Analysis of Financial Condition and Results of Operations—Risk Management—Interest Rate Risk" for more information about Farmer Mac's exposure to interest rate risk and its strategies to manage that risk. For information about Farmer Mac's use of financial derivatives and related accounting policies, see Note 4 to the consolidated financial statements.

Item 4. Controls and Procedures

Management's Evaluation of Disclosure Controls and Procedures. Farmer Mac maintains disclosure controls and procedures designed to ensure that information required to be disclosed in its periodic filings under the Securities Exchange Act of 1934 ("Exchange Act"), including this Quarterly Report on Form 10-Q, is recorded, processed, summarized, and reported on a timely basis. These disclosure controls and procedures include controls and procedures designed to ensure that information required to be disclosed under the Exchange Act is accumulated and communicated to Farmer Mac's management on a timely basis to allow decisions about required disclosure. Management, including Farmer Mac's Chief Executive Officer and Chief Financial Officer, has evaluated the effectiveness of the design and operation of Farmer Mac's disclosure controls and procedures (as defined under Rules 13a-15(e) and 15d-15(e) of the Exchange Act) as of June 30, 2020.

Farmer Mac carried out the evaluation of the effectiveness of its disclosure controls and procedures, required by paragraph (b) of Exchange Act Rules 13a-15 and 15d-15, under the supervision and with the participation of management, including the Chief Executive Officer and Chief Financial Officer. Based upon this evaluation, the Chief Executive Officer and Chief Financial Officer concluded that Farmer Mac's disclosure controls and procedures were effective as of June 30, 2020.

Changes in Internal Control Over Financial Reporting. There were no changes in Farmer Mac's internal control over financial reporting during the three months ended June 30, 2020 that have materially affected, or are reasonably likely to materially affect, Farmer Mac's internal control over financial reporting.

PART II

Item 1. Legal Proceedings

None.

Item 1A. Risk Factors

The risk factors in this section update and supplement the risk factors described in "Risk Factors" in Part I, Item 1A of Farmer Mac's Annual Report on Form 10-K for the fiscal year ended December 31, 2019 ("2019 Form 10-K"), as filed with the SEC on February 25, 2020, and as updated by Farmer Mac's Current Report on Form 8-K filed with the SEC on April 6, 2020 and Farmer Mac's Quarterly Report on Form 10-Q, as filed with the SEC on May 11, 2020. The primary risks to our business and how we seek to manage those risks are also described in "Management's Discussion and Analysis of Financial Condition and Results of Operations—Risk Management," in the 2019 Form 10-K and in this report. The risks we face could materially affect our business, operations, operating results, financial condition, liquidity, capital levels, or future results and could cause our actual results to differ materially from our past results or the results contemplated by any forward-looking statements we make.

Farmer Mac’s efforts to manage and mitigate these risk factors may be unsuccessful, and the effectiveness of these efforts and the extent to which the COVID-19 pandemic affects Farmer Mac’s business, results of operations, and financial condition will depend on factors beyond its control, including: the duration, severity, and spread of the pandemic; third-party and government actions taken to contain COVID-19 or treat its impact and mitigate public health and economic effects; the nature and extent of the deferments approved for borrowers negatively affected by COVID-19; the conduct of agricultural producer borrowers in response to the COVID-19 pandemic and how quickly and to what extent affected borrowers can recover from the negative economic impact of the pandemic; and how quickly and to what extent normal economic and operating conditions can resume, including whether any future COVID-19 outbreaks interrupt economic recovery. Even after the COVID-19 pandemic is over, Farmer Mac may continue to experience material adverse effects to its business as a result of the disruption in the global economy, the domestic agricultural economy, and any resulting recession. Because there have been no comparable recent global pandemics that resulted in similar global macroeconomic impact, Farmer Mac does not yet know the full extent of the effects on its business, operations, or the global economy as a whole, but they could materially and adversely affect Farmer Mac’s business, operations, operating results, financial condition, liquidity, or capital levels as discussed in more detail below.

The effects of the COVID-19 pandemic are uncertain and could have a material adverse effect on Farmer Mac's business, operations, operating results, financial condition, liquidity, or capital levels.

