As filed with the Securities and Exchange Commission on May 9, 2023

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 March 31, 2023

or

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

For the transition period from _____ to _____.

Commission File Number 001-14951

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)
1999 K Street, N.W., 4th Floor, 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
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
5.250% Non-Cumulative Preferred Stock, Series F	AGM.PRF	New York Stock Exchange
4.875% Non-Cumulative Preferred Stock, Series G	AGM.PRG	New York Stock Exchange

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

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 May 2, 2023, the registrant had outstanding 1,030,780 shares of Class A voting common stock, 500,301 shares of Class B voting common stock, and 9,301,329 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	
	March 31, 2023	December 31, 2022
	(in thousands)	
Assets:		
Cash and cash equivalents	$ 864,594	$ 861,002
Investment securities:		
Available-for-sale, at fair value (amortized cost of $4,788,254 and $4,769,426, respectively)	4,647,464	4,579,564
Held-to-maturity, at amortized cost	45,032	45,032
Other investments	3,672	3,672
Total Investment Securities	4,696,168	4,628,268
Farmer Mac Guaranteed Securities:		
Available-for-sale, at fair value (amortized cost of $8,565,328 and $8,019,495, respectively)	8,225,454	7,607,226
Held-to-maturity, at amortized cost	993,966	1,021,154
Total Farmer Mac Guaranteed Securities	9,219,420	8,628,380
USDA Securities:		
Trading, at fair value	1,405	1,767
Held-to-maturity, at amortized cost	2,358,928	2,409,834
Total USDA Securities	2,360,333	2,411,601
Loans:		
Loans held for investment, at amortized cost	8,915,656	9,008,979
Loans held for investment in consolidated trusts, at amortized cost	1,468,357	1,211,576
Allowance for losses	(15,673)	(15,089)
Total loans, net of allowance	10,368,340	10,205,466
Financial derivatives, at fair value	25,099	37,409
Accrued interest receivable (includes $9,885 and $12,514, respectively, related to consolidated trusts)	196,368	229,061
Guarantee and commitment fees receivable	46,670	47,151
Deferred tax asset, net	7,961	18,004
Prepaid expenses and other assets	154,994	266,768
Total Assets	$ 27,939,947	$ 27,333,110
Liabilities and Equity:		
Liabilities:		
Notes payable	$ 24,837,391	$ 24,469,113
Debt securities of consolidated trusts held by third parties	1,374,332	1,181,948
Financial derivatives, at fair value	166,963	175,326
Accrued interest payable (includes $6,170 and $8,081, respectively, related to consolidated trusts)	141,938	117,887
Guarantee and commitment obligation	46,114	46,582
Accounts payable and accrued expenses	79,188	68,863
Reserve for losses	1,636	1,433
Total Liabilities	26,647,562	26,061,152
Commitments and Contingencies (Note 6)		
Equity:		
Preferred stock:		
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	77,003
Series F, par value $25 per share, 4,800,000 shares authorized, issued and outstanding	116,160	116,160
Series G, par value $25 per share, 5,000,000 shares authorized, issued and outstanding	121,327	121,327
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, 9,288,482 shares and 9,270,265 shares outstanding, respectively	9,289	9,270
Additional paid-in capital	130,004	128,939
Accumulated other comprehensive loss, net of tax	(59,862)	(50,843)
Retained earnings	726,892	698,530
Total Equity	1,292,385	1,271,958
Total Liabilities and Equity	$ 27,939,947	$ 27,333,110

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	
	March 31, 2023	March 31, 2022
	(in thousands, except per share amounts)	
Interest income:		
Investments and cash equivalents	$ 59,703	$ 5,716
Farmer Mac Guaranteed Securities and USDA Securities	136,537	42,920
Loans	119,032	67,247
Total interest income	315,272	115,883
Total interest expense	236,214	50,345
Net interest income	79,058	65,538
Provision for losses	(547)	(56)
Net interest income after provision for losses	78,511	65,482
Non-interest income/(expense):		
Guarantee and commitment fees	3,933	3,695
Gains on financial derivatives	399	16,988
Gains/(losses) on trading securities	25	(63)
(Provision for)/release of reserve for losses	(203)	110
Other income	1,201	675
Non-interest income	5,355	21,405
Operating expenses:		
Compensation and employee benefits	15,351	13,298
General and administrative	7,527	7,278
Regulatory fees	835	812
Operating expenses	23,713	21,388
Income before income taxes	60,153	65,499
Income tax expense	13,118	14,046
Net income	47,035	51,453
Preferred stock dividends	(6,791)	(6,791)
Net income attributable to common stockholders	$ 40,244	$ 44,662
Earnings per common share:		
Basic earnings per common share	$ 3.73	$ 4.15
Diluted earnings per common share	$ 3.69	$ 4.10

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	
	March 31, 2023	March 31, 2022
	(in thousands	
Net income	$ 47,035	$ 51,453
Other comprehensive (loss)/income:		
Net unrealized gains/(losses) on available-for-sale securities	658	(86,267)
Net changes in held-to-maturity securities	(782)	(23)
Net unrealized (losses)/gains on cash flow hedges	(11,292)	31,204
Other comprehensive loss before tax	(11,416)	(55,086)
Income tax benefit related to other comprehensive loss	2,397	11,568
Other comprehensive loss net of tax	(9,019)	(43,518)
Comprehensive income	$ 38,016	$ 7,935

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, 2022	19,980	$ 484,531	10,801	$ 10,801	$ 128,939	$ (50,843)	$ 698,530	$1,271,958
Net Income	—	—	—	—	—	—	47,035	47,035
Other comprehensive loss, net of tax	—	—	—	—	—	(9,019)	—	(9,019)
Cash dividends:								
Preferred stock	—	—	—	—	—	—	(6,791)	(6,791)
Common stock (cash dividend of $1.10 per share)	—	—	—	—	—	—	(11,882)	(11,882)
Issuance of Class C Common Stock	—	—	19	19	51	—	—	70
Stock-based compensation cost	—	—	—	—	2,254	—	—	2,254
Other stock-based award activity	—	—	—	—	(1,240)	—	—	(1,240)
Balance as of March 31, 2023	19,980	$ 484,531	10,820	$ 10,820	$ 130,004	$ (59,862)	$ 726,892	$1,292,385
Balance as of December 31, 2021	19,980	$ 484,531	10,766	$ 10,766	$ 125,993	$ 3,853	$ 588,557	$1,213,700
Net Income	—	—	—	—	—	—	51,453	51,453
Other comprehensive loss, net of tax	—	—	—	—	—	(43,518)	—	(43,518)
Cash dividends:								
Preferred stock	—	—	—	—	—	—	(6,791)	(6,791)
Common stock (cash dividend of $0.95 per share)	—	—	—	—	—	—	(10,229)	(10,229)
Issuance of Class C Common Stock	—	—	22	22	46	—	—	68
Stock-based compensation cost	—	—	—	—	2,113	—	—	2,113
Other stock-based award activity	—	—	—	—	(1,049)	—	—	(1,049)
Balance as of March 31, 2022	19,980	$ 484,531	10,788	$ 10,788	$ 127,103	$ (39,665)	$ 622,990	$1,205,747

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 Three Months Ended	
	March 31, 2023	March 31, 2022
	(in thousands)	
Cash flows from operating activities:		
Net income	$ 47,035	$ 51,453
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	(2,337)	1,913
Amortization of debt premiums, discounts, and issuance costs	10,217	2,018
Net change in fair value of trading securities, hedged assets, and financial derivatives	(62,398)	235,964
Total provision for/(release of) allowance for losses	750	(54)
Excess tax benefits related to stock-based awards	(201)	(137)
Deferred income taxes	12,440	2,794
Stock-based compensation expense	2,255	2,113
Proceeds from repayment of loans purchased as held for sale	17,360	15,028
Net change in:		
Interest receivable	29,510	32,277
Guarantee and commitment fees receivable	13	(124)
Other assets	22,195	(64,176)
Accrued interest payable	24,051	1,072
Custodial deposit liability	(32,102)	(17,027)
Other liabilities	(8,227)	6,191
Net cash provided by/(used in) operating activities	60,561	269,305
Cash flows from investing activities:		
Purchases of available-for-sale investment securities	(375,153)	(845,114)
Purchases of other investment securities	—	(275)
Purchases of Farmer Mac Guaranteed Securities and USDA Securities	(716,412)	(1,720,619)
Purchases of loans held for investment	(554,787)	(718,008)
Proceeds from repayment of available-for-sale investment securities	505,848	418,414
Proceeds from repayment of Farmer Mac Guaranteed Securities and USDA Securities	247,706	1,659,253
Proceeds from repayment of loans purchased as held for investment	431,483	463,602
Proceeds from sale of Farmer Mac Guaranteed Securities	—	25,928
Net cash used in investing activities	(461,315)	(716,819)
Cash flows from financing activities:		
Proceeds from issuance of discount notes	11,196,195	13,577,266
Proceeds from issuance of medium-term notes	1,383,319	2,626,165
Proceeds from third parties from issuance of debt securities of consolidated trusts	222,188	—
Payments to redeem discount notes	(10,913,679)	(13,854,017)
Payments to redeem medium-term notes	(1,428,500)	(1,790,815)
Payments to third parties on debt securities of consolidated trusts	(36,573)	(112,731)
Proceeds from common stock issuance	51	46
Tax payments related to share-based awards	18	(119)
Dividends paid on common and preferred stock	(18,673)	(17,020)
Net cash provided by financing activities	404,346	428,775
Net change in cash and cash equivalents	3,592	(18,739)
Cash and cash equivalents at beginning of period	861,002	908,785
Cash and cash equivalents at end of period	$ 864,594	$ 890,046

Non-cash activity:		
Loans securitized as Farmer Mac Guaranteed Securities	4,174	25,928
Loans held for investment transferred to consolidated trusts	281,027	—
Reclassification of loans held for investment to loans held for sale	—	9,000
Matured securities receivable	(97,500)	(1,566)
(Recovery)/charge-off from the allowance for losses	—	84
Loan payoff not yet received	(4,537)	—
Purchases of securities - traded, not yet settled	49,414	348,020

The accompanying notes are an integral part of these 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, 2022 consolidated balance sheet presented in this report has been derived from Farmer Mac's audited 2022 consolidated financial statements, as revised. 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 2022 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, 2022, as filed with the SEC on February 24, 2023. 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 months ended March 31, 2023.

Farmer Mac has revised its prior period financial information to correct an error that was not material to those previous consolidated financial statements, taken as a whole. For more information on the revision, refer to Note 11, Revision of Prior Period Financial Statements.

Principles of Consolidation

The consolidated financial statements include the accounts of Farmer Mac and its two subsidiaries: (1) Farmer Mac Mortgage Securities Corporation, 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 Securities included in the Agricultural Finance line of business. The consolidated financial statements also include the accounts of Variable Interest Entities ("VIEs") in which Farmer Mac determined itself to be the primary beneficiary.

Table 1.1

	Consolidation of Variable Interest Entities		
	As of March 31, 2023		
	Agricultural Finance	Treasury	Total
		(in thousands)	
On-Balance Sheet:			
Consolidated VIEs:			
Loans held for investment in consolidated trusts, at amortized cost	$ 1,468,357	$ —	$ 1,468,357
Debt securities of consolidated trusts held by third parties [(1)(2)]	1,374,332	—	1,374,332
Unconsolidated VIEs:			
Farmer Mac Guaranteed Securities:			
Carrying value	28,447	—	28,447
Maximum exposure to loss [(3)]	30,570	—	30,570
Investment securities:			
Carrying value [(4)]	—	3,366,020	3,366,020
Maximum exposure to loss [(3) (4)]	—	3,540,724	3,540,724
Off-Balance Sheet:			
Unconsolidated VIEs:			
Farmer Mac Guaranteed Securities:			
Maximum exposure to loss [(3) (5)]	488,094	—	488,094

(1) Includes borrower remittances of $0.6 million. The borrower remittances had not been passed through to third-party investors as of March 31, 2023.
(2) Includes $94.6 million in unamortized discount related to structured securitization transactions.
(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, government-sponsored enterprise ("GSE")-guaranteed mortgage-backed securities, and other mission related investments.
(5) The amount under the Agricultural Finance line of business relates to unconsolidated trusts where it was determined that Farmer Mac was either not the primary beneficiary due to shared power with an unrelated party or a subordinate class majority holder has the unilateral right to remove Farmer Mac as Master Servicer without cause.

	Consolidation of Variable Interest Entities		
	As of December 31, 2022		
	Agricultural Finance	Treasury	Total
		(in thousands)	
On-Balance Sheet:			
Consolidated VIEs:			
Loans held for investment in consolidated trusts, at amortized cost	$ 1,211,576	$ —	$ 1,211,576
Debt securities of consolidated trusts held by third parties [(1)(2)]	1,181,948	—	1,181,948
Unconsolidated VIEs:			
Farmer Mac Guaranteed Securities:			
Carrying value	28,466	—	28,466
Maximum exposure to loss [(3)]	31,208	—	31,208
Investment securities:			
Carrying value [(4)]	—	3,138,619	3,138,619
Maximum exposure to loss [(3)(4)]	—	3,341,427	3,341,427
Off-Balance Sheet:			
Unconsolidated VIEs:			
Farmer Mac Guaranteed Securities:			
Maximum exposure to loss [(3)(5)]	500,953	—	500,953

(1) Includes borrower remittances of $8.1 million. The borrower remittances had not been passed through to third-party investors as of December 31, 2022.
(2) Includes $37.7 million in unamortized discount related to a structured securitization transaction.
(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, government-sponsored enterprise ("GSE")-guaranteed mortgage-backed securities, and other mission related investments.
(5) The amount under the Agricultural Finance line of business relates to unconsolidated trusts where it was determined that Farmer Mac was either not the primary beneficiary due to shared power with an unrelated party or a subordinate class majority holder has the unilateral right to remove Farmer Mac as Master Servicer without cause.

(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 months ended March 31, 2023 and 2022:

Table 1.2

	For the Three Months Ended					
	March 31, 2023			March 31, 2022		
	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	$ 40,244	10,802	$ 3.73	$ 44,662	10,767	$ 4.15
Effect of dilutive securities[1]						
SARs and restricted stock	—	116	(0.04)	—	120	(0.05)
Diluted EPS	$ 40,244	10,918	$ 3.69	$ 44,662	10,887	$ 4.10

[1] For the three months ended March 31, 2023 and 2022, SARs and restricted stock of 62,709 and 50,005 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 March 31, 2023 and 2022, contingent shares of unvested restricted stock of 32,282 and 18,535 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 months ended March 31, 2023 and 2022.

Table 1.3

	As of March 31, 2023				As of March 31, 2022			
	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	$ (115,561)	$ 16,357	$ 48,361	$ (50,843)	$ (6,932)	$ 16,153	$ (5,368)	$ 3,853
Other comprehensive (loss)/income before reclassifications	525	—	(5,452)	(4,927)	(68,148)	—	23,062	(45,086)
Amounts reclassified from AOCI	(5)	(618)	(3,469)	(4,092)	(3)	(19)	1,590	1,568
Net comprehensive (loss)/income	520	(618)	(8,921)	(9,019)	(68,151)	(19)	24,652	(43,518)
Ending Balance	$ (115,041)	$ 15,739	$ 39,440	$ (59,862)	$ (75,083)	$ 16,134	$ 19,284	$ (39,665)

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 months ended March 31, 2023 and 2022:

Table 1.4

	For the Three Months Ended					
	March 31, 2023			March 31, 2022		
	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	$ 664	$ 139	$ 525	$ (86,263)	$ (18,115)	$ (68,148)
Less reclassification adjustments included in:						
Net interest income[1]	—	—	—	—	—	—
Other income[2]	(6)	(1)	(5)	(4)	(1)	(3)
Total	$ 658	$ 138	$ 520	$ (86,267)	$ (18,116)	$ (68,151)
Held-to-maturity securities:						
Less reclassification adjustments included in:						
Net interest income[3]	(782)	(164)	(618)	(23)	(4)	(19)
Total	$ (782)	$ (164)	$ (618)	$ (23)	$ (4)	$ (19)
Cash flow hedges						
Unrealized (losses)/gains on cash flow hedges	$ (6,901)	$ (1,449)	$ (5,452)	$ 29,193	$ 6,131	$ 23,062
Less reclassification adjustments included in:						
Net interest income[4]	(4,391)	(922)	(3,469)	2,011	421	1,590
Total	$ (11,292)	$ (2,371)	$ (8,921)	$ 31,204	$ 6,552	$ 24,652
Other comprehensive loss	$ (11,416)	$ (2,397)	$ (9,019)	$ (55,086)	$ (11,568)	$ (43,518)

(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) New Accounting Standards

Recently Adopted Accounting Guidance

Standard	Description	Date of Adoption	Effect on Consolidated Financial Statements
ASU 2020-04 and 2021-01, 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.	January 1, 2020	Farmer Mac adopted optional expedients specific to discounting transition on a retrospective basis, and as a result of this election, the discounting transition did not have a material effect on Farmer Mac's financial position, results of operations, or cash flows. Farmer Mac expects to adopt additional optional expedients, including contract modification relief, and does not expect this to have a material effect on Farmer Mac's financial position, results of operations, or cash flows.
ASU 2022-06, Reference Rate Reform (Topic 848): Deferral of the Sunset Date of Topic 848	The amendments in this Update deferred the sunset date in Topic 848 from December 31, 2022 to December 31, 2024.	December 21, 2022	Farmer Mac continues to evaluate the impact of ASC 848.
ASU 2022-02, Financial Instruments-Credit Losses (Topic 326): Troubled Debt Restructurings and Vintage Disclosures	The Update addresses and amends areas identified by the Financial Accounting Standards Board as part of its post-implementation review of the accounting standard that introduced the current expected credit losses ("CECL") model. The amendments eliminate the accounting guidance for troubled debt restructurings by creditors that have adopted the CECL model and enhance the disclosure requirements for loan refinancings and restructurings made with borrowers experiencing financial difficulty. In addition, the amendments require disclosure of current-period gross writeoffs for financing receivables and net investment in leases by year of origination in the vintage disclosures.	January 1, 2023	The adoption of this Update did not have a material effect on Farmer Mac's financial position, results of operations, or cash flows.

Recently Issued Accounting Guidance

Standard	Description	Effect on Consolidated Financial Statements
ASU 2022-01, Fair Value Hedging - Portfolio Layer Method	The Update introduces the portfolio layer method, which expands the current single-layer method to allow multiple hedged layers of a single closed portfolio under the method (previously named, last-of-layer method). Additionally, it expands the scope of the portfolio layer method to include non-prepayable assets, specifies eligible hedging instruments in a single-layer hedge, provides additional guidance on the accounting for and disclosure of hedge basis adjustments under the portfolio layer method, specifies how hedge basis adjustments should be considered when determining credit losses for the assets included in the closed portfolio, and provides that an entity may reclassify HTM debt securities identified within 30 days of the date of adoption to AFS if the entity applies portfolio layer method hedging to those debt securities.	Farmer Mac is continuing to evaluate the use of the portfolio layer method in its hedging programs, although future use of the standard is dependent on its asset-liability management strategies in the context of the then current interest rate outlook. Farmer Mac does not believe adoption of the standard will have a material effect on Farmer Mac's financial position, results of operations, or cash flows.