The COVID-19 pandemic is creating extensive disruptions to the global economy and to the lives of individuals throughout the world. Governments, businesses, and the public are taking unprecedented actions to contain the spread of COVID-19 and to mitigate its effects, including quarantines, social distancing, travel bans and restrictions, shelter in place orders, closures of businesses and schools, fiscal stimulus, and legislation designed to deliver monetary aid and other relief. The scope, duration, and full effects of COVID-19 remain uncertain, but it is clear that the pandemic and related efforts to contain it have disrupted global economic activity, altered and affected the functioning of financial markets, increased economic and market uncertainty, and disrupted trade and supply chains, and may continue to do so for the foreseeable future. Although Farmer Mac has not observed a material effect on its business from the effects of the COVID-19 pandemic, if these effects continue for a protracted period or result in sustained economic stress or prolonged recession, many of the risks identified in Farmer Mac's 2019 Form 10-K could be exacerbated and could manifest in a number of ways related to credit, collateral, customer demand, funding, operations, interest rate risk, and human capital, possibly with materially greater material adverse effect than Farmer Mac currently anticipates.

The effects of the COVID-19 pandemic may negatively affect counterparties' profitability and ability to repay their loans and other obligations in Farmer Mac's portfolio, which could have a material adverse effect on Farmer Mac's financial condition, results of operations, liquidity, or capital levels.

Farmer Mac assumes the ultimate credit risk of borrower defaults on its agricultural mortgage and rural utilities loan assets, including AgVantage securities, and Farmer Mac's earnings depend significantly on their performance. Farmer Mac recognizes that the COVID-19 pandemic may continue to create significant stress for agricultural and rural borrowers because of disruptions to employees, markets, transportation, and other factors important to their operations. If the effects of COVID-19 result in widespread and sustained repayment shortfalls on loans in Farmer Mac's portfolio or defaults by AgVantage counterparties, Farmer Mac could incur significant credit losses, particularly if conditions cause land and asset values to deteriorate and the available collateral is insufficient to cover Farmer Mac's exposure, which likely would have a material adverse effect on Farmer Mac's financial condition, results of operations, liquidity, or capital levels.

Concentrated exposure to a particular borrower or AgVantage counterparty may exacerbate the credit risk Farmer Mac faces from the effects of the COVID-19 pandemic, which could materially and adversely affect its business, operating results, or financial condition.

Farmer Mac may be subject to credit risk due to concentrated exposure to a particular borrower. Farmer Mac's Farm & Ranch portfolio consists of loans varying in size and by borrower, including large exposures ($25 million or more) to individual borrowers. The default of any one of these borrowers due to the effects of the COVID-19 pandemic could negatively affect Farmer Mac's financial condition. Farmer Mac also has concentrated exposures to individual business counterparties on AgVantage securities, which are general obligations of institutional counterparties secured by eligible loans held by the issuing institution. Although AgVantage securities are collateralized by eligible loans in a principal amount equal to or greater than the principal amount of the securities outstanding, Farmer Mac could suffer losses if the counterparty defaults and the market value of the loan collateral has declined, whether due to the negative effects of the COVID-19 pandemic or otherwise. If an AgVantage counterparty experiences stress in its loan collateral portfolio due to increased borrower defaults, whether from the effects of the COVID-19 pandemic or otherwise, it may also increase the likelihood of the AgVantage counterparty defaulting. Taking possession of the loan collateral upon a default by the AgVantage counterparty could also result in higher current expected credit losses for Farmer Mac's loans held on balance sheet, as well as increased capital requirements, particularly if those loans are experiencing default or stress due to COVID-19. Most of Farmer Mac's AgVantage exposure is concentrated in a small number of issuers. As of June 30, 2020, $7.9 billion of the $8.7 billion of AgVantage securities outstanding had been issued by three counterparties. A default by any of these counterparties could have a significant adverse effect on Farmer Mac's business, operating results, or financial condition.

Disruptions in the food supply chain due to the COVID-19 pandemic could have a negative effect on borrowers' profitability and repayment capacity, which could have a material adverse effect on Farmer Mac's financial condition, results of operations, liquidity, or capital levels.

The COVID-19 pandemic has caused and may continue to cause restrictions and closures of businesses, including agricultural producers, as employers and government authorities respond to the public health crisis. Not only could these restrictions and closures affect the profitability of the businesses experiencing them, but disruptions in the supply chain related to the pandemic may also put downward pressure on the demand for agricultural commodities and products and negatively affect the profitability of those producers. Borrowers who have loans in Farmer Mac's portfolio and who are experiencing negative effects on their profitability from restrictions or closures or from supply chain disruptions may also experience challenges in their ability to repay those loans. These effects may be exacerbated the longer these conditions continue. Widespread and prolonged restrictions, closures, and supply chain disruptions due to the COVID-19 pandemic that negatively affect agricultural producers could lead to significant delinquencies and defaults in Farmer Mac's loan portfolio, which could have a material adverse effect on Farmer Mac's financial condition, results of operations, liquidity, or capital levels.

A large number of loan payment deferments resulting from the COVID-19 pandemic could have a material adverse effect on Farmer Mac's financial condition, results of operations, liquidity, or capital levels.

As the negative economic conditions triggered by the COVID-19 pandemic continue, Farmer Mac has observed an increase in payment deferment requests from loan servicers on behalf of borrowers to help them avoid default on their loans, and we expect those requests to continue to increase. For more information on Farmer Mac's Farm & Ranch payment deferments, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Risk Management—Credit Risk – Loans & Guarantees." Farmer Mac funds these loans through its issuance of debt in the capital markets. If Farmer Mac approves a significant volume of deferment requests for loans held in its portfolio, it will receive diminished or no income on these loans for a period of time while still having required debt payments, which could materially and adversely affect Farmer Mac's financial condition, results of operations, liquidity, or capital levels. Deferment requests may also come from borrowers whose loans collateralize securities on which Farmer Mac has guaranteed timely payment of principal and interest. If Farmer Mac approves a significant volume of deferment requests for loans collateralizing these guaranteed securities, Farmer Mac will be required to make guarantee payments to the holders of many of these securities, or may elect to repurchase the loans from the pools collateralizing these securities, either of which could materially and adversely affect Farmer Mac's financial condition, results of operations, liquidity, or capital levels. In response to the COVID-19 pandemic, Oregon enacted House Bill 4204 (effective June 30, 2020) establishing temporary prohibitions on foreclosure, events of default, late payment penalties, and loan deferrals. Other states could follow suit. If several states or the federal government enact similar legislation and Farmer Mac was required to forgive, forbear, or defer all or part of borrowers' loan payments under the new legislation, Farmer Mac's volume of payment deferments could significantly increase, which could have a material adverse effect on Farmer Mac's financial condition, results of operations, liquidity, or capital levels.

The effects of the COVID-19 pandemic may affect the demand for Farmer Mac's secondary market, the price or marketability of Farmer Mac's products, and Farmer Mac's ability to offer its products and services, which could materially and adversely affect Farmer Mac's business, operating results, financial condition, or capital levels.

The success of Farmer Mac's business may be affected by a variety of external factors that may affect the price or marketability of Farmer Mac's products and services, including disruptions in the capital markets, changes in interest rates that may increase Farmer Mac's funding costs, and reduced demand for Farmer Mac's products due to economic conditions. The increase in Farmer Mac's business volume in second quarter 2020 was primarily attributable to historically low interest rates and pent-up demand that drove strong market demand from borrowers taking advantage of low interest rates on long-term funding. Farmer Mac experienced strong demand from our two main Rural Utilities counterparties as well as widespread robust demand among our network of active Farm & Ranch sellers. Changes in interest rates and the continued effects of COVID-19 on economic activity could negatively affect the demand for or profitability of Farmer Mac's products and services by farmers, ranchers, rural utilities, and their lenders, which could materially and adversely affect Farmer Mac's business, operating results, financial condition, or capital levels.

Disruptions in the equity and debt capital markets from the COVID-19 pandemic could have a material adverse effect on Farmer Mac's business, operating results, financial condition, liquidity, capital levels, or its ability to offer competitive products.