(d) Reclassifications

Certain reclassifications of prior period information were made to conform to the current period presentation. The reclassifications of prior period information were not material to the consolidated financial statements.

2. INVESTMENT SECURITIES

The following tables set forth information about Farmer Mac's available-for-sale and held-to-maturity investment securities as of March 31, 2023 and December 31, 2022:

Table 2.1

	As of March 31, 2023						
	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	$ (29)	$ —	$ (640)	$ 19,031
Floating rate Government/GSE guaranteed mortgage-backed securities	2,472,591	(1,089)	2,471,502	—	3,525	(24,442)	2,450,585
Fixed rate GSE guaranteed mortgage-backed securities	1,404,950	(41,950)	1,363,000	—	4,939	(113,091)	1,254,848
Fixed rate U.S. Treasuries	941,760	(7,708)	934,052	—	1,525	(12,577)	923,000
Total available-for-sale	4,839,001	(50,747)	4,788,254	(29)	9,989	(150,750)	4,647,464
Held-to-maturity:							
Floating rate Government/GSE guaranteed mortgage-backed securities[(3)]	45,032	—	45,032	—	611	—	45,643
Total held-to-maturity	$ 45,032	$ —	$ 45,032	$ —	$ 611	$ —	$ 45,643

(1) Amounts presented exclude $12.4 million of accrued interest receivable on investment securities as of March 31, 2023.
(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 5.8% as of March 31, 2023.

	As of December 31, 2022						
	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	$ (33)	$ —	$ (640)	$ 19,027
Floating rate Government/GSE guaranteed mortgage-backed securities	2,433,696	(200)	2,433,496	—	1,954	(42,910)	2,392,540
Fixed rate GSE guaranteed mortgage-backed securities	1,207,416	(30,321)	1,177,095	—	2,128	(130,837)	1,048,386
Fixed rate U.S. Treasuries	1,145,915	(6,780)	1,139,135	—	621	(20,145)	1,119,611
Total available-for-sale	4,806,727	(37,301)	4,769,426	(33)	4,703	(194,532)	4,579,564
Held-to-maturity:							
Floating rate Government/GSE guaranteed mortgage-backed securities[(3)]	45,032	—	45,032	—	2,433	—	47,465
Total held-to-maturity	$ 45,032	$ —	$ 45,032	$ —	$ 2,433	$ —	$ 47,465

(1) Amounts presented exclude $10.6 million of accrued interest receivable on investment securities as of December 31, 2022.
(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 4.5% as of December 31, 2022.

Farmer Mac did not sell any securities from its available-for-sale investment portfolio during the three months March 31, 2023 and 2022.

As of March 31, 2023 and December 31, 2022, unrealized losses on available-for-sale investment securities were as follows:

Table 2.2

	As of March 31, 2023			
	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	$ —	$ —	$ 19,031	$ (640)
Floating rate Government/GSE guaranteed mortgage-backed securities	1,224,206	(12,915)	586,996	(11,527)
Fixed rate Government/GSE guaranteed mortgage-backed securities	527,300	(22,689)	476,963	(90,402)
Fixed rate U.S. Treasuries	162,248	(357)	637,610	(12,220)
Total	$ 1,913,754	$ (35,961)	$ 1,720,600	$ (114,789)
Number of securities in loss position		121		87

	As of December 31, 2022			
	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	$ —	$ —	$ 19,027	$ (640)
Floating rate Government/GSE guaranteed mortgage-backed securities	1,884,146	(36,976)	193,964	(5,934)
Fixed rate Government/GSE guaranteed mortgage-backed securities	621,215	(56,434)	336,782	(74,403)
Fixed rate U.S. Treasuries	314,524	(2,842)	704,780	(17,303)
Total	$ 2,819,885	$ (96,252)	$ 1,254,553	$ (98,280)
Number of securities in loss position		174		51

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 March 31, 2023 and December 31, 2022, 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 March 31, 2023 and December 31, 2022, 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 March 31, 2023 that is, on average, approximately 93.7% 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 March 31, 2023 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 March 31, 2023		
	Available-for-Sale Securities		
	Amortized Cost	Fair Value	Weighted-Average Yield
		(dollars in thousands)	
Due within one year	$ 663,812	$ 654,546	0.35%
Due after one year through five years	652,643	646,658	3.91%
Due after five years through ten years	2,656,056	2,541,681	3.91%
Due after ten years	815,743	804,579	4.89%
Total	$ 4,788,254	$ 4,647,464	3.58%

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 March 31, 2023 and December 31, 2022:

Table 3.1

	As of March 31, 2023						
	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	$ 973,697	$ (87)	$ 973,610	$ (57)	$ 445	$ (43,839)	$ 930,159
Farmer Mac Guaranteed USDA Securities	20,381	32	20,413	—	14	(829)	19,598
Total Farmer Mac Guaranteed Securities	994,078	(55)	994,023	(57)	459	(44,668)	949,757
USDA Securities	2,334,923	24,005	2,358,928	—	475	(216,826)	2,142,577
Total held-to-maturity	$ 3,329,001	$ 23,950	$ 3,352,951	$ (57)	$ 934	$ (261,494)	$ 3,092,334
Available-for-sale:							
AgVantage	$ 8,554,373	$ 766	$ 8,555,139	$ (515)	$ 7,296	$ (344,500)	$ 8,217,420
Farmer Mac Guaranteed Securities[(3)]	—	10,189	10,189	—	—	(2,155)	8,034
Total available-for-sale	$ 8,554,373	$ 10,955	$ 8,565,328	$ (515)	$ 7,296	$ (346,655)	$ 8,225,454
Trading:							
USDA Securities[(4)]	$ 1,391	$ 72	$ 1,463	$ —	$ —	$ (58)	$ 1,405

(1) Amounts presented exclude $63.6 million, $36.9 million, and $27,000 of accrued interest receivable on available-for-sale, held-to-maturity, and trading securities, respectively, as of March 31, 2023.

(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) Fair value includes $8.0 million of an interest-only security with a notional amount of $244.6 million.

(4) The trading USDA securities had a weighted average yield of 5.52% as of March 31, 2023.

	As of December 31, 2022						
	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	$ 1,000,689	$ (95)	$ 1,000,594	$ (59)	$ 353	$ (54,098)	$ 946,790
Farmer Mac Guaranteed USDA Securities	20,586	33	20,619	—	2	(856)	19,765
Total Farmer Mac Guaranteed Securities	1,021,275	(62)	1,021,213	(59)	355	(54,954)	966,555
USDA Securities	2,384,946	24,888	2,409,834	—	668	(312,824)	2,097,678
Total held-to-maturity	$ 3,406,221	$ 24,826	$ 3,431,047	$ (59)	$ 1,023	$ (367,778)	$ 3,064,233
Available-for-sale:							
AgVantage	$ 8,008,067	$ 806	$ 8,008,873	$ (546)	$ 2,061	$ (411,009)	$ 7,599,379
Farmer Mac Guaranteed Securities[(3)]	—	10,622	10,622	—	—	(2,775)	$ 7,847
Total available-for-sale	$ 8,008,067	$ 11,428	$ 8,019,495	$ (546)	$ 2,061	$ (413,784)	$ 7,607,226
Trading:							
USDA Securities[(4)]	$ 1,770	$ 80	$ 1,850	$ —	$ —	$ (83)	$ 1,767

(1) Amounts presented exclude $51.5 million, $44.4 million, and $47,000 of accrued interest receivable on available-for-sale, held-to-maturity, and trading securities, respectively, as of December 31, 2022.

(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) Fair value includes $7.8 million of an interest-only security with a notional amount of $250.1 million.

(4) The trading USDA securities had a weighted average yield of 4.84% as of December 31, 2022.

As of March 31, 2023 and December 31, 2022, 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 March 31, 2023			
	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	$ 421,384	$ (5,449)	$ 485,324	$ (38,390)
Farmer Mac Guaranteed USDA Securities	8,969	(531)	9,328	(298)
USDA Securities	—	—	2,130,022	(216,826)
Total held-to-maturity	$ 430,353	$ (5,980)	$ 2,624,674	$ (255,514)
Available-for-sale:				
AgVantage	$ 4,087,761	$ (132,418)	$ 2,566,073	$ (212,082)
Farmer Mac Guaranteed Securities	—	—	8,034	(2,155)
Total available-for-sale	$ 4,087,761	$ (132,418)	$ 2,574,107	$ (214,237)

	As of December 31, 2022							
	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	$	548,634	$	(11,455)	$	382,358	$	(42,643)
Farmer Mac Guaranteed USDA Securities		19,790		(856)		—		—
USDA Securities		2,086,108		(312,824)		—		—
Total held-to-maturity	$	2,654,532	$	(325,135)	$	382,358	$	(42,643)
Available-for-sale:								
AgVantage	$	4,642,096	$	(267,886)	$	1,548,551	$	(143,123)
Farmer Mac Guaranteed Securities		7,847		(2,775)		—		—
Total available-for-sale	$	4,649,943	$	(270,661)	$	1,548,551	$	(143,123)

The unrealized losses presented above are principally due to changes in interest rates from the date of acquisition to March 31, 2023 and December 31, 2022, as applicable.

The credit exposure related to Farmer Mac's USDA Securities in the Agricultural Finance line of business is covered by the full faith and credit guarantee of the United States of America.

The unrealized losses from AgVantage securities were on 94 and 95 available-for-sale securities as of March 31, 2023 and December 31, 2022, respectively. There were 33 and 37 held-to-maturity AgVantage securities with an unrealized loss as of March 31, 2023 and December 31, 2022, respectively. As of March 31, 2023 and December 31, 2022, 28 and 13 available-for-sale AgVantage securities, respectively, had been in a loss position for more than 12 months. As of March 31, 2023 and December 31, 2022, there were 16 and 4 held-to-maturity AgVantage securities, respectively, in a loss position for more than 12 months.

During the three months ended March 31, 2023 and 2022 Farmer Mac had no sales of AgVantage Farmer Mac Guaranteed Securities, USDA Farmer Mac Guaranteed Securities or USDA Trading 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 March 31, 2023 are set forth below. The balances presented are based on their contractual maturities, although the actual maturities may differ due to prepayments of the underlying assets.

Table 3.3

	As of March 31, 2023		
	Available-for-Sale Securities		
	Amortized Cost(1)	Fair Value	Weighted-Average Yield
	(dollars in thousands)		
Due within one year	$ 2,243,310	$ 2,239,632	4.69 %
Due after one year through five years	3,366,125	3,248,962	3.59 %
Due after five years through ten years	1,248,415	1,174,976	3.61 %
Due after ten years	1,707,478	1,561,884	4.23 %
Total	$ 8,565,328	$ 8,225,454	4.00 %

(1) Amounts presented exclude $63.6 million of accrued interest receivable.

	As of March 31, 2023		
	Held-to-Maturity Securities		
	Amortized Cost(1)	Fair Value	Weighted-Average Yield
	(dollars in thousands)		
Due within one year	$ 363,620	$ 359,461	2.92 %
Due after one year through five years	646,909	602,242	2.20 %
Due after five years through ten years	280,707	256,997	3.25 %
Due after ten years	2,061,715	1,873,634	3.36 %
Total	$ 3,352,951	$ 3,092,334	3.05 %

(1) Amounts presented exclude $36.9 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. Certain financial derivatives are designated as fair value hedges of fixed rate assets, classified as available-for-sale, to protect against fair value changes in the assets related to changes in a benchmark interest rate (e.g., LIBOR or SOFR). Certain other financial derivatives are designated as cash flow hedges to mitigate the volatility of future interest rate payments on floating rate debt. Certain financial derivatives are not designated in hedge accounting relationships.

Farmer Mac manages the interest rate risk related to loans it has committed to acquire, but has not yet permanently funded, primarily through the use of forward sale contracts on the debt of other GSEs and futures contracts involving U.S. Treasury securities. Farmer Mac uses forward sale contracts on GSE securities to reduce its interest rate exposure to changes in both U.S. Treasury rates and spreads on Farmer Mac debt. Farmer Mac aims to achieve a duration-matched hedge ratio between the hedged item and the hedge instrument. Gains or losses generated by these hedge transactions are expected to offset changes in funding costs. All financial derivatives are recorded on the balance sheet at fair value as a freestanding asset or liability.

The following tables summarize information related to Farmer Mac's financial derivatives on a gross basis without giving consideration to master netting arrangements. The table below includes accrued interest on cleared swaps, but excludes $8.2 million and $6.1 million of accrued interest receivable and $4.5 million and $3.6 million of accrued interest payable on uncleared swaps as of March 31, 2023 and December 31, 2022, respectively. The aforementioned accrued interest on uncleared swaps is included within Accrued Interest Receivable and Accrued Interest Payable on the consolidated balance sheets.

Table 4.1

	As of March 31, 2023						
		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:							
Receive fixed non-callable	$ 10,227,735	$ 9,431	$ (48)	4.86%	2.28%		1.57
Pay fixed non-callable	8,344,447	48	(31,690)	2.25%	4.84%		10.65
Receive fixed callable	3,065,577	1,380	(142,980)	4.75%	2.28%		2.85
Cash flow hedges:							
Interest rate swaps:							
Pay fixed non-callable	575,000	22,436	(1,078)	1.93%	5.23%		4.91
No hedge designation:							
Interest rate swaps:							
Pay fixed non-callable	182,072	578	(460)	3.00%	4.82%		4.39
Receive fixed non-callable	763,753	298	(10)	4.87%	3.40%		0.69
Basis swaps	1,845,384	114	(497)	4.82%	4.89%		2.24
Treasury futures	16,700	614	—			111.25	
Netting adjustments[1]		(9,800)	9,800				
Total financial derivatives	$ 25,020,668	$ 25,099	$ (166,963)				

[1] Amounts represent the application of the netting requirements that allow Farmer Mac to settle positive and negative positions, including accrued interest, held or placed with the same clearing agent.

	As of December 31, 2022						
		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:							
Receive fixed non-callable	$ 10,033,750	$ 19	$ (4,686)	4.31%	2.03%		1.64
Pay fixed non-callable	8,149,871	13,689	(366)	2.23%	4.33%		10.76
Receive fixed callable	2,764,577	461	(174,757)	4.21%	1.98%		3.18
Cash flow hedges:							
Interest rate swaps:							
Pay fixed non-callable	588,000	27,275	—	1.93%	4.72%		5.05
No hedge designation:							
Interest rate swaps:							
Pay fixed non-callable	187,479	1,065	(1)	3.05%	4.09%		4.52
Receive fixed non-callable	287,750	—	(130)	4.31%	1.16%		1.76
Basis swaps	1,860,384	112	(456)	4.40%	4.42%		2.46
Treasury futures	6,800	—	(142)			114.38	
Netting adjustments[(1)]		(5,212)	5,212				
Total financial derivatives	$ 23,878,611	$ 37,409	$ (175,326)				

(1) Amounts represent the application of the netting requirements that allow Farmer Mac to settle positive and negative positions, including accrued interest, held or placed with the same clearing agent.

As of March 31, 2023, Farmer Mac expects to reclassify $13.7 million after-tax from accumulated other comprehensive income to earnings over the next twelve months related to cash flow hedges. This amount could differ from amounts actually recognized due to changes in interest rates, hedge de-designations, and the addition of other hedges after March 31, 2023. During the three months ended March 31, 2023 and 2022, 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 tables summarize the net income/(expense) recognized in the consolidated statements of operations related to derivatives for the three months ended March 31, 2023 and 2022:

Table 4.2

	For the Three Months Ended March 31, 2023					
	Net Income/(Expense) Recognized in Consolidated Statement of Operations on Derivatives					
	Net Interest Income				Non-Interest Income	
	Interest Income Investments and Cash Equivalents	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	$ 59,703	$ 136,537	$ 119,032	$ (236,214)	$ 399	$ 79,457
Income/(expense) related to interest settlements on fair value hedging relationships:						
Recognized on derivatives	6,549	28,909	13,180	(77,467)	—	(28,829)
Recognized on hedged items	6,961	41,971	15,208	(70,975)	—	(6,835)
Premium/discount amortization recognized on hedged items	268	—	—	(691)	—	(423)
Income/(expense) related to interest settlements on fair value hedging relationships	$ 13,778	$ 70,880	$ 28,388	$ (149,133)	$ —	$ (36,087)
Gains/(losses) on fair value hedging relationships:						
Recognized on derivatives	$ (27,153)	$ (93,792)	$ (56,681)	$ 122,540	$ —	$ (55,086)
Recognized on hedged items	27,428	93,295	56,957	(122,699)	—	54,981
Gains/(losses) on fair value hedging relationships	$ 275	$ (497)	$ 276	$ (159)	$ —	$ (105)
Expense related to interest settlements on cash flow hedging relationships:						
Interest settlements reclassified from AOCI into net income on derivatives	$ —	$ —	$ —	$ 4,391	$ —	$ 4,391
Recognized on hedged items	—	—	—	(7,190)	—	(7,190)
Discount amortization recognized on hedged items	—	—	—	(14)	—	(14)
Expense recognized on cash flow hedges	$ —	$ —	$ —	$ (2,813)	$ —	$ (2,813)
Gains on financial derivatives not designated in hedging relationships:						
Gains on interest rate swaps	$ —	$ —	$ —	$ —	$ 33	$ 33
Interest expense on interest rate swaps	—	—	—	—	(1,625)	(1,625)
Treasury futures	—	—	—	—	1,991	1,991
Gains on financial derivatives not designated in hedge relationships	$ —	$ —	$ —	$ —	$ 399	$ 399

	For the Three Months Ended March 31, 2022					
	Net Income/(Expense) Recognized in Consolidated Statement of Operations on Derivatives					
	Net Interest Income				Non-Interest Income	
	Interest Income Investments and Cash Equivalents	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:	$ 5,716	$ 42,920	$ 67,247	$ (50,345)	$ 16,988	$ 82,526
Income/(expense) related to interest settlements on fair value hedging relationships:						
Recognized on derivatives	(1,484)	(21,644)	(6,946)	14,200	—	(15,874)
Recognized on hedged items	2,597	31,929	12,619	(18,157)	—	28,988
Discount amortization recognized on hedged items	(414)	—	—	(440)	—	(854)
Income/(expense) related to interest settlements on fair value hedging relationships	$ 699	$ 10,285	$ 5,673	$ (4,397)	$ —	$ 12,260
Gains/(losses) on fair value hedging relationships:						
Recognized on derivatives	$ 33,425	$ 213,851	$ 131,932	$ (237,014)	$ —	$ 142,194
Recognized on hedged items	(32,726)	(210,648)	(129,607)	236,814	—	(136,167)
Gains/(losses) on fair value hedging relationships	$ 699	$ 3,203	$ 2,325	$ (200)	$ —	$ 6,027
Expense related to interest settlements on cash flow hedging relationships:						
Interest settlements reclassified from AOCI into net income on derivatives	$ —	$ —	$ —	$ (2,011)	$ —	$ (2,011)
Recognized on hedged items	—	—	—	(787)	—	(787)
Discount amortization recognized on hedged items	—	—	—	(13)	—	(13)
Expense recognized on cash flow hedges	$ —	$ —	$ —	$ (2,811)	$ —	$ (2,811)
Gains on financial derivatives not designated in hedge relationships:						
Gains on interest rate swaps	$ —	$ —	$ —	$ —	$ 1,617	$ 1,617
Interest expense on interest rate swaps	—	—	—	—	(927)	(927)
Treasury futures	—	—	—	—	16,298	16,298
Gains on financial derivatives not designated in hedge relationships	$ —	$ —	$ —	$ —	$ 16,988	$ 16,988

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 March 31, 2023 and December 31, 2022:

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)	
	March 31, 2023	December 31, 2022	March 31, 2023	December 31, 2022
	(in thousands)			
Investment securities, Available-for-Sale, at fair value	$ 1,007,588	$ 876,063	$ (79,678)	$ (107,107)
Farmer Mac Guaranteed Securities, Available-for-Sale, at fair value	4,885,795	4,814,784	(253,578)	(346,873)
Loans held for investment, at amortized cost	1,737,378	1,623,301	(270,321)	(327,278)
Notes Payable[1]	(12,753,526)	(12,151,382)	408,387	531,086

(1) Carrying amount represents amortized cost.