Farmer Mac's ability to operate its business, meet its obligations, generate asset volume growth, and fulfill its statutory mission depends on Farmer Mac's capacity to remain adequately capitalized through the issuance of equity and debt securities at favorable rates and terms in the U.S. financial markets. Farmer Mac's potential for growth and future net income depends in part on Farmer Mac's ability to access equity markets to raise efficient capital. The issuance of debt securities is Farmer Mac's primary source for repaying or refinancing existing debt, and one of the primary sources of Farmer Mac's revenue is the net interest income earned from the difference, or "spread," between the return received on assets held and the related borrowing costs. Farmer Mac's daily access to the debt capital markets continued to be strong through the date of this report. If the recent disruptions and volatility in the U.S. financial markets related to the COVID-19 pandemic continues or intensifies in a way that prevents Farmer Mac from accessing those markets to issue equity or debt securities at favorable rates and terms, Farmer Mac's business, operating results, or financial condition could be adversely affected.

The COVID-19 pandemic has exposed Farmer Mac to increased cybersecurity risk and operational risk, which could adversely affect Farmer Mac's business, results of operations, or financial condition.

Farmer Mac relies on business processes that largely depend on people, technology, and the use of complex systems and models to manage its business, including access to information systems and models as well as information, applications, payment systems, and other services provided by third parties. In response to the challenges presented by the COVID-19 pandemic, Farmer Mac has modified its business practices to focus on protecting its employees and the public while continuing to fulfill its critical mission and maintaining its regular business operations in support of the farmers, ranchers, and rural utilities of America. On March 12, 2020, Farmer Mac activated its Business Continuity Plan ("BCP") and has been operating uninterrupted since then with all of its employees working remotely from their homes. Farmer Mac has provided guidance and support to its employees to ensure that they have the tools and knowledge needed to effectively work from home, and Farmer Mac's technology platform and BCP have been functioning as designed in support of all functions of the organization. Nonetheless, because the technology in employees' homes may not be as robust as in Farmer Mac's offices and could cause the networks, information systems, applications, and other tools available to employees to be more limited or less reliable than Farmer Mac's in-office technology, the continuation of these work-from-home measures introduces additional operational risk. These risks include but are not limited to greater cybersecurity risks, strain on the local technology networks for remote operations, and potential impairment of the ability to perform critical functions, all of which could adversely affect Farmer Mac's business, results of operations, and financial condition. Farmer Mac regularly monitors attempts by third parties to gain unauthorized access to its network and information systems through cyber-attacks. Despite the increased cybersecurity risks presented by a workforce that is operating entirely remotely, Farmer Mac is not aware of any cyber-attacks or other privacy or data security incidents through the date of this report that negatively affected the confidentiality, integrity, or availability of Farmer Mac's information resources.

Operational disruptions or challenges due to the COVID-19 pandemic faced by third parties upon whom Farmer Mac relies in its own business operations could have a material adverse impact on its results of operations or financial condition.

Farmer Mac relies on many third parties, including vendors that supply essential services and local and federal government agencies, offices, and courthouses, in the performance of its business operations. In light of measures undertaken as a result of the COVID-19 pandemic, many of these entities have limited and may continue to limit the access and availability of their services. For example, Farmer Mac has observed delays in loan closings related to reductions in available staff in recording offices or the closing of courthouses to walk-in traffic in some rural counties, which is slowing the established process and turnaround times for title work and mortgage and UCC filings in those counties. Reduced personnel at or closures of USDA field offices as a result of the COVID-19 pandemic could negatively affect growth in Farmer Mac's USDA Guarantees line of business because that business depends on obtaining a valid assignment of guarantee signed by an authorized USDA official. Farmer Mac continues to closely monitor the third parties who provide the information and services required to operate its business and their ability to continue to operate effectively in the face of the nationwide challenges posed by COVID-19. These entities include loan servicers; providers of financial information, systems, and analytical tools; providers of electronic payment and settlement systems; and providers of information technology infrastructure and business continuity services. Farmer Mac had not identified any significant disruptions with these third parties that had materially affected Farmer Mac's business operations as of the date of this report. If some of the identified limitations in the availability of some services continue for a prolonged period or if additional limitations or potential disruptions in the ability to provide services materialize (which may be caused by a third party's own financial or operational difficulties), it may inhibit or otherwise negatively affect the normal operations and processes for Farmer Mac's business, which could have a material adverse impact on its results of operations or financial condition.