The following tables present the fair value of financial assets and liabilities, based on the terms of Farmer Mac's master netting arrangements as of March 31, 2023 and December 31, 2022:

Table 4.4

	March 31, 2023						
				Gross Amounts Not Offset in the Consolidated Balance Sheet			
	Gross Amount Recognized	Gross Amounts offset in the Consolidated Balance Sheet	Net Amount Presented in the Consolidated Balance Sheet[1]	Netting Adjustments	Financial instruments pledged	Cash Collateral[2]	Net Amount
	(in thousands)						
Assets:							
Uncleared derivatives	$ 24,077	$ —	$ 24,077	$ (23,463)	$ —	$ —	$ 614
Cleared derivatives	9,800	(9,800)	—	—	—	—	—
Total	$ 33,877	$ (9,800)	$ 24,077	$ (23,463)	$ —	$ —	$ 614
Liabilities:							
Uncleared derivatives	$ (123,198)	$ —	$ (123,198)	$ 23,463	$ —	$ 101,434	$ 1,699
Cleared derivatives	(33,291)	9,800	(23,491)	—	205,386	—	181,895
Total	$ (156,489)	$ 9,800	$ (146,689)	$ 23,463	$ 205,386	$ 101,434	$ 183,594

(1) Amounts presented may not agree to the consolidated balance sheet related to counterparties not subject to master netting agreements.
(2) Cash collateral excludes $19.1 million of collateral posted related to counterparties not subject to master netting agreements.

	December 31, 2022						
				Gross Amounts Not Offset in the Consolidated Balance Sheet			
	Gross Amount Recognized	Gross Amounts offset in the Consolidated Balance Sheet	Net Amount Presented in the Consolidated Balance Sheet[1]	Netting Adjustments	Financial instruments pledged	Cash Collateral[2]	Net Amount
	(in thousands)						
Assets:							
Uncleared derivatives	$ 27,132	$ —	$ 27,132	$ (27,132)	$ —	$ —	$ —
Cleared derivatives	14,450	(5,212)	9,238	—	203,993	—	213,231
Total	$ 41,582	$ (5,212)	$ 36,370	$ (27,132)	$ 203,993	$ —	$ 213,231
Liabilities:							
Uncleared derivatives	$ (149,864)	$ —	$ (149,864)	$ 27,132	$ —	$ 121,065	$ (1,667)
Cleared derivatives	(5,212)	5,212	—	—	—	—	—
Total	$ (155,076)	$ 5,212	$ (149,864)	$ 27,132	$ —	$ 121,065	$ (1,667)

(1) Amounts presented may not agree to the consolidated balance sheet related to counterparties not subject to master netting agreements.

(2) Cash collateral excludes $23.7 million of collateral posted related to counterparties not subject to master netting agreements.

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 March 31, 2023 or December 31, 2022, it could have been required to settle its obligations under the agreements, but would not have been required to post additional collateral. As of March 31, 2023 and December 31, 2022, 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 $25.0 billion notional amount of interest rate swaps outstanding as of March 31, 2023, $20.3 billion were cleared through the swap clearinghouse, the Chicago Mercantile Exchange ("CME"). Of Farmer Mac's $23.9 billion notional amount of interest rate swaps outstanding as of December 31, 2022, $19.5 billion were cleared through the CME. During 2023 and throughout 2022, Farmer Mac continued the use of non-cleared basis swaps to prepare for the transition away from the use of LIBOR as a reference rate.

5. LOANS

Farmer Mac classifies loans as either held for investment or held for sale. Loans held for investment are recorded at the unpaid principal balance, net of unamortized premium or discount and other cost basis adjustments. Loans held for sale are reported at the lower of cost or fair value determined on a pooled basis. As of both March 31, 2023 and December 31, 2022, Farmer Mac had no loans held for sale.

Under the Agricultural Finance line of business, Farmer Mac has two segments – Farm & Ranch and Corporate AgFinance. The segments are characterized by similarities in risk attributes and the manner in which Farmer Mac monitors and assesses credit risk.

The following table includes loans held for investment and displays the composition of the loan balances as of March 31, 2023 and December 31, 2022:

Table 5.1

	As of March 31, 2023			As of December 31, 2022		
	Unsecuritized	In Consolidated Trusts	Total	Unsecuritized	In Consolidated Trusts	Total
			(in thousands)			
Agricultural Finance loans						
Farm & Ranch	$ 4,837,722	$ 1,468,357	$ 6,306,079	$ 5,150,750	$ 1,211,576	$ 6,362,326
Corporate AgFinance	1,172,864	—	1,172,864	1,166,253	—	1,166,253
Total Agricultural Finance loans	6,010,586	1,468,357	7,478,943	6,317,003	1,211,576	7,528,579
Rural Infrastructure Finance loans	3,178,104	—	3,178,104	3,021,266	—	3,021,266
Total unpaid principal balance[(1)]	9,188,690	1,468,357	10,657,047	9,338,269	1,211,576	10,549,845
Unamortized premiums, discounts, fair value hedge basis adjustment, and other cost basis adjustments	(273,034)	—	(273,034)	(329,290)	—	(329,290)
Total loans	8,915,656	1,468,357	10,384,013	9,008,979	1,211,576	10,220,555
Allowance for losses	(15,171)	(502)	(15,673)	(14,629)	(460)	(15,089)
Total loans, net of allowance	$ 8,900,485	$ 1,467,855	$ 10,368,340	$ 8,994,350	$ 1,211,116	$ 10,205,466

(1) 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 March 31, 2023 and December 31, 2022:

Table 5.2

	March 31, 2023	December 31, 2022
	Allowance for Losses	Allowance for Losses
	(in thousands)	
Loans:		
Agricultural Finance loans		
Farm & Ranch	$ 3,933	$ 4,044
Corporate AgFinance	7,039	2,731
Total Agricultural Finance Loans	10,972	6,775
Rural Infrastructure Finance loans	4,701	8,314
Total	$ 15,673	$ 15,089

The following is a summary of the changes in the allowance for losses for the three months ended March 31, 2023 and 2022:

Table 5.3

	For the Three Months Ended							
	March 31, 2023				March 31, 2022			
	Agricultural Finance loans			Rural Infrastructure Finance loans(3)	Agricultural Finance loans			Rural Infrastructure Finance loans(3)
	Farm & Ranch(1)	Corporate AgFinance(2)	Total		Farm & Ranch(1)	Corporate AgFinance(2)	Total	
	(in thousands)							
Beginning Balance	$ 4,044	$ 2,731	$ 6,775	$ 8,314	$ 2,882	$ 560	$ 3,442	$ 10,599
Provision for/(release of) losses	(111)	4,308	4,197	(3,613)	77	513	590	(977)
Charge-offs	—	—	—	—	(84)	—	(84)	—
Ending Balance	$ 3,933	$ 7,039	$ 10,972	$ 4,701	$ 2,875	$ 1,073	$ 3,948	$ 9,622

(1) As of March 31, 2023 and 2022, allowance for losses for Agricultural Finance Farm & Ranch loans includes $1.1 million and no allowance for collateral dependent assets secured by agricultural real estate, respectively.
(2) As of March 31, 2023 and 2022, allowance for losses for Agricultural Finance Corporate AgFinance loans includes $4.6 million and no allowance for collateral dependent assets secured by agricultural real estate, respectively.
(3) As of both March 31, 2023 and 2022, allowance for losses for Rural Infrastructure Finance loans includes no allowance for collateral dependent assets.

The $3.6 million net release from the allowance for the Rural Infrastructure Finance portfolio during the quarter ended March 31, 2023 was primarily attributable to an updated estimate of expected losses based on newly available industry data. The $4.2 million net provision to the allowance for the Agricultural Finance mortgage loan portfolio during the quarter ended March 31, 2023 was primarily attributable to declining valuation of a single agricultural storage and processing loan, due to its ongoing bankruptcy proceedings and an updated estimate of expected losses based on additional availability of industry data.

The net release from the allowance for Rural Infrastructure Finance loan losses of $1.0 million recorded during first quarter 2022 was primarily attributable to a risk rating upgrade on a single loan related to the borrower's successful securitization of a large payable incurred as a result of the arctic freeze that struck Texas in February 2021, and was partially offset by new loan volume. The $0.6 million net provision to the allowance for the Agricultural Finance mortgage loan portfolio during first quarter 2022 was primarily attributable to a risk rating downgrade on a single agricultural storage and processing loan.

The following table presents the unpaid principal balances by delinquency status of Farmer Mac's loans and non-performing assets as of March 31, 2023 and December 31, 2022:

Table 5.4

	As of March 31, 2023						
	Accruing						
	Current	30-59 Days	60-89 Days	90 Days and Greater[2]	Total Past Due	Nonaccrual loans[3][4]	Total Loans
	(in thousands)						
Loans[1]:							
Agricultural Finance loans							
Farm & Ranch	$ 6,210,739	$ 4,403	$ 1,989	$ 6,922	$ 13,314	$ 82,026	$ 6,306,079
Corporate AgFinance	1,159,609	—	—	—	—	13,255	1,172,864
Total Agricultural Finance loans	7,370,348	4,403	1,989	6,922	13,314	95,281	7,478,943
Rural Infrastructure Finance loans	3,178,104	—	—	—	—	—	3,178,104
Total	$10,548,452	$ 4,403	$ 1,989	$ 6,922	$ 13,314	$ 95,281	$10,657,047

(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 $16.1 million of nonaccrual loans for which there was no associated allowance. During the three months ended March 31, 2023, Farmer Mac received $0.5 million in interest on nonaccrual loans.

	As of December 31, 2022						
	Accruing						
	Current	30-59 Days	60-89 Days	90 Days and Greater[2]	Total Past Due	Nonaccrual loans[3][4]	Total Loans
	(in thousands)						
Loans[1]:							
Agricultural Finance loans							
Farm & Ranch	$ 6,287,326	$ 10,066	$ 392	$ 1,140	$ 11,598	$ 63,402	$ 6,362,326
Corporate AgFinance	1,150,690	—	—	—	—	15,563	1,166,253
Total Agricultural Finance loans	7,438,016	10,066	392	1,140	11,598	78,965	7,528,579
Rural Infrastructure Finance loans	3,021,266	—	—	—	—	—	3,021,266
Total	$10,459,282	$ 10,066	$ 392	$ 1,140	$ 11,598	$ 78,965	$10,549,845

(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 $22.0 million of nonaccrual loans for which there was no associated allowance. During the year ended December 31, 2022, Farmer Mac received $5.6 million in interest on nonaccrual loans.

Credit Quality Indicators

The following tables present credit quality indicators related to Agricultural Finance mortgage loans and Rural Infrastructure Finance loans held as of March 31, 2023 and December 31, 2022, by year of origination:

Table 5.5

	As of March 31, 2023							
	Year of Origination:							
	2023	2022	2021	2020	2019	Prior	Revolving Loans - Amortized Cost Basis	Total
	(in thousands)							
Agricultural Finance - Farm & Ranch loans[1]:								
Internally Assigned Risk Rating:								
Acceptable	$ 110,328	$1,160,657	$1,660,716	$1,155,561	$ 330,442	$1,141,358	$ 352,316	$ 5,911,378
Special mention[2]	3,926	76,144	69,920	24,128	24,410	22,625	13,547	234,700
Substandard[3]	—	7,115	7,873	20,865	32,881	80,931	10,336	160,001
Total	$ 114,254	$1,243,916	$1,738,509	$1,200,554	$ 387,733	$1,244,914	$ 376,199	$ 6,306,079
For the Three Months Ended March 31, 2023:								
Current period 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.

	As of March 31, 2023							
	Year of Origination:							
	2023	2022	2021	2020	2019	Prior	Revolving Loans - Amortized Cost Basis	Total
	(in thousands)							
Agricultural Finance - Corporate AgFinance[1]:								
Internally Assigned Risk Rating:								
Acceptable	$ 91,825	$ 144,361	$ 280,569	$ 124,825	$ 107,234	$ 119,813	$ 216,575	$ 1,085,202
Special mention[2]	—	—	—	51,737	20,525	—	2,145	74,407
Substandard[3]	11,099	—	—	1,128	—	—	1,028	13,255
Total	$ 102,924	$ 144,361	$ 280,569	$ 177,690	$ 127,759	$ 119,813	$ 219,748	$ 1,172,864
For the Three Months Ended March 31, 2023:								
Current period 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.

	As of March 31, 2023							
	Year of Origination:							
	2023	2022	2021	2020	2019	Prior	Revolving Loans - Amortized Cost Basis	Total
	(in thousands)							
Rural Infrastructure Finance loans[1]:								
Internally Assigned Risk Rating:								
Acceptable	$ 247,553	$ 727,714	$ 177,165	$ 619,983	$ 730,252	$ 635,181	$ 40,256	$ 3,178,104
Special mention[2]	—	—	—	—	—	—	—	—
Substandard[3]	—	—	—	—	—	—	—	—
Total	$ 247,553	$ 727,714	$ 177,165	$ 619,983	$ 730,252	$ 635,181	$ 40,256	$ 3,178,104
For the Three Months Ended March 31, 2023:								
Current period 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.

	As of December 31, 2022							
	Year of Origination:							
	2022	2021	2020	2019	2018	Prior	Revolving Loans - Amortized Cost Basis	Total
	(in thousands)							
Agricultural Finance - Farm & Ranch loans[1]:								
Internally Assigned Risk Rating:								
Acceptable	$1,157,829	$1,704,547	$1,187,474	$ 360,704	$ 242,491	$ 947,535	$ 385,503	$ 5,986,083
Special mention[2]	91,099	68,260	25,629	11,254	5,325	17,797	2,452	221,816
Substandard[3]	3,094	8,814	22,976	23,937	17,845	67,654	10,107	154,427
Total	$1,252,022	$1,781,621	$1,236,079	$ 395,895	$ 265,661	$1,032,986	$ 398,062	$ 6,362,326
For the Three Months Ended March 31, 2022:								
Current period charge-offs	$ —	$ —	$ —	$ —	$ —	$ (84)	$ —	$ (84)

(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 December 31, 2022							
	Year of Origination:							
	2022	2021	2020	2019	2018	Prior	Revolving Loans - Amortized Cost Basis	Total
	(in thousands)							
Agricultural Finance - Corporate AgFinance loans[1]:								
Internally Assigned Risk Rating:								
Acceptable	$ 145,263	$ 299,729	$ 221,560	$ 108,230	$ 76,454	$ 44,827	$ 232,107	$ 1,128,170
Special mention[2]	—	—	—	20,698	—	—	2,145	22,843
Substandard[3]	—	—	4,598	—	—	—	10,642	15,240
Total	$ 145,263	$ 299,729	$ 226,158	$ 128,928	$ 76,454	$ 44,827	$ 244,894	$ 1,166,253
For the Three Months Ended March 31, 2022:								
Current period 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.

	As of December 31, 2022							
	Year of Origination:							
	2022	2021	2020	2019	2018	Prior	Revolving Loans - Amortized Cost Basis	Total
	(in thousands)							
Rural Infrastructure Finance loans[1]:								
Internally Assigned Risk Rating:								
Acceptable	$ 741,021	$ 220,420	$ 629,223	$ 739,270	$ 7,932	$ 649,830	$ 33,570	$ 3,021,266
Special mention[2]	—	—	—	—	—	—	—	—
Substandard[3]	—	—	—	—	—	—	—	—
Total	$ 741,021	$ 220,420	$ 629,223	$ 739,270	$ 7,932	$ 649,830	$ 33,570	$ 3,021,266
For the Three Months Ended March 31, 2022:								
Current period 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.

6. GUARANTEES AND COMMITMENTS

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 March 31, 2023 and December 31, 2022, 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 March 31, 2023	As of December 31, 2022
	(in thousands)	
Agricultural Finance		
Farmer Mac Guaranteed Securities	$ 488,095	$ 500,953
Rural Infrastructure Finance		
Farmer Mac Guaranteed Securities	1,098	1,169
Total off-balance sheet Farmer Mac Guaranteed Securities	$ 489,193	$ 502,122

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 Three Months Ended	
	March 31, 2023	March 31, 2022
	(in thousands)	
Proceeds from new securitizations	$ 222,188	$ 25,928
Guarantee fees received	487	577

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 March 31, 2023	As of December 31, 2022
	(dollars in thousands)	
Guarantee and commitment obligation	$ 6,269	$ 6,461
Weighted average remaining maturity:		
Farmer Mac Guaranteed Securities	21.3 years	21.4 years
AgVantage Securities	1.7 years	2.0 years

Long-Term Standby Purchase Commitments

Farmer Mac has recorded a liability for its obligation to stand ready under the commitment 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 March 31, 2023	As of December 31, 2022
	(dollars in thousands)	
Guarantee and commitment obligation[1]	$ 39,845	$ 40,121
Maximum principal amount	3,423,092	3,423,155
Weighted-average remaining maturity	15.0 years	15.3 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 March 31, 2023 and December 31, 2022:

Table 6.5

	March 31, 2023	December 31, 2022
	Reserve for Losses	Reserve for Losses
	(in thousands)	
Agricultural Finance	$ 1,396	$ 819
Rural Infrastructure Finance	240	614
Total	$ 1,636	$ 1,433

The following is a summary of the changes in the reserve for losses for the three month period ended March 31, 2023 and 2022:

Table 6.6

	For the Three Months Ended	
	March 31, 2023	March 31, 2022
	Reserve for Losses	Reserve for Losses
	(in thousands)	
Agricultural Finance		
Beginning Balance	$ 819	$ 1,068
Provision for/(release of)losses	577	(75)
Ending Balance	$ 1,396	$ 993
Rural Infrastructure Finance		
Beginning Balance	$ 614	$ 882
Release of losses	(374)	(35)
Ending Balance	$ 240	$ 847

The release from the reserve for losses in the Rural Infrastructure Finance LTSPC portfolio recorded during first quarter 2023 was primarily due to an updated estimate of expected losses based on additional available industry data. The provision to the reserve for losses in the Agricultural Finance LTSPC portfolio recorded during first quarter 2023 was primarily due to an updated estimate of expected losses based on additional available industry data.

The release from the reserve for losses in both the Agricultural Finance and Rural Infrastructure Finance LTSPC portfolios and Farmer Mac Guaranteed portfolios recorded during the three months ended March 31, 2022
was primarily due to decreased net volume in those portfolios.

The following table presents the unpaid principal balances by delinquency status of Agricultural Finance and Rural Infrastructure loans underlying LTSPCs and Farmer Mac Guaranteed Securities as of March 31, 2023 and December 31, 2022:

Table 6.7

	As of March 31, 2023					
	Current	30-59 Days	60-89 Days	90 Days and Greater[(1)]	Total Past Due	Total Loans
	(in thousands)					
Agricultural Finance:	$ 3,193,633	$ 2,432	$ 366	$ 5,045	$ 7,843	$ 3,201,476
Rural Infrastructure Finance:	503,588	—	—	—	—	503,588
Total	$ 3,697,221	$ 2,432	$ 366	$ 5,045	$ 7,843	$ 3,705,064

(1) Includes loans underlying off-balance sheet Farmer Mac 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.

	As of December 31, 2022					
	Current	30-59 Days	60-89 Days	90 Days and Greater[(1)]	Total Past Due	Total Loans
	(in thousands)					
Agricultural Finance:	$ 3,174,939	$ 11,614	$ 622	$ 3,817	$ 16,053	$ 3,190,992
Rural Infrastructure Finance:	523,192	—	—	—	—	523,192
Total	$ 3,698,131	$ 11,614	$ 622	$ 3,817	$ 16,053	$ 3,714,184

(1) Includes loans underlying off-balance sheet Farmer Mac 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.

Credit Quality Indicators

The following tables present credit quality indicators related to Agricultural Finance and Rural Infrastructure loans underlying LTSPCs and Farmer Mac Guaranteed Securities as of March 31, 2023 and December 31, 2022, by year of origination:

Table 6.8

	As of March 31, 2023							
	Year of Origination:							
	2023	2022	2021	2020	2019	Prior	Revolving Loans - Amortized Cost Basis	Total
	(in thousands)							
Agricultural Finance:								
Internally Assigned Risk Rating:								
Acceptable	$ 36,192	$ 232,811	$ 491,815	$ 529,545	$ 255,049	$1,273,859	$ 302,452	$3,121,723
Special mention[(1)]	—	73	1,310	1,763	—	41,605	3,186	47,937
Substandard[(2)]	—	—	—	154	407	27,929	3,326	31,816
Total	$ 36,192	$ 232,884	$ 493,125	$ 531,462	$ 255,456	$1,343,393	$ 308,964	$3,201,476
For the Three Months Ended March 31, 2023:								
Current period 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 March 31, 2023							
	Year of Origination:							
	2023	2022	2021	2020	2019	Prior	Revolving Loans - Amortized Cost Basis	Total
	(in thousands)							
Rural Infrastructure Finance:								
Internally Assigned Risk Rating:								
Acceptable	$ —	$ —	$ —	$ —	$ —	$ 441,459	$ 62,129	$ 503,588
Special mention[(1)]	—	—	—	—	—	—	—	—
Substandard[(2)]	—	—	—	—	—	—	—	—
Total	$ —	$ —	$ —	$ —	$ —	$ 441,459	$ 62,129	$ 503,588
For the Three Months Ended March 31, 2023:								
Current period 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 December 31, 2022							
	Year of Origination:							
	2022	2021	2020	2019	2018	Prior	Revolving Loans - Amortized Cost Basis	Total
	(in thousands)							
Agricultural Finance:								
Internally Assigned Risk Rating:								
Acceptable	$ 202,998	$ 496,269	$ 535,798	$ 254,293	$ 207,379	$1,107,834	$ 296,508	$3,101,079
Special mention[1]	—	1,319	1,778	—	1,198	42,680	3,205	50,180
Substandard[2]	—	—	176	—	3,588	32,597	3,372	39,733
Total	$ 202,998	$ 497,588	$ 537,752	$ 254,293	$ 212,165	$1,183,111	$ 303,085	$3,190,992
For the Three Months Ended March 31, 2022:								
Current period 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 December 31, 2022							
	Year of Origination:							
	2022	2021	2020	2019	2018	Prior	Revolving Loans - Amortized Cost Basis	Total
	(in thousands)							
Rural Infrastructure Finance:								
Internally Assigned Risk Rating:								
Acceptable	$ —	$ —	$ —	$ —	$ —	$ 470,659	$ 52,533	$ 523,192
Special mention[1]	—	—	—	—	—	—	—	—
Substandard[2]	—	—	—	—	—	—	—	—
Total	$ —	$ —	$ —	$ —	$ —	$ 470,659	$ 52,533	$ 523,192
For the Three Months Ended March 31, 2022:								
Current period 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.

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 25.0 years.

The following tables set forth information related to Farmer Mac's borrowings as of March 31, 2023 and December 31, 2022:

Table 7.1

	March 31, 2023			
	Outstanding as of March 31		Average Outstanding During the Quarter	
	Amount	Weighted-Average Rate	Amount	Weighted-Average Rate
	(dollars in thousands)			
Due within one year:				
Discount notes	$ 854,937	4.68 %	$ 622,185	4.40 %
Medium-term notes	2,519,784	3.80 %	2,584,922	3.71 %
Current portion of medium-term notes	5,049,859	1.81 %		
Total due within one year	$ 8,424,580	2.69 %		
Due after one year:				
Medium-term notes due in:				
Two years	$ 4,488,583	2.04 %		
Three years	3,373,635	1.92 %		
Four years	3,071,804	1.87 %		
Five years	1,986,249	3.66 %		
Thereafter	3,900,927	2.67 %		
Total due after one year	$ 16,821,198	2.32 %		
Total principal net of discounts	$ 25,245,778	2.45 %		
Hedging adjustments	(408,387)			
Total	$ 24,837,391			

	December 31, 2022			
	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	$ 565,578	3.91 %	$ 1,325,026	0.96 %
Medium-term notes	2,547,733	3.54 %	1,442,932	2.11 %
Current portion of medium-term notes	4,920,864	1.49 %		
Total due within one year	$ 8,034,175	2.31 %		
Due after one year:				
Medium-term notes due in:				
Two years	$ 4,072,740	1.71 %		
Three years	3,506,480	2.10 %		
Four years	2,967,625	1.44 %		
Five years	2,361,197	3.12 %		
Thereafter	4,057,982	2.60 %		
Total due after one year	$ 16,966,024	2.15 %		
Total principal net of discounts	$ 25,000,199	2.20 %		
Hedging adjustments	(531,086)			
Total	$ 24,469,113			

The maximum amount of Farmer Mac's discount notes outstanding at any month end during each of the three months ended March 31, 2023 and 2022 was $0.9 billion and $2.2 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 2023 as of March 31, 2023:

Table 7.2

Debt Callable in 2023 as of March 31, 2023, by Maturity		
	Amount	Weighted-Average Rate
	(dollars in thousands)	
Maturity:		
2024	$ 608,309	2.39 %
2025	765,897	2.07 %
2026	1,184,753	1.46 %
2027	650,044	2.30 %
Thereafter	1,698,054	2.21 %
Total	$ 4,907,057	2.04 %

The following schedule summarizes the earliest interest rate reset date, or debt maturities, of total borrowings outstanding as of March 31, 2023, 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:		
2023	$ 8,593,722	3.10 %
2024	4,363,936	1.94 %
2025	3,435,194	2.06 %
2026	3,004,738	1.49 %
2027	2,324,379	3.02 %
Thereafter	3,523,809	2.30 %
Total principal net of discounts	$ 25,245,778	2.45 %

During the three months ended March 31, 2023 and 2022, Farmer Mac called none and $26.0 million of callable medium-term notes, respectively.

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 to fulfill 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 March 31, 2023, Farmer Mac had not used this borrowing authority.

Gains on Repurchases of Outstanding Debt

No outstanding debt repurchases were made in the three months ended March 31, 2023 and 2022.

8. EQUITY

Common Stock

During first quarter 2023, Farmer Mac paid a quarterly dividend of $1.10 per share on all classes of its common stock. For each quarter in 2022, Farmer Mac paid a quarterly dividend of $0.95 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. In March 2021, Farmer Mac's board of directors reinstated the share repurchase program on its previous terms (with a remaining authorization of up to $9.8 million in stock repurchases) and extended the expiration date of the program to March 2023. Farmer Mac did not repurchase any shares of its Class C non-voting common stock during first quarter 2023. As of March 31, 2023, 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.

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 March 31, 2023 and December 31, 2022, 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 March 31, 2023, Farmer Mac's minimum capital requirement was $817.9 million and its core capital level was $1.4 billion, which was $534.4 million above the minimum capital requirement as of that date. As of December 31, 2022, Farmer Mac's minimum capital requirement was $805.9 million and its core capital level was $1.3 billion, which was $516.9 million above the minimum capital requirement as of that date.

In accordance with a rule of the Farm Credit Administration ("FCA") 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 March 31, 2023 and December 31, 2022, 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 March 31, 2023

	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	$ —	$ —	$ 19,031	$ 19,031
Floating rate Government/GSE guaranteed mortgage-backed securities	—	2,450,585	—	2,450,585
Fixed rate GSE guaranteed mortgage-backed securities	—	1,254,848	—	1,254,848
Fixed rate U.S. Treasuries	923,000	—	—	923,000
Total Available-for-sale Investment Securities	923,000	3,705,433	19,031	4,647,464
Farmer Mac Guaranteed Securities:				
Available-for-sale:				
AgVantage	—	—	8,217,420	8,217,420
Farmer Mac Guaranteed Securities	—	—	8,034	8,034
Total Farmer Mac Guaranteed Securities	—	—	8,225,454	8,225,454
USDA Securities:				
Trading	—	—	1,405	1,405
Total USDA Securities	—	—	1,405	1,405
Financial derivatives	614	24,485	—	25,099
Guarantee Asset	—	—	4,570	4,570
Total Assets at fair value	$ 923,614	$ 3,729,918	$ 8,250,460	$ 12,903,992
Liabilities:				
Financial derivatives	$ —	$ 166,963	$ —	$ 166,963
Total Liabilities at fair value	$ —	$ 166,963	$ —	$ 166,963

(1) Level 3 assets represent 30% of total assets and 63% of financial instruments measured at fair value.

Assets and Liabilities Measured at Fair Value as of December 31, 2022

	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	$ —	$ —	$ 19,027	$ 19,027
Floating rate Government/GSE guaranteed mortgage-backed securities	—	2,392,540	—	2,392,540
Fixed rate GSE guaranteed mortgage-backed securities	—	1,048,386	—	1,048,386
Fixed rate U.S. Treasuries	1,119,611	—	—	1,119,611
Total Available-for-sale Investment Securities	1,119,611	3,440,926	19,027	4,579,564
Farmer Mac Guaranteed Securities:				
Available-for-sale:				
AgVantage	—	—	7,599,379	7,599,379
Farmer Mac Guaranteed Securities	—	—	7,847	7,847
Total Farmer Mac Guaranteed Securities	—	—	7,607,226	7,607,226
USDA Securities:				
Trading	—	—	1,767	1,767
Total USDA Securities	—	—	1,767	1,767
Financial derivatives	—	37,409	—	37,409
Guarantee Asset	—	—	4,467	4,467
Total Assets at fair value	$ 1,119,611	$ 3,478,335	$ 7,632,487	$ 12,230,433
Liabilities:				
Financial derivatives	$ 142	$ 175,184	$ —	$ 175,326
Total Liabilities at fair value	$ 142	$ 175,184	$ —	$ 175,326

[1] Level 3 assets represent 28% of total assets and 62% of financial instruments measured at fair value.

There were no material assets or liabilities measured at fair value on a non-recurring basis as of March 31, 2023 or December 31, 2022.

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 three months ended March 31, 2023 and 2022, there were no transfers within the fair value hierarchy.

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 months ended March 31, 2023 and 2022.

Table 9.2

Level 3 Assets and Liabilities Measured at Fair Value for the Three Months Ended March 31, 2023

	Beginning Balance	Purchases	Settlements	Allowance for Losses	Realized and unrealized gains included in Income	Unrealized (losses)/gains 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	$ 19,027	$ —	$ —	$ 4	$ —	$ —	$ 19,031
Total available-for-sale	19,027	—	—	4	—	—	19,031
Farmer Mac Guaranteed Securities:							
Available-for-sale:							
AgVantage	7,599,379	687,650	(141,386)	32	93,342	(21,597)	8,217,420
Farmer Mac Guaranteed Securities	7,847	—	(433)	—	—	620	8,034
Total available-for-sale	7,607,226	687,650	(141,819)	32	93,342	(20,977)	8,225,454
USDA Securities:							
Trading	1,767	—	(387)	—	25	—	1,405
Total USDA Securities	1,767	—	(387)	—	25	—	1,405
Guarantee and commitment obligations:							
Guarantee Asset	4,467	—	(231)	—	334	—	4,570
Total Guarantee and commitment obligations	4,467	—	(231)	—	334	—	4,570
Total Assets at fair value	$ 7,632,487	$ 687,650	$ (142,437)	$ 36	$ 93,701	$ (20,977)	$ 8,250,460

Level 3 Assets and Liabilities Measured at Fair Value for the Three Months Ended March 31, 2022

	Beginning Balance	Purchases	Settlements	Allowance for Losses	Realized and unrealized (losses)/gains included in Income	Unrealized 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	$ 19,254	$ —	$ —	$ 2	$ —	$ (295)	$ 18,961
Total available-for-sale	19,254	—	—	2	—	(295)	18,961
Farmer Mac Guaranteed Securities:							
Available-for-sale:							
AgVantage	6,316,145	832,750	(295,284)	(418)	(210,587)	(53,382)	6,589,224
Farmer Mac Guaranteed Securities	12,414	—	(379)	—	—	(1,013)	11,022
Total available-for-sale	6,328,559	832,750	(295,663)	(418)	(210,587)	(54,395)	6,600,246
USDA Securities:							
Trading	4,401	—	(952)	—	(63)	—	3,386
Total USDA Securities	4,401	—	(952)	—	(63)	—	3,386
Guarantee and commitment obligations:							
Guarantee Asset	6,237	—	(255)	—	156	—	6,138
Total Guarantee and commitment obligations	6,237	—	(255)	—	156	—	6,138
Total Assets at fair value	$ 6,358,451	$ 832,750	$ (296,870)	$ (416)	$ (210,494)	$ (54,690)	$ 6,628,731

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 March 31, 2023 and December 31, 2022:

Table 9.3

	As of March 31, 2023			
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	$ 19,031	Indicative bids	Range of broker quotes	96.8% - 96.8% (96.8%)
Farmer Mac Guaranteed Securities:				
AgVantage	$ 8,217,420	Discounted cash flow	Discount rate	4.4% - 6.3% (5.0%)
Farmer Mac Guaranteed Securities	$ 8,034	Discounted cash flow	Discount rate	4.4% - 4.9% (4.7%)
			CPR	8%
USDA Securities	$ 1,405	Discounted cash flow	Discount rate	4.9% - 5.2% (5.1%)
			CPR	13% - 13% (13%)
Guarantee Asset	$ 4,570	Discounted cash flow	Discount rate	5.0% - 5.5% (5.2%)
			CPR	8%

	As of December 31, 2022			
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	$ 19,027	Indicative bids	Range of broker quotes	96.8% - 96.8% (96.8%)
Farmer Mac Guaranteed Securities:				
AgVantage	$ 7,599,379	Discounted cash flow	Discount rate	4.7% - 6.1% (5.1%)
Farmer Mac Guaranteed Securities	$ 7,847	Discounted cash flow	Discount rate	4.8% - 5.3% (5.1%)
			CPR	8%
USDA Securities	$ 1,767	Discounted cash flow	Discount rate	5.1% - 5.7% (5.3%)
			CPR	19% - 27% (25%)
Guarantee Asset	$ 4,467	Discounted cash flow	Discount rate	5.4% - 5.9% (5.7%)
			CPR	8%

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 do not 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 March 31, 2023 and December 31, 2022:

Table 9.4

	As of March 31, 2023		As of December 31, 2022	
	Fair Value	Carrying Amount	Fair Value	Carrying Amount
	(in thousands)			
Financial assets:				
Cash and cash equivalents	$ 864,594	$ 864,594	$ 861,002	$ 861,002
Investment securities	4,696,779	4,696,168	4,630,701	4,628,268
Farmer Mac Guaranteed Securities	9,175,211	9,219,420	8,573,781	8,628,380
USDA Securities	2,143,982	2,360,333	2,099,445	2,411,601
Loans	10,063,805	10,368,340	9,666,710	10,205,466
Financial derivatives	25,099	25,099	37,409	37,409
Guarantee and commitment fees receivable	54,060	46,670	50,653	47,151
Financial liabilities:				
Notes payable	24,088,548	24,837,391	23,591,330	24,469,113
Debt securities of consolidated trusts held by third parties	1,365,378	1,374,332	1,106,837	1,181,948
Financial derivatives	166,963	166,963	175,326	175,326
Guarantee and commitment obligations	53,503	46,114	50,083	46,582

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 the market standard methodology of netting the discounted future fixed cash payments (or receipts) and the discounted expected variable cash receipts (or payments) 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 table presents the alignment of the Farmer Mac's seven segments:

Agricultural Finance		**Rural Infrastructure Finance**		**Treasury**		
Farm & Ranch	Corporate AgFinance	Rural Utilities	Renewable Energy	Funding	Investments	Corporate

The financial information presented below reflects the accounts of Farmer Mac and its subsidiaries on a consolidated basis. Accordingly, the core earnings for Farmer Mac's segments would differ from any stand-alone financial statements of Farmer Mac's subsidiaries. These differences would be due to various factors, including the exclusion of unrealized gains and losses related to fair value changes of trading assets and financial derivatives, as well as the allocation of certain expenses such as operating expenses, dividends and interest expense related to the issuance of capital and the issuance of indebtedness managed at the corporate level.

The following tables present core earnings for Farmer Mac's segments and a reconciliation to consolidated net income for the three months ended March 31, 2023 and 2022.