The effects of the COVID-19 pandemic on interest rates could materially and adversely affect Farmer Mac's net income, operating results, or financial condition.

Farmer Mac is exposed to interest rate risk that could materially and adversely affect its business, operating results, or financial condition and changes in interest rates relative to Farmer Mac's management of interest rate risk through derivatives may cause volatility in financial results and capital levels and may adversely affect Farmer Mac's net income, liquidity position, or operating results. Farmer Mac's financing activities, hedging activities, net effective spread, and profitability could be negatively affected by volatility in interest rates caused by uncertainties stemming from COVID-19, as evidenced by the recent actions of the Federal Reserve to significantly lower the target range for the federal funds rate based on concerns about the disruption to economic activity. Farmer Mac's primary strategy for managing interest rate risk is to fund asset purchases with liabilities that have similar duration and convexity characteristics so that they will perform similarly as interest rates change. However, a prolonged period of extremely volatile and unstable market conditions would likely increase Farmer Mac’s hedging and funding costs while negatively affecting market risk mitigation strategies. In that scenario, Farmer Mac may adjust its funding strategy for long-term fixed rate assets. Alternative funding strategies could result in greater exposure to re-funding risk and higher income volatility from changes in interest rates and movements in re-funding terms and spreads to benchmark indices such as LIBOR, which could have a material adverse effect on Farmer Mac's net income, operating results, or financial condition.

Significant disruption in the continuity of Farmer Mac's employees or executive leaders from the COVID-19 pandemic may materially and adversely affect Farmer Mac's business performance, operations, or financial condition.

Farmer Mac relies on its employees' breadth and depth of knowledge of Farmer Mac and the industries in which it operates to run its business operations successfully. A significant percentage of Farmer Mac’s employees and executive leaders live and work in the geographic region of its main office in Washington, D.C, with about 25% of the total workforce distributed in other geographic locations in the United States. This concentration of Farmer Mac's personnel, technology, and facilities increases Farmer Mac's risk of business disruptions if the negative impacts of the COVID-19 pandemic affect the Washington, D.C. metropolitan area disproportionately compared to other regions of the country. If Farmer Mac experiences widespread cases of COVID-19 among its employees, it would place more pressure on the remaining employees to perform all functions across the organization, could require Farmer Mac to divert or expend more resources to cover key personnel functions, and could impair the company’s ability to conduct business. A significant disruption in the continuity of Farmer Mac's employees or executive leaders caused by the COVID-19 pandemic could materially and adversely affect Farmer Mac's business performance, operations, or financial condition.

Disruption in the operations of Farmer Mac’s service providers caused by the COVID-19 pandemic or from government or third-party responses to the COVID-19 pandemic could materially and adversely affect Farmer Mac’s business, operating results, or financial condition.

Farmer Mac relies on many third-party service providers to conduct its business, including loan servicers, information systems providers, software-as-a-service (SaaS) providers, cloud computing service providers, consultants on key technology initiatives, and other service providers. Although Farmer Mac has continued to operate effectively through a fully remote workforce, disruptions in the operations of Farmer Mac’s third-party service providers caused by COVID-19-related illnesses or government or third-party actions taken to mitigate the public health effects of the COVID-19 pandemic, including stay-at-home orders, could impact Farmer Mac’s operations, which could materially and adversely affect Farmer Mac’s business, operating results, or financial condition.

The trading price for Farmer Mac's Class C non-voting common stock may be volatile due to market influences, trading volume, the effects of equity awards for Farmer Mac's officers, directors, and employees, or sales of significant amounts of the stock by large holders.