Table 10.1

	Agricultural Finance		Rural Infrastructure		Treasury				
	Farm & Ranch	Corporate AgFinance	Rural Utilities	Renewable Energy	Funding	Investments	Corporate	Reconciling Adjustments	Consolidated Net Income
					(in thousands)				
Net interest income	$ 33,511	$ 7,148	$ 5,540	$ 858	$ 32,544	$ (543)	$ —	$ —	$ 79,058
Less: reconciling adjustments[(1)(2)(3)]	(1,046)	—	(33)	—	(806)	—	—	1,885	—
Net effective spread	32,465	7,148	5,507	858	31,738	(543)	—	1,885	—
Guarantee and commitment fees	4,292	53	281	28	—	—	—	(721)	3,933
Other income/(expense)[(3)]	1,067	—	—	—	—	—	—	558	1,625
Total revenues	37,824	7,201	5,788	886	31,738	(543)	—	1,722	84,616
Release of/(provision for) losses	128	(4,301)	3,484	138	—	4	—	—	(547)
(Provision for)/release of reserve for losses	(577)	—	374	—	—	—	—	—	(203)
Operating expenses	—	—	—	—	—	—	(23,713)	—	(23,713)
Total non-interest expense	(577)	—	374	—	—	—	(23,713)	—	(23,916)
Core earnings before income taxes	37,375	2,900	9,646	1,024	31,738	(539)	(23,713)	1,722 [(4)]	60,153
Income tax (expense)/benefit	(7,849)	(609)	(2,026)	(215)	(6,665)	113	4,495	(362)	(13,118)
Core earnings before preferred stock dividends	29,526	2,291	7,620	809	25,073	(426)	(19,218)	1,360 [(4)]	47,035
Preferred stock dividends	—	—	—	—	—	—	(6,791)	—	(6,791)
Segment core earnings/(losses)	$ 29,526	$ 2,291	$ 7,620	$ 809	$ 25,073	$ (426)	$ (26,009)	$ 1,360 [(4)]	$ 40,244
Total Assets	$14,549,275	$1,515,976	$6,444,264	$ 286,824	$ —	$ 4,998,854	$ 144,754	$ —	27,939,947
Total on- and off-balance sheet program assets at principal balance	$17,685,961	$1,599,982	$6,889,682	$ 308,493	$ —	$ —	$ —	$ —	26,484,118

Core Earnings by Business Segment
For the Three Months Ended March 31, 2023

(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 on financial derivatives" on the consolidated financial statements, to determine the effective funding cost for each operating segment.

(4) 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 March 31, 2022

	Agricultural Finance		Rural Infrastructure		Treasury				
	Farm & Ranch	Corporate AgFinance	Rural Utilities	Renewable Energy	Funding	Investments	Corporate	Reconciling Adjustments	Consolidated Net Income
					(in thousands)				
Net interest income	$ 31,354	$ 7,209	$ 3,193	$ 375	$ 23,403	$ 4	$ —	$ —	$ 65,538
Less: reconciling adjustments[(1)(2)(3)]	(1,000)	—	(34)	—	(6,665)	—	—	7,699	—
Net effective spread	30,354	7,209	3,159	375	16,738	4	—	7,699	—
Guarantee and commitment fees	4,216	19	286	36	—	—	—	(862)	3,695
Other income/(expense)[(3)]	400	114	—	—	—	—	—	17,086	17,600
Total revenues	34,970	7,342	3,445	411	16,738	4	—	23,923	86,833
(Provision for)/release of losses	(510)	(515)	1,169	(202)	—	2	—	—	(56)
Release of reserve for losses	75	—	35	—	—	—	—	—	110
Operating expenses	—	—	—	—	—	—	(21,388)	—	(21,388)
Total non-interest expense	75	—	35	—	—	—	(21,388)	—	(21,278)
Core earnings before income taxes	34,535	6,827	4,649	209	16,738	6	(21,388)	23,923 [(4)]	65,499
Income tax (expense)/benefit	(7,252)	(1,434)	(976)	(44)	(3,515)	(1)	4,198	(5,022)	(14,046)
Core earnings before preferred stock dividends	27,283	5,393	3,673	165	13,223	5	(17,190)	18,901 [(4)]	51,453
Preferred stock dividends	—	—	—	—	—	—	(6,791)	—	(6,791)
Segment core earnings/(losses)	$ 27,283	$ 5,393	$ 3,673	$ 165	$ 13,223	$ 5	$ (23,981)	$ 18,901 [(4)]	$ 44,662
Total Assets	$13,610,138	$1,491,127	$5,480,668	$ 92,132	$ —	$ 4,970,030	$ 123,033	$ —	$ 25,767,128
Total on- and off-balance sheet program assets at principal balance	$16,575,595	$1,540,760	$6,006,446	$ 120,609	$ —	$ —	$ —	$ —	$ 24,243,410

(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 on financial derivatives" on the consolidated financial statements, to determine the effective funding cost for each operating segment.

(4) 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.

11. REVISION OF PRIOR PERIOD FINANCIAL STATEMENTS

Farmer Mac revised certain prior period financial statements to correct an error related to the recognition of accrual of interest for derivative contracts cleared through the swap clearinghouse, the CME. Farmer Mac determined that the error was immaterial to these previous consolidated financial statements, taken as a whole. Although Farmer Mac has concluded these errors are immaterial to the previously issued consolidated financial statements, Farmer Mac has corrected this error by revising the accompanying consolidated financial statements. Farmer Mac will also correct previously reported financial information for such immaterial errors in future filings, as applicable. The following tables summarize the effect of the revision on each financial statement line item:

Revised Consolidated Statements of Operations

	Three Months Ended March 31, 2022		
	As previously Reported	**Adjustments**	**As Revised**
	(in thousands)		
Interest Income:			
Farmer Mac Guaranteed Securities and USDA Securities	$ 39,257	$ 3,663	$ 42,920
Total interest income	112,220	3,663	115,883
Net interest income	61,875	3,663	65,538
Non-interest income/(expense):			
(Losses)/gains on financial derivatives	16,074	914	16,988
Non-Interest Income	20,491	914	21,405
Income before income taxes	60,922	4,577	65,499
Income tax expense	13,085	961	14,046
Net Income	47,837	3,616	51,453
Net Income attributable to common stockholders	41,046	3,616	44,662

Revised Consolidated Statements of Comprehensive Income

	Three Months Ended March 31, 2022		
	As previously Reported	**Adjustments**	**As Revised**
	(in thousands)		
Net Income	$ 47,837	$ 3,616	$ 51,453
Comprehensive Income	4,319	3,616	7,935

Revised Consolidated Statements of Equity

	Retained Earnings			Total Equity		
	As previously Reported	Adjustments	As Revised	As previously Reported	Adjustments	As Revised
	(in thousands)					
Balance as of December 31, 2021	$ 579,270	$ 9,287	$ 588,557	$ 1,204,413	$ 9,287	$ 1,213,700
Net Income	47,837	3,616	51,453	47,837	3,616	51,453
Balance as of March 31, 2022	$ 610,087	$ 12,903	$ 622,990	$ 1,192,844	$ 12,903	$ 1,205,747

Revised Consolidated Statements of Cash Flows

	Three Months Ended March 31, 2022		
	As previously Reported	Adjustments	As Revised
	(in thousands)		
Cash flows from operating activities:			
Net income/(loss)	$ 47,837	$ 3,616	$ 51,453
Adjustments to reconcile net income to net cash provided by operating activities:			
Net change in fair value of trading securities, hedged assets, and financial derivatives	231,470	4,494	235,964
Deferred income taxes	2,216	578	2,794
Net change in:			
Interest receivable	29,408	2,869	32,277
Other assets	(61,087)	(3,089)	(64,176)
Accrued interest payable	5,769	(4,697)	1,072
Other liabilities	9,962	(3,771)	6,191
Net cash provided by operating activities	269,305	—	269,305

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

The objective of this section of the report is to provide a discussion and analysis, from management's perspective, of the material information necessary to assess Farmer Mac's financial condition and results of operations for the quarter ended March 31, 2023. 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, 2022 as filed with the SEC on February 24, 2023 (the "2022 Annual Report").

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 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;
- trends in net interest income and net effective spread;
- trends in portfolio credit quality, delinquencies, substandard assets, credit losses, and provisions for losses;
- assessment of economic and market trends;
- 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 2022 Annual Report, as well as uncertainties about:

- 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 agricultural or rural infrastructure 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 infrastructure indebtedness;
- the effect of economic conditions stemming from disruptive global events or otherwise on agricultural mortgage or rural infrastructure lending, borrower repayment capacity, or collateral values, including rapid inflation, fluctuations in interest rates, changes in U.S. trade policies, fluctuations in export demand for U.S. agricultural products and foreign currency exchange rates, supply chain disruptions, increases in input costs, labor availability, volatility from the recent commercial banking failures, 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 effects of the Federal Reserve's efforts to achieve monetary policy normalization and slow inflation; and
- other factors that could hinder agricultural mortgage lending or borrower repayment capacity, including the effects of severe weather, flooding and drought, climate change, or 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

Farmer Mac is a mission-focused, purpose-driven company determined to drive economic opportunity and prosperity by increasing the accessibility of financing for American agriculture and rural infrastructure. As the nation's secondary market for agricultural and rural infrastructure loans, we help strengthen and connect rural America by providing a broad array of financial solutions to lenders that support flexible low-cost financing to farmers, ranchers, agribusinesses, renewable energy projects, rural utilities, and other related rural businesses and enterprises. Farmer Mac also serves as a critical investment tool for entities such as states, counties, municipalities, pension funds, banks, public trust funds, and credit unions. Farmer Mac offers those entities a variety of investment opportunities that may diversify their investment portfolios and provide the opportunity to earn a competitive return on their investment dollars.

During first quarter 2023:

- we maintained strong liquidity in our investment portfolio well above regulatory requirements;
- we maintained our strong capital position and uninterrupted access to the debt capital markets, which historically have not been subject to the same short-term disruptions and liquidity concerns experienced by institutions that rely primarily on deposits to fund their assets;
- we provided $1.7 billion in liquidity and lending capacity to lenders serving rural America; and
- we closed our third structured securitization transaction involving approximately $300 million of agricultural mortgage loans.

Farmer Mac's performance during first quarter 2023, described in more detail below, reflects the success of our continued focus on pursuing new channels and innovative ways to further our mission to increase the accessibility of financing for American agriculture and rural infrastructure. Despite ongoing macroeconomic concerns and potential headwinds such as volatile macroeconomic conditions, inflation, failures and liquidity concerns in the banking industry, rising interest rates, and war in Ukraine, Farmer Mac continued to deliver solid financial results. These financial results for first quarter 2023 reflected a variety of factors, including: (1) the resilience of the farm economy, as producers have benefited from healthy farm incomes and liquidity from relatively high commodity prices resulting from heightened demand, with revenues rising faster than the costs of inputs; (2) an increase in Farmer Mac's outstanding business volume at higher spreads while credit quality improved; (3) Farmer Mac's disciplined approach to interest rate risk management that helps to protect earnings from the effects of interest rate volatility and is accretive to Farmer Mac during periods of rising interest rates; and (4) Farmer Mac's effective funding strategies that resulted in advantageous funding, which have also benefited from the rising interest rate environment in the current period. The discussion below of Farmer Mac's financial information includes "non-GAAP measures," which are measures of financial performance 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."

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 differ from net income attributable to common stockholders and earnings per common share, respectively, by excluding the effects of fair value fluctuations and specified infrequent or unusual transactions.

Table 1

	For the Three Months Ended		
	March 31, 2023	December 31, 2022	March 31, 2022
		(in thousands)	
Net income attributable to common stockholders	$ 40,244	$ 36,627	$ 44,662
Core earnings	38,884	34,413	25,761

The $3.6 million sequential increase in net income attributable to common stockholders was due to a $4.3 million after-tax increase in net interest income and a $0.9 million after-tax decrease in our provision for credit losses. These factors were partially offset by a $2.1 million after-tax increase in operating expenses.

The $4.4 million year-over-year decrease in net income attributable to common stockholders was due to a $13.1 million after-tax decrease in the fair value of undesignated financial derivatives and a $1.8 million after-tax increase in operating expenses. These factors were partially offset by a $10.7 million after-tax increase in net interest income.

The $4.5 million sequential increase in core earnings was due to a $4.8 million after-tax increase in net effective spread and a $0.9 million after-tax decrease in our provision for credit losses. These factors were partially offset by a $2.1 million after-tax increase in operating expenses.

The $13.1 million year-over-year increase in core earnings was due to a $15.3 million after-tax increase in net effective spread. This factor was partially offset by a $1.8 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		
	March 31, 2023	December 31, 2022	March 31, 2022
		(in thousands)	
Net interest income	$ 79,058	$ 73,635	$ 65,538
Net interest yield %	1.14 %	1.08 %	1.06 %
Net effective spread	$ 77,173	$ 71,103	$ 57,839
Net effective spread %	1.15 %	1.07 %	0.97 %

The $5.4 million sequential increase in net interest income was primarily attributable to a $6.6 million decrease in funding costs, due to advantageous funding execution and increasing spreads on interest-earning assets on our short-term investments; partially offset by a $0.7 million decrease in cash-basis interest income. In percentage terms, the sequential 0.06% increase was primarily attributable to a decrease of 0.09% in funding costs, partially offset by a decrease of 0.01% related to cash-basis interest income.

The $13.5 million year-over-year increase in net interest income was primarily due to a $11.4 million decrease in funding costs primarily due to advantageous funding execution and a $6.8 million increase related to net new business volume. These factors were partially offset by a $2.5 million decrease in the fair value of derivatives designated in fair value hedge accounting relationships (designated financial derivatives) and a $1.9 million decrease in cash-basis interest income. In percentage terms, the 0.08% increase was primarily attributable to a decrease of 0.16% in funding costs, partially offset by a decrease of 0.04% in net fair value changes from designated financial derivatives, and a decrease of 0.03% in cash-basis interest income.

The $6.1 million sequential increase in net effective spread in dollars was primarily due to a decrease of $7.4 million in non-GAAP funding costs, due to advantageous funding execution and increased spreads on interest-earning assets on our short-term investments; partially offset by a $0.7 million decrease in cash-basis interest income. In percentage terms, the sequential increase of 0.08% was primarily attributable to a decrease of 0.09% in non-GAAP funding costs and a decrease of 0.01% in cash-basis interest income.

The $19.3 million year-over-year increase in net effective spread in dollars was primarily due to a $14.9 million decrease in non-GAAP funding costs, due to advantageous funding execution and increased spreads on interest-earning assets on our short-term investments, and a $6.7 million increase related to net new business volume. These factors were partially offset by a $1.9 million decrease in cash-basis interest income. In percentage terms, the year-over-year increase of 0.18% was primarily attributable to a decrease in non-GAAP funding costs.

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 10 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 $26.5 billion as of March 31, 2023, a net increase of $0.6 billion from December 31, 2022 after taking into account all new business, maturities, sales, and paydowns on existing assets. The net increase was primarily attributable to a net increase of $0.6 billion in the Rural Infrastructure Finance line of business.

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	
	March 31, 2023	December 31, 2022
	(in thousands)	
Core capital	$ 1,352,247	$ 1,322,801
Capital in excess of minimum capital level required	534,380	516,882

The increase in capital in excess of the minimum capital level required was primarily due to an increase in retained earnings.

Credit Quality

The following table presents Agricultural Finance on- and off-balance sheet substandard assets, in dollars and as a percentage of the respective portfolio as of March 31, 2023 and December 31, 2022:

Table 4

	On-Balance Sheet		Off-Balance Sheet	
	Substandard Assets	% of Portfolio	Substandard Assets	% of Portfolio
	(dollars in thousands)			
March 31, 2023	$ 173,256	2.3 %	$ 31,816	1.0 %
December 31, 2022	169,667	2.3 %	39,733	1.2 %
Increase/(decrease) from prior year-ending	$ 3,589	— %	$ (7,917)	(0.2)%

The increase of $3.6 million in on-balance sheet substandard assets during first quarter was primarily driven by credit downgrades in crops and was partially offset by credit upgrades in permanent plantings. The $7.9 million decrease in substandard assets in our off-balance sheet portfolios during first quarter was primarily due to credit upgrades in livestock.

There were no substandard assets in the Rural Infrastructure Finance portfolio as of both March 31, 2023 and December 31, 2022.

For an analysis of current loan-to-value ratios across substandard and other internally assigned risk ratings, see Table 25 in "Management's Discussion and Analysis of Financial Condition and Results of Operations—Risk Management—Credit Risk—Loans and Guarantees."

The following table presents 90-day delinquencies for the on- and off-balance sheet Agricultural Finance portfolios, in dollars and as a percentage of the respective balance sheet category as of March 31, 2023 and December 31, 2022:

Table 5

	On-Balance Sheet		Off-Balance Sheet	
	90-Day Delinquencies	% of Portfolio	90-Day Delinquencies	% of Portfolio
	(dollars in thousands)			
March 31, 2023	$ 65,601	0.88 %	$ 5,045	0.16 %
December 31, 2022	39,681	0.53 %	3,817	0.12 %
Increase/(decrease) from prior year-ending	$ 25,920	0.35 %	$ 1,228	0.04 %

On-balance sheet Agricultural Finance assets 90 or more days delinquent increased in permanent plantings, crops, and livestock, and was partially offset by decreases in agricultural storage and processing. Off-balance sheet Agricultural Finance assets 90 days or more delinquent increased in permanent plantings, livestock, and part-time farms. The top ten borrower exposures over 90 days delinquent in either the on- or off-balance sheet Agricultural Finance portfolio represented over half of the aggregate 90-day delinquencies as of March 31, 2023.

As of both March 31, 2023 and December 31, 2022, there were no 90-day delinquencies in Farmer Mac's portfolio of Rural Infrastructure Finance loan purchases and loans underlying LTSPCs.

For more information about Farmer Mac's credit metrics, including 90-day delinquencies, the total allowance for losses, and substandard assets, 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

The main difference between core earnings and core earnings per share (non-GAAP measures) and net income attributable to common stockholders and earnings per common share (GAAP measures) is that those non-GAAP measures exclude 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. Another difference is that these two non-GAAP measures exclude 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 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. As further explained below, net effective spread differs from net interest income and net interest yield by excluding certain items from net interest income and net interest yield and including certain other items that net interest income and net interest yield do not contain.

Farmer Mac 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 accounting 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 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 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 10 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	
	March 31, 2023	March 31, 2022
	(in thousands, except per share amounts)	
Net income attributable to common stockholders	$ 40,244	$ 44,662
Less reconciling items:		
Gains on undesignated financial derivatives due to fair value changes (see Table 13)	916	2,612
(Losses)/gains on hedging activities due to fair value changes	(105)	5,687
Unrealized gains on trading securities	359	94
Net effects of amortization of premiums/discounts and deferred gains on assets consolidated at fair value	29	20
Net effects of terminations or net settlements on financial derivatives	523	15,512
Income tax effect related to reconciling items	(362)	(5,024)
Sub-total	1,360	18,901
Core earnings	$ 38,884	$ 25,761
Composition of Core Earnings:		
Revenues:		
Net effective spread[(1)]	$ 77,173	$ 57,839
Guarantee and commitment fees[(2)]	4,654	4,557
Other[(3)]	1,067	514
Total revenues	82,894	62,910
Credit related expense (GAAP):		
Provision for/(release of) losses	750	(54)
Total credit related expense	750	(54)
Operating expenses (GAAP):		
Compensation and employee benefits	15,351	13,298
General and administrative	7,527	7,278
Regulatory fees	835	812
Total operating expenses	23,713	21,388
Net earnings	58,431	41,576
Income tax expense[(4)]	12,756	9,024
Preferred stock dividends (GAAP)	6,791	6,791
Core earnings	$ 38,884	$ 25,761
Core earnings per share:		
Basic	$ 3.60	$ 2.39
Diluted	$ 3.56	$ 2.37
Weighted-average shares:		
Basic	10,802	10,767
Diluted	10,918	10,887

(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 10 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	
	March 31, 2023	March 31, 2022
	(in thousands, except per share amounts)	
GAAP - Basic EPS	$ 3.73	$ 4.15
Less reconciling items:		
Gains on undesignated financial derivatives due to fair value changes (see Table 13)	0.09	0.24
(Losses)/gains on hedging activities due to fair value changes	(0.01)	0.53
Unrealized gains on trading securities	0.03	0.01
Net effects of amortization of premiums/discounts and deferred gains on assets consolidated at fair value	—	—
Net effects of terminations or net settlements on financial derivatives	0.05	1.44
Income tax effect related to reconciling items	(0.03)	(0.46)
Sub-total	0.13	1.76
Core Earnings - Basic EPS	$ 3.60	$ 2.39
Shares used in per share calculation (GAAP and Core Earnings)	10,802	10,767

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

	For the Three Months Ended	
	March 31, 2023	March 31, 2022
	(in thousands, except per share amounts)	
GAAP - Diluted EPS	$ 3.69	$ 4.10
Less reconciling items:		
Gains on undesignated financial derivatives due to fair value changes (see Table 13)	0.09	0.24
(Losses)/gains on hedging activities due to fair value changes	(0.01)	0.52
Unrealized gains on trading securities	0.03	0.01
Net effects of amortization of premiums/discounts and deferred gains on assets consolidated at fair value	—	—
Net effects of terminations or net settlements on financial derivatives	0.05	1.42
Income tax effect related to reconciling items	(0.03)	(0.46)
Sub-total	0.13	1.73
Core Earnings - Diluted EPS	$ 3.56	$ 2.37
Shares used in per share calculation (GAAP and Core Earnings)	10,918	10,887

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

1. Gains/(losses) on financial derivatives due to fair value changes are presented by two reconciling items in Table 6 above: (a) Gains on undesignated financial derivatives due to fair value changes; and (b) (Losses)/gains on hedging activities due to fair value changes.