The trading price of Farmer Mac's Class C non-voting common stock ("Class C stock") has at times experienced substantial price volatility and may continue to be volatile. For example, from January 2020 to July 2020, the closing price of the Class C stock ranged from $43.02 per share to $83.55 per share. The trading price may fluctuate in response to various factors, including short sales, hedging, the presence or absence of a share repurchase program, stock market influences in general that are unrelated to Farmer

Mac's operating performance (including COVID-19), or sales of significant amounts of the stock by large holders. Farmer Mac typically grants equity awards each year that are based on the Class C stock, including grants that vest over time or upon the achievement of specified performance goals. Sales of stock acquired upon vesting or the exercise of equity awards by Farmer Mac's officers, directors, or employees, whether under an established trading plan or otherwise, could adversely affect the trading price of the Class C stock.

As to the potential effect of sales of significant amounts of the Class C stock by large holders, Farmer Mac is aware of a regulatory action that could result in significant sales by Zions Bancorporation, National Association (“Zions”), which held 803,820 shares of Class C stock (approximately 8.7% of the outstanding shares) as of June 30, 2020. In a letter granting conditional approval of a proposed merger involving Zions, the applicable federal regulator found that, although Zions had requested to maintain its ownership in Farmer Mac’s Class C stock after the merger, the continued ownership of Class C stock (held by Zions' holding company before the merger) would not be a permissible investment for the surviving national bank entity of the merger based on then-current precedent. Under the terms of the conditional approval letter, Zions was to divest its ownership of the Class C stock by September 30, 2020, however Zions has indicated in its Quarterly Report filed on Form 10-Q on May 6, 2020, that the regulator has granted approval for Zions to extend the original sale deadline from September 30, 2020 to a date which will enable an orderly sale of its Farmer Mac Class C stock. Even though the regulator has made the determination to allow Zions to sell the Class C stock over an extended period, Zions is still required to sell all or a significant amount of its remaining Class C stock, and those sales could adversely affect the trading price of Farmer Mac’s Class C stock. The merger condition related to Zions’ ownership of Class C stock does not apply to Zions’ ownership of 322,100 shares of Farmer Mac’s Class A voting common stock (approximately 31.25% of the outstanding shares of that stock as of June 30, 2020).

All of these factors may be exacerbated during periods of low trading volume for Farmer Mac's Class C stock, which has averaged approximately 50,000 shares daily during 2020, and may have a prolonged negative effect on its trading price or increase price volatility.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds

(a) Farmer Mac is a federally chartered instrumentality of the United States whose debt and equity securities are exempt from registration under Section 3(a)(2) of the Securities Act of 1933. During second quarter 2020, the following transactions occurred related to Farmer Mac's equity securities that were not registered under the Securities Act of 1933 and were not otherwise reported on a Current Report on Form 8-K:

Class C Non-Voting Common Stock. Under Farmer Mac's policy that permits directors of Farmer Mac to elect to receive shares of Class C non-voting common stock in lieu of their cash retainers, Farmer Mac issued an aggregate of 317 shares of its Class C non-voting common stock in April 2020 to the three directors who elected to receive stock in lieu of their cash retainers. Farmer Mac calculated the number of shares issued to the directors based on a price of $55.63 per share, which was the closing price of the Class C non-voting common stock on March 31, 2020 (the last trading day of the previous quarter) as reported by the New York Stock Exchange.

On April 1, 2020, Farmer Mac granted an aggregate of 19,825 shares of time-vested restricted stock units under its Amended and Restated 2008 Omnibus Incentive Plan at a grant price of $52.25 per share to 34 employees as incentive compensation. All of these shares of restricted stock units granted to each employee will "cliff" vest on April 15, 2023 if the employee remains employed by Farmer Mac on that date.

(b) Not applicable.

(c) None.

Item 3. Defaults Upon Senior Securities

(a) None.

(b) None.

Item 4. Mine Safety Disclosures

Not applicable.

Item 5. Other Information

(a) None.

(b) None.