2. Unrealized gains on trading securities. The unrealized (losses)/gains 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. The net effects of 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.

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 quarters ended March 31, 2023 and 2022. 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 8

	For the Three Months Ended					
	March 31, 2023			March 31, 2022		
	Average Balance	Income/ Expense	Average Rate	Average Balance	Income/ Expense	Average Rate
	(dollars in thousands)					
Interest-earning assets:						
Cash and investments	$ 5,671,148	$ 59,703	4.21 %	$ 4,949,656	$ 5,716	0.46 %
Loans, Farmer Mac Guaranteed Securities and USDA Securities[1]	21,282,336	247,047	4.64 %	18,930,349	102,110	2.16 %
Total interest-earning assets	26,953,484	306,750	4.55 %	23,880,005	107,826	1.81 %
Funding:						
Notes payable due within one year	3,557,746	36,032	4.05 %	2,849,575	1,148	0.16 %
Notes payable due after one year[2]	21,872,564	192,715	3.52 %	20,065,027	42,158	0.84 %
Total interest-bearing liabilities[3]	25,430,310	228,747	3.60 %	22,914,602	43,306	0.76 %
Net non-interest-bearing funding	1,523,174	—		965,403	—	
Total funding	26,953,484	228,747	3.39 %	23,880,005	43,306	0.73 %
Net interest income/yield prior to consolidation of certain trusts	26,953,484	78,003	1.16 %	23,880,005	64,520	1.08 %
Net effect of consolidated trusts[4]	895,671	1,055	0.47 %	881,756	1,018	0.46 %
Net interest income/yield	$ 27,849,155	$ 79,058	1.14 %	$ 24,761,761	$ 65,538	1.06 %

(1) Excludes interest income of $8.5 million and $8.1 million in first quarter 2023 and 2022, 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 $7.5 million and $7.0 million in first quarter 2023 and 2022, 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 $13.5 million year-over-year increase in net interest income was primarily due to a $11.4 million decrease in funding costs and a $6.8 million increase related to net new business volume. The decrease in funding costs was primarily attributable to advantageous funding execution. These factors were partially offset by a $2.5 million decrease in the fair value of derivatives designated in fair value hedge accounting relationships (designated financial derivatives) and a $1.9 million decrease in cash-basis interest income. In percentage terms, the 0.08% increase was primarily attributable to a decrease of 0.16% in funding costs, partially offset by a decrease of 0.04% in net fair value changes from designated financial derivatives, and a decrease of 0.03% in cash-basis interest income.

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), and then allocated based on the relative size of rate and volume changes from the prior period.

Table 9

	For the Three Months Ended March 31, 2023 Compared to Same Period in 2022		
	Increase/(Decrease) Due to		
	Rate	Volume	Total
		(in thousands)	
Income from interest-earning assets:			
Cash and investments	$ 53,035	$ 953	$ 53,988
Loans, Farmer Mac Guaranteed Securities and USDA Securities	130,828	14,108	144,936
Total	183,863	15,061	198,924
Expense from other interest-bearing liabilities	180,179	5,263	185,442
Change in net interest income prior to consolidation of certain trusts[1]	$ 3,684	$ 9,798	$ 13,482

(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 10

	For the Three Months Ended			
	March 31, 2023		March 31, 2022	
	Dollars	Yield	Dollars	Yield
	(dollars in thousands)			
Net interest income/yield	$ 79,058	1.14 %	$ 65,538	1.06 %
Net effects of consolidated trusts	(1,055)	0.02 %	(1,018)	0.02 %
Expense related to undesignated financial derivatives	(1,626)	(0.02)%	(994)	(0.02)%
Amortization of premiums/discounts on assets consolidated at fair value	(23)	— %	(16)	— %
Amortization of losses due to terminations or net settlements on financial derivatives	714	0.01 %	356	0.01 %
Fair value changes on fair value hedge relationships	105	— %	(6,027)	(0.10)%
Net effective spread	$ 77,173	1.15 %	$ 57,839	0.97 %

The $19.3 million year-over-year increase in net effective spread in dollars was primarily due to a $14.9 million decrease in non-GAAP funding costs, due to advantageous funding execution; and a $6.7 million increase related to net new business volume. These factors were partially offset by a $1.9 million decrease in cash-basis interest income. In percentage terms, the year-over-year increase of 0.18% was primarily attributable to a decrease in non-GAAP funding costs.

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 month period ended March 31, 2023 and 2022:

Table 11

	For the Three Months Ended					
	March 31, 2023			March 31, 2022		
	Allowance for Losses	Reserve for Losses	Total Allowance for Losses	Allowance for Losses	Reserve for Losses	Total Allowance for Losses
	(in thousands)					
Beginning Balance	$ 15,731	$ 1,433	$ 17,164	$ 14,492	$ 1,950	$ 16,442
Provision for/(release of) losses	547	203	750	56	(110)	(54)
Charge-offs	—	—	—	(84)	—	(84)
Ending Balance	$ 16,278	$ 1,636	$ 17,914	$ 14,464	$ 1,840	$ 16,304

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."

During first quarter 2023, we recorded a $0.8 million provision to the allowance for losses primarily as a result of one agricultural storage and processing loan whose financial position continued to deteriorate related to the borrower's ongoing bankruptcy.

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 months ended March 31, 2023 and 2022:

Table 12

	For the Three Months Ended			
			Change	
	March 31, 2023	March 31, 2022	$	%
	(dollars in thousands)			
Contractual guarantee and commitment fees	$ 3,705	$ 3,502	$ 203	6 %
Guarantee obligation amortization	1,768	2,195	(427)	(19)%
Guarantee asset fair value changes	(1,540)	(2,002)	462	23 %
Guarantee and commitment fee income	$ 3,933	$ 3,695	$ 238	6 %

Guarantee and commitment fees increased for the quarter ended March 31, 2023 compared to 2022, which was due to increases in the average outstanding balance of LTSPCs during the period. As adjusted for the core earnings presentation, guarantee and commitment fees were $4.7 million for the quarter ended March 31, 2023, compared to $4.6 million for first quarter 2022.

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 those consolidated Farmer Mac Guaranteed Securities. Additionally, Farmer Mac has excluded guarantee asset fair value changes, because these fluctuations are not expected to have a cumulative net impact on Farmer Mac's financial condition or results of operations if Farmer Mac fulfills its guarantee obligation throughout the term of the guaranteed securities, as is expected.

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 Table 6 in "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 on financial derivatives. The components of gains and losses on financial derivatives for the three months ended March 31, 2023 and 2022 are summarized in the following table:

Table 13

	For the Three Months Ended			
			Change	
	March 31, 2023	March 31, 2022	$	%
	(dollars in thousands)			
Gains due to fair value changes	$ 916	$ 2,612	$ (1,696)	(65)%
Accrual of contractual payments	(1,626)	(994)	(632)	64 %
Gains due to terminations or net settlements	1,109	15,370	(14,261)	(93)%
Gains on financial derivatives	$ 399	$ 16,988	$ (16,589)	(98)%

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.

Operating Expenses. The components of operating expenses for the three months ended March 31, 2023 and 2022 are summarized in the following table:

Table 14

	For the Three Months Ended			
			Change	
	March 31, 2023	March 31, 2022	$	%
		(dollars in thousands)		
Compensation and employee benefits	$ 15,351	$ 13,298	$ 2,053	15 %
General and administrative	7,527	7,278	249	3 %
Regulatory fees	835	812	23	3 %
Total Operating Expenses	$ 23,713	$ 21,388	$ 2,325	11 %

Compensation and Employee Benefits. The increase in compensation and employee benefits expenses for first quarter 2023 compared to 2022 was due to increased short-term incentive compensation paid in first quarter 2023 resulting from Farmer Mac's performance during 2022 and increased headcount.

General and Administrative Expenses (G&A). The increase in G&A expenses for first quarter 2023 compared to 2022 was primarily due to increased spending on software licenses and information technology and other consultants to support growth and strategic initiatives. Specifically, Farmer Mac has begun a multi-year effort to replace its platform for securities trades and to implement a treasury management system.

Income Tax Expense. The following table presents income tax expense and the effective income tax rate for the three months ended March 31, 2023 and 2022:

Table 15

	For the Three Months Ended			
			Change	
	March 31, 2023	March 31, 2022	$	%
		(dollars in thousands)		
Income tax expense	$ 13,118	$ 14,046	$ (928)	(7)%
Effective tax rate	21.8 %	21.4 %		0.4 %

Business Volume.

The following table sets forth the net growth or decrease in Farmer Mac's lines of business for the three months ended March 31, 2023 and 2022:

Table 16

Net New Business Volume

	On or Off Balance Sheet	For the Three Months Ended March 31, 2023 Net Growth/ (Decrease)	For the Three Months Ended March 31, 2022 Net Growth/ (Decrease)
		(in thousands)	
Agricultural Finance:			
Farm & Ranch:			
Loans	On-balance sheet	$ (313,028)	$ 160,496
Loans held in consolidated trusts:			
Beneficial interests owned by third-party investors (Pass-Through)[1]	On-balance sheet	(19,661)	(60,423)
Beneficial interests owned by third-party investors (Structured)[1]	On-balance sheet	276,442	—
IO-FMGS[2]	On-balance sheet	(433)	(378)
USDA Securities	On-balance sheet	(50,607)	(4,999)
AgVantage Securities[1]	On-balance sheet	70,000	430,000
LTSPCs and unfunded commitments	Off-balance sheet	7,762	(8,824)
Other Farmer Mac Guaranteed Securities[3]	Off-balance sheet	(12,858)	(33,874)
Loans serviced for others	Off-balance sheet	(448)	(1,042)
Total Farm & Ranch		**$ (42,831)**	**$ 480,956**
Corporate AgFinance:			
Loans	On-balance sheet	$ 6,611	$ (14,837)
AgVantage Securities[1]	On-balance sheet	(21,915)	7,798
Unfunded commitments	Off-balance sheet	11,779	9,965
Total Corporate AgFinance		**$ (3,525)**	**$ 2,926**
Total Agricultural Finance		**$ (46,356)**	**$ 483,882**
Rural Infrastructure Finance:			
Rural Utilities:			
Loans	On-balance sheet	$ 89,922	$ 157,232
AgVantage Securities[1]	On-balance sheet	471,229	(23,381)
LTSPCs and unfunded commitments	Off-balance sheet	(31,011)	(22,632)
Other Farmer Mac Guaranteed Securities[3]	Off-balance sheet	(71)	—
Total Rural Utilities		**$ 530,069**	**$ 111,219**
Renewable Energy:			
Loans	On-balance sheet	$ 66,916	$ 5,483
Unfunded commitments	Off-balance sheet	11,407	28,363
Total Renewable Energy		**$ 78,323**	**$ 33,846**
Total Rural Infrastructure Finance		**$ 608,392**	**$ 145,065**
Total		$ 562,036	$ 628,947

(1) Categories of Farmer Mac Guaranteed Securities.
(2) An interest-only Farmer Mac Guaranteed Security retained as part of a structured securitization.
(3) Other categories of Farmer Mac Guaranteed Securities that were sold by Farmer Mac to third parties.

Farmer Mac's outstanding business volume was $26.5 billion as of March 31, 2023, a net increase of $0.6 billion from December 31, 2022 after taking into account all new business, maturities, sales, and paydowns on existing assets.

The modest decrease in Farm & Ranch during first quarter 2023 resulted from $0.8 billion of new purchases, commitments, and guarantees, offset by $0.8 billion of scheduled maturities and repayments.

Farmer Mac purchased a total of $0.2 billion in loans, which was primarily driven by improved borrower economics while also navigating a substantially higher interest rate environment.

Farmer Mac also purchased a total of $0.2 billion in Farm & Ranch AgVantage Securities during first quarter 2023, which primarily reflected the refinancing of maturing securities as well as financial counterparties seeking to add longer-term AgVantage securities to manage their asset-liability maturity profile given recent increases in credit spreads and interest rates. The $0.2 billion in gross purchases was partially offset by $0.1 billion in scheduled maturities.

The modest decrease in Corporate AgFinance during first quarter 2023 resulted from $0.2 billion of new purchases and commitments, which was offset by $0.2 billion of scheduled maturities, repayments, and sales. Farmer Mac purchased a total of $145.1 million in loans, which was partially offset by $138.5 million in scheduled maturities and repayments. The increase in loan purchases was primarily due to Farmer Mac's continued focus to support loans to larger and more complex agribusinesses focused on food and fiber processing and other food supply chain production.

The $0.5 billion net increase in Rural Utilities during first quarter 2023 resulted from $0.7 billion of new purchases, commitments, and guarantees, which was partially offset by $0.2 billion of scheduled maturities and repayments. Farmer Mac purchased a total of $500.0 million in AgVantage Securities, $92.8 million in telecommunications loans, and $90.4 million in electric distribution and generation and transmission loans. The $183.2 million in loan purchases was partially offset by $93.3 million in scheduled maturities and repayments. The net increase in loan purchases primarily reflected borrowers' normal-course capital expenditures related to maintaining and upgrading utility infrastructure as well as investments in broadband infrastructure, and Farmer Mac's continued focus to support telecommunications investment in rural America.

The $78.3 million net increase in Renewable Energy during first quarter 2023 primarily reflects $89.7 million in loan purchases and unfunded commitments, partially offset by $11.4 million in repayments.

Farmer Mac's outstanding business volume was $24.2 billion as of March 31, 2022, a net increase of $0.6 billion from December 31, 2021 after taking into account all new business, scheduled maturities, and paydowns on existing assets.

The $0.5 billion net increase in Farm & Ranch during first quarter 2022 resulted from $2.5 billion of new purchases, commitments, and guarantees, partially offset by $2.0 billion of scheduled maturities and repayments. Farmer Mac purchased a total of $416.2 million in loans, which was primarily driven by farm real estate acquisitions due to improved borrower economics as well as a competitive, while also navigating an increasing interest rate environment resulting in demand for intermediate and long-term financing solutions. The $416.2 million in gross Farm & Ranch loan purchases was partially offset by $255.7 million in scheduled maturities and repayments.

Farmer Mac also purchased a total of $1.8 billion in Farm & Ranch AgVantage Securities during first quarter 2022, which primarily reflected the refinancing of maturing securities as well as financial counterparties seeking to add longer term AgVantage securities to manage their asset-liability maturity profile given recent increases in credit spreads and interest rates. The $1.8 billion in gross purchases was partially offset by $1.3 billion in scheduled maturities. Approximately $1.1 billion of the total $1.8 billion in gross purchases reflected purchases that refinanced maturing AgVantage securities and were issued at short-term tenors, which may create volatility in AgVantage volumes throughout the year. However, Farmer Mac does not anticipate a material impact to its net effective spread given the low spread related to these securities due to the short maturities and the credit strength of the counterparties.

The $2.9 million net increase in Corporate AgFinance during first quarter 2022 resulted from $103.4 million of new loan and AgVantage security purchases, which was offset by $100.4 million of scheduled maturities and repayments. Farmer Mac purchased a total of $61.7 million in loans, which was offset by $76.5 million in scheduled maturities and repayments. This net decrease in loans was primarily due to scheduled amortization and prepayments due to strong land values and agricultural incomes.

The $111.2 million net increase in Rural Utilities during first quarter 2022 resulted from $378.0 million of new purchases, commitments, and guarantees, which was partially offset by $266.7 million of scheduled maturities and repayments. Farmer Mac purchased a total of $208.0 million in Rural Utilities loans, which was fueled by a competitive but increasing interest rate environment resulting in demand for long-term financing solutions for planned maintenance and capital expenditures. The $208.0 million in loan purchases was partially offset by $50.7 million in scheduled maturities and repayments.

The $33.8 million net increase in Renewable Energy during first quarter 2022 primarily reflects a $35.0 million commitment to a large solar project being constructed in the southeast United States, consisting of $6.6 million of funded loan purchases (which was partially offset by $1.2 million of other loan repayments) and $28.4 million in unfunded loan commitments expected to be drawn throughout 2022.

The level and composition of Farmer Mac's outstanding business volume is based on the relationship between new business, loan sales, scheduled maturities, and repayments on existing assets from year to year. This relationship in turn depends on a variety of factors both internal and external to Farmer Mac. The external factors include general market forces, competition, and our counterparties' liquidity needs, access to alternative funding, desired products, and assessment of strategic factors. The internal factors include our assessment of profitability, mission fulfillment, credit risk, and customer relationships. 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 17

	For the Three Months Ended	
	March 31, 2023	March 31, 2022
	(dollars in thousands)	
AgVantage securities	$ 695,200	$ 1,941,360
Structured securitization transactions (not consolidated)	—	—
Loans securitized and held in consolidated trusts with beneficial interests owned by third parties	285,201	25,928
Total Farmer Mac Guaranteed Securities Issuances	$ 980,401	$ 1,967,288

Farmer Mac either retains the loans it purchases or securitizes them and retains or sells Farmer Mac Guaranteed Securities backed by those securitized loans. During the first quarter of 2023, Farmer Mac executed its third structured securitization transaction, whereby it sold and securitized agricultural mortgage loans resulting in $281.0 million of Farmer Mac Guaranteed Securities. In this transaction, Farmer Mac transferred selected loans to a depositor which then deposited the loans into a trust, at which time the loans became assets of the trust. Farmer Mac concluded that it was the primary beneficiary of the trust because Farmer Mac controls the trust in its role as Master Servicer. Therefore, Farmer Mac consolidates the assets and liabilities of the trust for this structured securitization. Farmer Mac does not consider the assets held by the related securitization trust to be available to satisfy the claims of the creditors of Farmer Mac and/or the depositor.

During the three months ended March 31, 2023 and 2022, Farmer Mac realized no gains or losses from the securitization of loans that it holds in consolidated trusts. Farmer Mac consolidates these loans and presents them as "Loans held for investment in consolidated trusts, at amortized cost" on the consolidated balance sheets.