Item 6. Exhibits

**	3.1	—	Title VIII of the Farm Credit Act of 1971, as most recently amended on June 18, 2020.
*	3.2	—	Amended and Restated By-Laws of the Registrant (Previously filed as Exhibit 3.1 to Form 8-K filed May 12, 2020).
*	4.1	—	Specimen Certificate for Farmer Mac Class A Voting Common Stock (Previously filed as Exhibit 4.1 to Form 10-Q filed May 15, 2003).
*	4.2	—	Specimen Certificate for Farmer Mac Class B Voting Common Stock (Previously filed as Exhibit 4.2 to Form 10-Q filed May 15, 2003).
*	4.3	—	Specimen Certificate for Farmer Mac Class C Non-Voting Common Stock (Previously filed as Exhibit 4.3 to Form 10-Q filed May 15, 2003).
*	4.4	—	Specimen Certificate for 5.875% Non-Cumulative Preferred Stock, Series A (Previously filed as Exhibit 4.4.1 to Form 10-Q filed May 9, 2013).
*	4.4.1	—	Certificate of Designation of Terms and Conditions of 5.875% Non-Cumulative Preferred Stock, Series A (Previously filed as Exhibit 4.1 to Form 8-A filed January 17, 2013).
*	4.5	—	Specimen Certificate for 6.000% Fixed-to-Floating Rate Non-Cumulative Preferred Stock, Series C (Previously filed as Exhibit 4.6 to Form 10-Q filed August 11, 2014).
*	4.5.1	—	Certificate of Designation of Terms and Conditions of 6.000% Fixed-to-Floating Rate Non-Cumulative Preferred Stock, Series C (Previously filed as Exhibit 4.1 to Form 8-A filed June 20, 2014).
*	4.6	—	Specimen Certificate for 5.700% Non-Cumulative Preferred Stock, Series D (Previously filed as Exhibit 4.7 to Form 10-Q filed August 1, 2019).
*	4.6.1	—	Certificate of Designation of Terms and Conditions of 5.700% Non-Cumulative Preferred Stock, Series D (Previously filed as Exhibit 4.1 to Form 8-A filed May 13, 2019).
**	4.7	—	Specimen Certificate for 5.750% Non-Cumulative Preferred Stock, Series E .
*	4.7.1	—	Certificate of Designation of Terms and Conditions of 5.750% Non-Cumulative Preferred Stock, Series E (Previously filed as Exhibit 4.1 to Form 8-A filed May 20, 2020).
**	4.8	—	Description of the Registrant's securities that are registered under Section 12 of the Securities Exchange Act of 1934.
*	10.1	—	Form of Performance-Based Restricted Stock Award Agreement for grants made to non-directors on or after March 3, 2020 (Previously filed as Exhibit 10.1 to Form 8-K filed March 10, 2020).
*	21	—	List of the Registrant's subsidiaries (Previously filed as Exhibit 21 to Form 10-K filed March 8, 2018).
**	31.1	—	Certification of Registrant's principal executive officer relating to the Registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2020, pursuant to Rule 13a-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
**	31.2	—	Certification of Registrant's principal financial officer relating to the Registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2020, pursuant to Rule 13a-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
**	32	—	Certification of Registrant's principal executive officer and principal financial officer relating to the Registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2020, pursuant to 18 U.S.C. § 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
**	101.INS	—	Inline 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	—	Inline XBRL Taxonomy Extension Schema
**	101.CAL	—	Inline XBRL Taxonomy Extension Calculation
**	101.DEF	—	Inline XBRL Taxonomy Extension Definition
**	101.LAB	—	Inline XBRL Taxonomy Extension Label
**	101.PRE	—	Inline XBRL Taxonomy Extension Presentation
**	104	—	Cover Page Inline Interactive Data File - the cover page interactive data file does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document included as Exhibit 101

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*	Incorporated by reference to the indicated prior filing.
**	Filed with this report.
#	Portions of this exhibit have been omitted pursuant to a request for confidential treatment.
†	Management contract or compensatory plan.

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.

FEDERAL AGRICULTURAL MORTGAGE CORPORATION

/s/ Bradford T. Nordholm	August 10, 2020
By: Bradford T. Nordholm President and Chief Executive Officer (Principal Executive Officer)	Date
/s/ Aparna Ramesh	August 10, 2020
By: Aparna Ramesh Executive Vice President - Chief Financial Officer and Treasurer (Principal Financial Officer)	Date