During the three months ended March 31, 2023 and 2022, Farmer Mac realized no gains or losses from the issuance of Farmer Mac Guaranteed USDA Securities or AgVantage Securities.

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

Table 18

Outstanding Business Volume

	On or Off Balance Sheet	As of March 31, 2023	As of December 31, 2022
		(in thousands)	
Agricultural Finance:			
Farm & Ranch:			
Loans	On-balance sheet	$ 4,837,722	$ 5,150,750
Loans held in consolidated trusts:			
Beneficial interests owned by third-party investors (Pass-Through)[1]	On-balance sheet	895,257	914,918
Beneficial interests owned by third-party investors (Structured)[1]	On-balance sheet	573,100	296,658
IO-FMGS[2]	On-balance sheet	10,189	10,622
USDA Securities	On-balance sheet	2,356,695	2,407,302
AgVantage Securities[1]	On-balance sheet	5,675,000	5,605,000
LTSPCs and unfunded commitments	Off-balance sheet	2,830,071	2,822,309
Other Farmer Mac Guaranteed Securities[3]	Off-balance sheet	488,095	500,953
Loans serviced for others	Off-balance sheet	19,832	20,280
Total Farm & Ranch		**$ 17,685,961**	**$ 17,728,792**
Corporate AgFinance:			
Loans	On-balance sheet	$ 1,172,864	$ 1,166,253
AgVantage Securities[1]	On-balance sheet	337,685	359,600
Unfunded commitments	Off-balance sheet	89,433	77,654
Total Corporate AgFinance		**$ 1,599,982**	**$ 1,603,507**
Total Agricultural Finance		**$ 19,285,943**	**$ 19,332,299**
Rural Infrastructure Finance:			
Rural Utilities:			
Loans	On-balance sheet	$ 2,891,618	$ 2,801,696
AgVantage Securities[1]	On-balance sheet	3,515,385	3,044,156
LTSPCs and unfunded commitments	Off-balance sheet	481,581	512,592
Other Farmer Mac Guaranteed Securities[3]	Off-balance sheet	1,098	1,169
Total Rural Utilities		**$ 6,889,682**	**$ 6,359,613**
Renewable Energy:			
Loans	On-balance sheet	$ 286,486	$ 219,570
Unfunded commitments	Off-balance sheet	22,007	10,600
Total Renewable Energy		**$ 308,493**	**$ 230,170**
Total Rural Infrastructure Finance		**$ 7,198,175**	**$ 6,589,783**
Total		**$ 26,484,118**	**$ 25,922,082**

(1) A Farmer Mac Guaranteed Security.
(2) An interest-only Farmer Mac Guaranteed Security retained as part of a structured securitization.
(3) Other categories of Farmer Mac Guaranteed Securities that were sold by Farmer Mac to third parties.

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 March 31, 2023:

Table 19

Schedule of Principal Amortization as of March 31, 2023

	Loans	Loans Underlying Off-Balance Sheet Farmer Mac Guaranteed Securities and LTSPCs	USDA Securities and Farmer Mac Guaranteed USDA Securities	Total
	(in thousands)			
2023	$ 360,417	$ 231,241	$ 81,253	$ 672,911
2024	492,280	254,837	110,933	858,050
2025	544,674	234,989	112,279	891,942
2026	541,522	259,898	116,253	917,673
2027	594,736	246,058	117,758	958,552
Thereafter	8,123,418	2,478,041	2,024,342	12,625,801
Total	$ 10,657,047	$ 3,705,064	$ 2,562,818	$ 16,924,929

Of Farmer Mac's $26.5 billion outstanding principal balance of business volume as of March 31, 2023, $9.5 billion were AgVantage securities included in the Agricultural Finance and Rural Infrastructure Finance lines 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 March 31, 2023:

Table 20

AgVantage Balances by Year of Maturity

	As of March 31, 2023
	(in thousands)
2023	$ 2,526,674
2024	1,322,699
2025	916,625
2026	1,013,360
2027	999,698
Thereafter[1]	2,750,112
Total	$ 9,529,168

(1) Includes various maturities ranging from 2028 to 2049.

The weighted-average remaining maturity of the outstanding AgVantage securities shown in the table above was 4.4 years as of March 31, 2023.

Outlook

Farmer Mac continues to provide a stable source of liquidity, capital, and risk management tools as a secondary market that helps meet the financing needs of rural America. The pace and trajectory of Farmer Mac's growth will depend on the capital and liquidity needs of the lending institutions serving agriculture and rural infrastructure businesses and the overall financial health of borrowers in the sectors we serve. Market interest rates have increased significantly since the lows experienced in 2021, and interest rates on Farmer Mac products during the first quarter 2023 were higher than Farmer Mac's 15-year historical averages. New loan origination volumes tend to correlate inversely with changes in interest rates. However, prepayment rates also generally correlate inversely with changes in interest rates, with higher interest rates typically slowing the pace of portfolio loan repayments. Future changes to monetary policy and the overall level, pace, and duration of elevated interest rates could continue to impact the pace and timing of the Agricultural Finance mortgage loan purchase demand and repayments.

Despite a higher interest rate environment, Farmer Mac foresees opportunities for profitable growth across our lines of business driven by several key factors:

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

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

- Economic disruptions could positively affect Farmer Mac's funding costs relative to the market, as historically, major economic events have tended to tilt investors toward high-quality fixed income investments. Furthermore, Farmer Mac's funding strategies are not depository in nature, allowing Farmer Mac to fund beyond short-term disruptions and avoid many potential liquidity concerns. Funding advantages could provide Farmer Mac with more opportunities in a competitive lending environment.

- Farmer Mac's growing relationships with larger regional and national lenders, as well as consolidation within the agricultural lending industry, continue to provide opportunities that could influence Farmer Mac's loan demand and increase the average transaction size within Farmer Mac's lines of business.

- Future growth opportunities in Farmer Mac's Rural Infrastructure Finance line of business may evolve by deepening business relationships with eligible counterparties, financing broadband-related capital expenditures and rural telecommunications facilities, growing opportunities for renewable energy project finance, and exploring new types of loan products.

- Expansion and acquisition opportunities for agricultural producers resulting from high agricultural incomes and rising input costs 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.

- Investments necessary to support consumer demand could increase the need for financing within the food and agriculture supply chain, which may increase the need for incremental capital support from the secondary market.

The higher interest rate environment stressed bank liquidity in first quarter 2023, causing the first commercial bank failures since 2020 and the largest bank failure since 2009. The recently failed banks were not substantial agricultural mortgage originators or Farmer Mac customers. Additionally, Farmer Mac is not a depository institution with volatility in investor withdrawals, which we believe insulates our portfolio from the same kinds of liquidity concerns recently facing various commercial banks. Finally, Farmer Mac offers a range of interest rates, tenors, and rate resetting options for loan products, allowing flexibility for originators and borrowers in all interest rate environments.

The U.S. economy continued to exhibit signs of slowing in first quarter 2023. While consumer spending has retreated modestly from the highs experienced in 2022, the significantly higher interest rate environment continues to create uncertainty for the economic outlook for the U.S. economy in 2023. And while labor markets continue to remain somewhat resilient, slower consumer spending, declines in residential housing investment, continued political debates on the U.S. debt ceiling, and tightening credit conditions following bank industry stress indicate that the probability of a U.S. or global recession is increasing. Farmer Mac believes that its portfolio is sufficiently balanced to withstand the market volatility that arises with an economic recession, as the agricultural, food, and infrastructure industries tend not to be directly correlated with the general economy. Farmer Mac believes these sectors are generally well positioned to withstand an economic downturn due to ample consumer demand and government support.

We believe that the current debt ceiling debate, while creating general market volatility, is not likely to have a material negative effect on Farmer Mac's ability to continue to access the capital debt market and issue debt. We understand that investors generally view GSE debt, such as Farmer Mac's, as a safe alternative and Farmer Mac is seeing continued strong demand at all parts on the yield curve.

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. Farmer Mac expects continued increases in its operating expenses over the next several years, but the growth rate in employee headcount may slow in the coming quarters. We will continue making investments in our infrastructure and funding platforms to support these strategies and scale with our growth.

Agricultural Industry. The agricultural economy experienced generally favorable conditions in first quarter 2023, with level commodity prices and easing input price inflation. In response to Russia's invasion of Ukraine in early 2022, grain commodity prices rose rapidly during first half of 2022 and continued to be elevated during much of the second half of 2022. Higher commodity prices for grains and many animal proteins substantially increased gross cash receipts for the 2022 marketing year. Farm expense price levels fell again in first quarter 2023, driven by moderating feed, energy, and fertilizer prices. However, several farm expense categories such as interest, labor, and other inputs remain elevated and could experience additional upward pressure throughout 2023. Major commodity prices could remain elevated in 2023 as a result of the global supply shortages in food and energy, as well as a weakening U.S. dollar. Any such price stability would help support farm incomes in 2023.

Overall farm income reached new highs in 2022 following a very profitable year in 2021. Net cash farm income increased by more than 28% in 2021 to $149.5 billion. The USDA estimates that net cash farm income climbed another 27% to $189.9 billion in 2022, a new all-time high. For both years, the primary driver of increased profitability was higher cash revenues and not government support payments like in 2019 and 2020. The USDA estimates production expenses rose by 19% in 2022, a level experienced in the 1970s and again in the 2012-2014 agricultural economy expansion. Looking forward, the USDA expects net cash farm income to fall by 21% to $150.6 billion in 2023 due to moderating commodity prices and rising farm expenses. However, the 2023 farm income projections are 20% higher than the 10-year average, demonstrating the continued strength in the farm economy.

The increase in farm profitability combined with low interest rates in 2020 and 2021 drove a rapid rise in land values and a decrease in farm delinquencies and bankruptcies that extended into 2023. Land value survey data from the USDA show a 12.4% increase in average farm real estate values from June 2021 to June 2022. Annual farm real estate value gains were highest in the Northern Plains (19.8%) and the Corn Belt (14.9%) but also strong in the Lake states (13.7%), the Southern Plains (11.3%), and the Pacific (9.7%). The Federal Reserve Bank of Chicago AgLetter reported a 12% gain in farmland values in the Seventh District (primarily Iowa, Indiana, Illinois, and Wisconsin) between January 2022 and January 2023. Data from the Federal Reserve Bank of Kansas City show a similar rise in land values in the Tenth District (primarily Kansas, Missouri, Nebraska, and Oklahoma) during that same period. Farmland value growth rates moderated in fourth quarter 2022 in the face of rapidly rising interest rates. Growth rates in land values could remain low in 2023 due to compressing farm profitability and an elevated interest rate environment. 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 in farmland values than state or national averages indicate.

Economic conditions are likely to bring mixed effects to credit demand during 2023. Strong asset appreciation could signal additional demand and capacity for farm debt as financial decision-makers look to lock in long-term economics for their appreciating farm and agribusiness assets. Farm profitability generally increases asset values and demand for the asset class for multiple years, which also contributes to increasing credit demand. However, the elevated interest rate environment could adversely impact mortgage portfolio growth, potentially lowering new sales and originations but also potentially slowing portfolio prepayments. Finally, a changing yield curve coupled with widening market credit spreads could increase opportunities for corporate and institutional lending, as Farmer Mac's programs become more attractive at higher costs of capital. Combined, these factors are expected to be generally supportive of continued net portfolio growth for Farmer Mac in 2023.

Positive economic conditions in the agricultural economy improved Farmer Mac's agricultural portfolio performance in 2022, and they could continue to positively influence loan delinquencies and losses throughout 2023. Farmer Mac's 90-day delinquency levels increased slightly in first quarter 2023 relative to fourth quarter 2022. The overall delinquency rate increased from 0.41% of the Agricultural Finance line of business as of December 31, 2022 to 0.66% of the Agricultural Finance line of business as of March 31, 2023. The first quarter 2023 percentage is higher than the 0.57% delinquency rate as of March 31, 2022. The increase in the seriously delinquent rate is explained by a small number of larger exposures experiencing idiosyncratic business disruptions. The top five exposures of seriously delinquent loans as of first quarter 2023 represent nearly two-thirds of all 90-day delinquent loans. However, rising input costs, market volatility, and the potential for continued economic and weather-related stress increase the level of uncertainty inherent in the agricultural credit sector, which could negatively affect the trajectory of the current agricultural cycle. Farmer Mac believes that its portfolio continues to be 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 from cyclical and external factors. For more information about the loan balances, loan-to-value ratios, 90-day delinquencies, and substandard asset rate for the Agricultural Finance mortgage loans in Farmer Mac's portfolio as of March 31, 2023, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Risk Management—Credit Risk—Loans and Guarantees."

Exogenous factors facing farm and food producers can create uncertainty and market instability within the sector. External market conditions that could adversely impact the farm and food sectors in 2023 include foreign trade and trade policy, supply chain disruptions, and environmental conditions. The U.S. agricultural sector has become increasingly dependent on foreign markets as a source of demand, making trade policy an important consideration for farms and food. The USDA's estimate for fiscal year 2023 is a small decrease in export value over 2022, but through February 2023, agricultural export values were up approximately 3% in 2023 compared to 2022. The value of the U.S. dollar relative to other major currencies fell 1% in first quarter 2023, which may help support farm, food, fiber, and fuel exports through the first half of 2023. Slower global growth could be a headwind for consumer-oriented products like animal proteins, dairy, fruits, and nuts, and Ukrainian corn and wheat production may eventually stabilize. Because Farmer Mac has significant exposure to crop commodities like corn, soybeans, hay, wheat, and cotton, a sustained rally in agricultural commodities is likely to continue to benefit Farmer Mac's overall portfolio credit quality more than degradation from downward pressure on livestock and consumer product profitability.

Severe weather conditions and long-term environmental change continue to shape agricultural sectors. The U.S. experienced 18 separate billion-dollar weather disasters in 2022, as tracked by the National Oceanic and Atmospheric Administration. Many of those events affected agriculture, including midwestern storms, western wildfires, and drought. Federal crop insurance provides a strong mitigator against this risk, but farmers and ranchers face increasingly-severe weather incidents. Long and persistent drought conditions affected agricultural production regions in the western and midwestern parts of the United States in 2021 and 2022, but there has been a sizable improvement in conditions in fourth quarter 2022 and the first quarter 2023, particularly in California. Roughly 6% of the continental U.S. remained in exceptional or extreme drought as of April 18, 2023, according to data from the National Drought Mitigation Center. While this represents the lowest level of widespread drought since 2020, the current drought cycle is the longest in nearly 20 years. For loans in areas that commonly experience exceptional drought (primarily in California), Farmer Mac's underwriting process includes an assessment of anticipated long-term water availability for the related property and how that impacts the collateral value and borrower's cash flow position to mitigate that risk. Flooding can also disrupt agricultural production, although the impacts are generally more temporary than those from extended drought. Copious winter precipitation in California has resulted in field flooding, particularly in the Tulare Lake bed. Farmer Mac has limited portfolio exposure in affected areas, but California flooding could remain a disruptor for western agricultural production in the coming quarters of 2023.

Rural Infrastructure Industry. Economic conditions affecting the rural infrastructure industry typically follow those in the general economy. According to data from the U.S. Energy Information Administration, sales and the revenue from the sale of electricity to customers increased by 1.4% and 14.9%, respectively, in the last 12 months through February 2023 compared to February 2022. This increase was driven by a sharp increase in sales to the commercial, industrial, and transportation sectors and an increase in the retail price of electricity. Higher energy input prices such as natural gas and coal became a headwind in 2022.

Natural gas prices rose consistently in 2021 and 2022 because of reduced supply and additional demand for U.S. liquified natural gas from European countries. Coal prices also rapidly increased in 2022, driven by higher natural gas prices and additional overseas demand to offset limited Russian coal exports. Despite higher input costs, power producers are generally able to pass cost increases through higher retail electricity prices, which has contributed to the increase in electricity costs impacting retail customers throughout 2022. Oil and natural gas prices were volatile during much of 2022 but moderated in fourth quarter 2022 and early 2023. Through March 31, 2023, Farmer Mac had not observed material degradation in the financial performance of its rural infrastructure portfolio, and that portfolio has never experienced a serious delinquency or default since inception.

Prospects for loan growth within the rural infrastructure industry overall appear to be moderate in the near term, as ongoing normal-course capital expenditures related to maintaining and upgrading utility infrastructure continue at typical levels. Farmer Mac's future growth opportunities for financing the electric 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 changing interest rate environment, increased policy initiatives to support rural connectivity, and competitive dynamics within the rural utilities cooperative finance industry. Cooperatives and service providers have access to numerous federally funded programs, such as the Federal Communications Commission's Rural Digital Opportunity Fund (RDOF), the USDA's ReConnect, and the USDA's Telecommunications Infrastructure Loan and Loan Guarantee program. In addition to capital projects spurred by these programs, Farmer Mac could see an increase in financing opportunities for other telecommunications providers in rural areas, with wireless broadband increasingly important to economic opportunity and precision agriculture.

The growth in renewable energy generation and deployment of energy storage technologies may help deepen Farmer Mac's relationships with existing customers through new business opportunities. According to data from the U.S. Energy Information Administration, renewable electricity capacity is expected to grow by 48% in the next five years, compared to total electric capacity growth of 10%. The rising cost of fossil fuel-based inputs combined with the falling costs of renewable power generation may hasten this increase in capacity along with recently enacted legislature, such as the Inflation Reduction Act of 2022 that incentivizes domestic production in clean energy technologies such as solar and wind. Any such growth in renewable energy capacity may broaden Farmer Mac's customer base with cooperative lenders focused on lending to renewable energy customers. In response to this expected growth, Farmer Mac has deployed new financing products tailored to the renewable energy sector, which represents a new market opportunity for Farmer Mac. Under this initiative, Farmer Mac's total outstanding loans and loan commitments of renewable energy financing transactions was $308.5 million as of March 31, 2023.

Legislative and Regulatory Outlook. Farmer Mac continues to monitor potential legislative and regulatory changes that could affect Farmer Mac or its stakeholders, including:

- The current farm bill expires on September 30, 2023. Covering a variety of programs impacting farm profitability, agricultural credit, and rural infrastructure, it is a critical piece of legislation for rural America and the agricultural sector which includes Farmer Mac customers. Congress has started an extensive process to review programs that are included in the farm bill in preparation for reauthorization. Farmer Mac is seeking enhancement to its charter in this farm bill reauthorization to enhance its partnerships and services in support of farmers, ranchers, agribusinesses, and rural infrastructure. Farmer Mac will continue to work with Congress to enhance its charter and monitor changes to farm bill programs that may impact farm sector profitability.

- On January 13, 2023, the FCA board approved an advanced notice of proposed rulemaking to review Farmer Mac's regulatory capital framework. The notice sought public comment on Farmer Mac's regulatory capital requirements in the context of its business activities. The comment period was originally scheduled to close March 27, 2023 but was later extended to April 26, 2023. Farmer Mac and ten other organizations submitted comment letters before the extended deadline. In the FCA's proposed spring regulatory agenda, the agency is targeting a proposed rulemaking on Farmer Mac's regulatory capital framework for May 2024. This timeline may change, and Farmer Mac's management team will continue to monitor the FCA's process for this potential rulemaking.

- On September 29, 2022, the U.S. Senate confirmed Vincent Logan to be a member of the FCA board. Mr. Logan was subsequently appointed to be the Chairman and CEO of the FCA by President Biden on October 21, 2022. The remaining two members of the board are currently serving in holdover status because their terms have expired. These board members will continue to serve in their roles until replacements are nominated by the President and confirmed by the U.S. Senate. In addition to changes at the board level, the director of the Office of Secondary Market Oversight (OSMO), the office at FCA responsible for the examination, regulation, and supervision of the activities of Farmer Mac to ensure its safety and soundness, retired in December 2022. FCA has designated an acting director while the agency works to appoint a full-time director.

Balance Sheet Review

The following table summarizes Farmer Mac's balance sheet as of the periods indicated:

Table 21

	As of		Change	
	March 31, 2023	December 31, 2022	$	%
		(in thousands)		
Assets				
Cash and cash equivalents	$ 864,594	$ 861,002	$ 3,592	— %
Investment securities	4,696,168	4,628,268	67,900	1 %
Farmer Mac Guaranteed Securities	9,219,420	8,628,380	591,040	7 %
USDA Securities	2,360,333	2,411,601	(51,268)	(2)%
Loans, net of allowance	8,900,485	8,994,350	(93,865)	(1)%
Loans held in trusts	1,467,855	1,211,116	256,739	21 %
Other	431,092	598,393	(167,301)	(28)%
Total assets	$ 27,939,947	$ 27,333,110	$ 606,837	2 %
Liabilities				
Notes Payable	$ 24,837,391	$ 24,469,113	$ 368,278	2 %
Debt securities of consolidated trusts held by third parties	1,374,332	1,181,948	192,384	16 %
Other	435,839	410,091	25,748	6 %
Total liabilities	$ 26,647,562	$ 26,061,152	$ 586,410	2 %
Total equity	1,292,385	1,271,958	20,427	2 %
Total liabilities and equity	$ 27,939,947	$ 27,333,110	$ 606,837	2 %

Assets. The increase in total assets was primarily attributable to new loan volume, including those held in consolidated trusts, new Farmer Mac Guaranteed Securities, and a larger investment portfolio.

Liabilities. The increase in total liabilities was primarily due to an increase in total notes payable to fund the acquisition of loan volume, including those held in consolidated trusts.

Equity. The increase in total equity was primarily due to an increase in retained earnings, partially offset by a decrease in accumulated other comprehensive income.

Risk Management

Credit Risk – Loans and Guarantees.

Agricultural Finance - Direct Credit Exposure

Farmer Mac's direct credit exposure to Agricultural Finance mortgage loans as of March 31, 2023 was $10.7 billion across 48 states. Farmer Mac applies credit underwriting standards and methodologies to help assess exposures to loan purchases, which may include collateral valuation, financial metrics, and other appropriate borrower financial and credit information. For Corporate AgFinance loans, which are often larger loan exposures to agriculture production and agribusinesses that support agriculture production, food and fiber processing, and other supply chain production, and which may have risk profiles that differ from smaller agricultural mortgage loans, Farmer Mac has implemented methodologies and parameters that help assess credit risk based on the appropriate sector, borrower construct, and transaction complexity. For more information about Farmer Mac's underwriting and collateral valuation standards for Agricultural Finance mortgage loans, see "Business—Farmer Mac's Lines of Business—Agricultural Finance—Underwriting and Collateral Standards—Farm & Ranch" and "Business—Farmer Mac's Lines of Business—Agricultural Finance—Underwriting and Collateral Standards—Corporate AgFinance" in Farmer Mac's 2022 Annual Report.

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. For Agricultural Finance mortgage loans to which Farmer Mac has direct credit exposure, Farmer Mac's 90-day delinquencies as of March 31, 2023, were $70.6 million (0.66% of the Agricultural Finance mortgage loan portfolio to which Farmer Mac has direct credit exposure), compared to $43.5 million (0.41% of the Agricultural Finance mortgage loan portfolio) as of December 31, 2022. Those 90-day delinquencies were comprised of 51 delinquent loans as of March 31, 2023, compared to 37 delinquent loans as of December 31, 2022. The increase in 90-day delinquencies was primarily driven by increased delinquencies in permanent plantings and crops and was partially offset by decreased delinquencies in agricultural storage and processing. The top ten borrower exposures over 90 days delinquent represented over half of the 90-day delinquencies as of March 31, 2023. Farmer Mac believes that it remains adequately collateralized on its delinquent loans.

Farmer Mac's 90-day delinquency rate as of March 31, 2023 was below Farmer Mac's historical average. In the near-term, our delinquency rate may exceed our historical average due to the impact of adverse weather events on the agricultural economy. Farmer Mac's average 90-day delinquency rate as a percentage of its Agricultural Finance mortgage loan 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 ethanol loan portfolio.

The following table presents historical information about Farmer Mac's 90-day delinquencies in the Agricultural Finance mortgage loan portfolio compared to the unpaid principal balance of all Agricultural Finance mortgage loans to which Farmer Mac has direct credit exposure:

Table 22

	Agricultural Finance Mortgage Loans	90-Day Delinquencies	Percentage
	(dollars in thousands)		
As of:			
March 31, 2023	$ 10,680,419	$ 70,646	0.66 %
December 31, 2022	10,719,571	43,498	0.41 %
September 30, 2022	10,508,549	44,232	0.42 %
June 30, 2022	10,128,083	20,623	0.20 %
March 31, 2022	9,879,978	55,847	0.57 %
December 31, 2021	9,811,749	47,307	0.48 %
September 30, 2021	9,445,359	54,792	0.58 %
June 30, 2021	9,056,152	63,076	0.70 %
March 31, 2021	8,629,352	72,346	0.84 %

Across all of Farmer Mac's lines of business, 90-day delinquencies represented 0.27% of total outstanding business volume as of March 31, 2023, compared to 0.17% as of December 31, 2022 and 0.23% as of March 31, 2022.

The following table presents outstanding Agricultural Finance mortgage loans and 90-day delinquencies as of March 31, 2023 by year of origination, geographic region, commodity/collateral type, original loan-to-value ratio, and range in the size of borrower exposure:

Table 23

Agricultural Finance Mortgage Loans 90-Day Delinquencies as of March 31, 2023	Distribution of Agricultural Loans	Agricultural Loans	90-Day Delinquencies[1]	Percentage
		(dollars in thousands)		
By year of origination:				
2013 and prior	7 %	$ 819,171	$ 3,472	0.42 %
2014	2 %	210,277	1,001	0.48 %
2015	3 %	339,986	10,901	3.21 %
2016	5 %	543,184	4,519	0.83 %
2017	5 %	531,403	6,503	1.22 %
2018	6 %	609,455	2,707	0.44 %
2019	8 %	849,808	16,858	1.98 %
2020	19 %	2,011,754	5,972	0.30 %
2021	25 %	2,659,563	931	0.04 %
2022	17 %	1,793,221	5,961	0.33 %
2023	3 %	312,597	11,821	0.33 %
Total	100 %	$ 10,680,419	$ 70,646	0.66 %
By geographic region[2]:				
Northwest	13 %	$ 1,374,647	$ 2,286	0.17 %
Southwest	30 %	3,236,371	21,332	0.66 %
Mid-North	27 %	2,845,425	5,830	0.20 %
Mid-South	17 %	1,835,733	11,469	0.62 %
Northeast	4 %	434,604	1,545	0.36 %
Southeast	9 %	953,639	28,184	2.96 %
Total	100 %	$ 10,680,419	$ 70,646	0.66 %
By commodity/collateral type:				
Crops	50 %	$ 5,343,256	$ 21,247	0.40 %
Permanent plantings	22 %	2,351,228	26,674	1.13 %
Livestock	18 %	1,942,909	6,429	0.33 %
Part-time farm	5 %	480,524	3,041	0.63 %
Ag. Storage and Processing	5 %	545,263	13,255	2.43 %
Other	— %	17,239	—	— %
Total	100 %	$ 10,680,419	$ 70,646	0.66 %
By original loan-to-value ratio:				
0.00% to 40.00%	20 %	$ 2,090,711	$ 16,975	0.81 %
40.01% to 50.00%	23 %	2,429,301	15,828	0.65 %
50.01% to 60.00%	36 %	3,803,256	12,860	0.34 %
60.01% to 70.00%	19 %	2,080,937	24,532	1.18 %
70.01% to 80.00%[3]	2 %	250,351	451	0.18 %
80.01% to 90.00%[3]	— %	25,863	—	— %
Total	100 %	$ 10,680,419	$ 70,646	0.66 %
By size of borrower exposure[4]:				
Less than $1,000,000	26 %	$ 2,770,722	$ 8,192	0.30 %
$1,000,000 to $4,999,999	37 %	3,986,078	26,681	0.67 %
$5,000,000 to $9,999,999	15 %	1,656,963	—	— %
$10,000,000 to $24,999,999	13 %	1,337,406	35,773	2.67 %
$25,000,000 and greater	9 %	929,250	—	— %
Total	100 %	$ 10,680,419	$ 70,646	0.66 %

(1) Includes loans held and loans underlying off-balance sheet Farmer Mac 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 Agricultural Finance mortgage loans is the level of internally-rated "substandard" assets, both in dollars and as a percentage of the outstanding 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 March 31, 2023, Farmer Mac's Agricultural Finance mortgage loans (to which it has direct credit exposure) comprising substandard assets were $205.1 million (1.9% of the portfolio), compared to $209.4 million (2.0% of the portfolio) as of December 31, 2022. Those substandard assets comprised 241 loans as of March 31, 2023 and 243 loans as of December 31, 2022.

The decrease of $4.3 million in substandard assets during first quarter 2023 was primarily driven by credit upgrades in our off-balance sheet portfolios. Substandard assets decreased as a percentage of our off-balance sheet portfolio and remained flat as a percentage of our on-balance sheet portfolio.

The percentage of substandard assets within the portfolio as of March 31, 2023 was below the historical average. Farmer Mac's average substandard assets as a percentage of its Agricultural Finance mortgage loans over the last 15 years is approximately 4%. 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 ethanol portfolio. 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.

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 March 31, 2023 and December 31, 2022, the average unpaid principal balances for Agricultural Finance mortgage loans outstanding and to which Farmer Mac has direct credit exposure was $796,000 and $806,000, 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 Agricultural Finance mortgage loans purchased during first quarter 2023 was 44%, compared to 46% for loans purchased during first quarter 2022. The weighted-average original loan-to-value ratio for Agricultural Finance mortgage loans and loans underlying off-balance sheet Farmer Mac Guaranteed Securities and LTSPCs was 50% and 51% as of March 31, 2023 and December 31, 2022, respectively. The weighted-average original loan-to-value ratio for all 90-day delinquencies was 47% and 46% as of March 31, 2023 and December 31, 2022, 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 Agricultural Finance mortgage loans and loans underlying off-balance sheet Farmer Mac Guaranteed Securities and LTSPCs was 45% and 46% as of March 31, 2023 and December 31, 2022, respectively.

The following table presents the current loan-to-value ratios for the Agricultural Finance mortgage loans to which Farmer Mac has direct credit exposure, as disaggregated by internally assigned risk ratings:

Table 24

Agricultural Finance Mortgage Loans current loan-to-value ratio by internally assigned risk rating as of March 31, 2023

	Acceptable	Special Mention	Substandard	Total
	(in thousands)			
Current loan-to-value ratio[1]:				
0.00% to 40.00%	$ 3,235,944	$ 54,460	$ 68,977	$ 3,359,381
40.01% to 50.00%	2,646,626	95,201	55,480	2,797,307
50.01% to 60.00%	2,808,964	95,155	39,080	2,943,199
60.01% to 70.00%	1,212,885	98,301	21,150	1,332,336
70.01% to 80.00%	186,235	13,276	16,415	215,926
80.01% and greater	27,649	651	3,970	32,270
Total	$ 10,118,303	$ 357,044	$ 205,072	$ 10,680,419

(1) The current loan-to-value ratio is based on original appraised value (or most recently obtained valuation, 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 Agricultural Finance mortgage loans as of March 31, 2023 by year of origination, geographic region, and commodity/collateral type. The purpose of this table is to present information about realized losses relative to original Farm & Ranch purchases, guarantees, and commitments.

Table 25

Agricultural Finance Mortgage Loans Credit Losses Relative to Cumulative Original Loans, Guarantees, and LTSPCs as of March 31, 2023

	Cumulative Original Loans, Guarantees and LTSPCs	Cumulative Net Credit Losses/ (Recoveries)	Cumulative Loss Rate
	(dollars in thousands)		
By year of origination:			
2013 and prior	$ 18,734,932	$ 33,785	0.18 %
2014	1,088,631	—	— %
2015	1,249,141	(516)	(0.04)%
2016	1,590,216	903	0.06 %
2017	1,690,606	4,311	0.25 %
2018	1,389,000	—	— %
2019	1,599,060	—	— %
2020	2,905,165	—	— %
2021	3,282,649	—	— %
2022	1,970,695	—	— %
2023	322,353		— %
Total	$ 35,822,448	$ 38,483	0.11 %
By geographic region[1]:			
Northwest	$ 4,602,960	$ 12,094	0.26 %
Southwest	12,051,103	8,542	0.07 %
Mid-North	8,961,223	17,165	0.19 %
Mid-South	5,082,841	(613)	(0.01)%
Northeast	1,855,518	323	0.02 %
Southeast	3,268,803	972	0.03 %
Total	$ 35,822,448	$ 38,483	0.11 %
By commodity/collateral type:			
Crops	$ 16,564,150	$ 3,790	0.02 %
Permanent plantings	7,792,137	9,783	0.13 %
Livestock	7,851,668	3,836	0.05 %
Part-time farm	1,901,315	1,090	0.06 %
Ag. Storage and Processing	1,544,587	19,984	1.29 %
Other	168,591	—	— %
Total	$ 35,822,448	$ 38,483	0.11 %

(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 Agricultural Finance mortgage loans by commodity type within geographic region and cumulative credit losses by origination year and commodity type:

Table 26

	As of March 31, 2023						
	Agricultural Finance Mortgage Loans 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	$ 714,060	$ 223,361	$ 292,864	$111,727	$ 32,612	$ 23	$1,374,647
	6.7 %	2.1 %	2.7 %	1.0 %	0.3 %	— %	12.8 %
Southwest	697,278	1,754,034	546,386	107,857	115,357	15,459	3,236,371
	6.5 %	16.4 %	5.1 %	1.0 %	1.1 %	0.1 %	30.2 %
Mid-North	2,364,622	10,302	251,248	86,220	131,487	1,546	2,845,425
	22.1 %	0.1 %	2.4 %	0.8 %	1.2 %	— %	26.6 %
Mid-South	1,060,297	78,596	563,555	62,770	70,498	16	1,835,732
	9.9 %	0.7 %	5.3 %	0.6 %	0.7 %	— %	17.2 %
Northeast	187,978	44,408	68,789	50,311	83,118	—	434,604
	1.8 %	0.4 %	0.6 %	0.5 %	0.8 %	— %	4.1 %
Southeast	319,021	240,527	220,067	61,639	112,191	195	953,640
	3.0 %	2.3 %	2.1 %	0.6 %	1.1 %	— %	9.1 %
Total	$5,343,256	$2,351,228	$1,942,909	$480,524	$545,263	$17,239	$10,680,419
	50.0 %	22.0 %	18.2 %	4.5 %	5.2 %	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 27

	As of March 31, 2023					
	Agricultural Loans 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:						
2013 and prior	$ 3,427	$ 9,783	$ 3,836	$ 1,066	$ 15,673	$ 33,785
2014	—	—	—	—	—	—
2015	(540)	—	—	24	—	(516)
2016	903	—	—	—	—	903
2017	—	—	—	—	4,311	4,311
2018	—	—	—	—	—	—
2019	—	—	—	—	—	—
2020	—	—	—	—	—	—
2021	—	—	—	—	—	—
2022	—	—	—	—	—	—
2023	—	—	—	—	—	—
Total	$ 3,790	$ 9,783	$ 3,836	$ 1,090	$ 19,984	$ 38,483

For more information about the credit quality of Farmer Mac's Agricultural Finance mortgage loans and the associated allowance for losses please refer to Note 5 and Note 6 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."

Rural Infrastructure Finance - Direct Credit Exposure

Farmer Mac's direct credit exposure to Rural Infrastructure Finance loans held and loans underlying LTSPCs as of March 31, 2023 was $3.7 billion across 45 states. For more information about Farmer Mac's underwriting and collateral valuation standards for Rural Infrastructure Finance loans, see "Business—Farmer Mac's Lines of Business—Rural Infrastructure Finance—Underwriting and Collateral Standards" in Farmer Mac's 2022 Annual Report. As of March 31, 2023, there were no delinquencies in Farmer Mac's portfolio of Rural Infrastructure Finance loans.

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 28

	Rural Infrastructure Finance portfolio by internally assigned risk rating as of March 31, 2023			
	Acceptable	Special Mention	Substandard	Total
	(in thousands)			
Distribution Cooperative	$ 2,339,582	$ —	$ —	$ 2,339,582
G&T Cooperative	677,515	—	—	677,515
Renewable Energy	308,493	—	—	308,493
Telecommunications	356,102	—	—	356,102
Rural Infrastructure Total	$ 3,681,692	$ —	$ —	$ 3,681,692

For more information about the credit quality of Farmer Mac's Rural Infrastructure Finance 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 to the USDA Securities in the Agricultural Finance line of business because of the USDA guarantee. As of March 31, 2023, Farmer Mac had not experienced any credit losses on any USDA Securities or Farmer Mac Guaranteed USDA Securities 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 Securities.

Farmer Mac requires many lenders to make representations and warranties about the conformity of Agricultural Finance mortgage 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 March 31, 2023, 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 Finance mortgage loans (other than rural housing and part-time farm mortgage loans) and Rural Infrastructure Finance 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. For more information about Farmer Mac's loan eligibility requirements and underwriting standards, see "Business—Farmer Mac's Lines of Business—Agricultural Finance—Loan Eligibility," "Business—Farmer Mac's Lines of Business—Agricultural Finance—Underwriting and Collateral Standards—Farm & Ranch," "Business—Farmer Mac's Lines of Business—Agricultural Finance—Underwriting and Collateral Standards—Corporate AgFinance," and "Business—Farmer Mac's Lines of Business—Rural Infrastructure Finance—Underwriting and Collateral Standards" in Farmer Mac’s 2022 Annual Report.

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 material 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 March 31, 2023, 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—Agricultural Finance—Loan Servicing" and "Business—Farmer Mac's Lines of Business—Rural Infrastructure Finance—Lenders and Loan Servicing" in Farmer Mac's 2022 Annual Report.

Credit Risk – Counterparty Risk. 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 loans that become and remain (within specified parameters) delinquent in the payment of principal or interest and to substitute eligible loans that are current in payment or pay down the AgVantage securities to maintain the minimum required collateralization level.

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. As a result, Farmer Mac has indirect credit exposure to the Agricultural Finance mortgage loans and Rural Infrastructure loans that secure AgVantage securities. For AgVantage counterparties that are institutional real estate investors or financial funds and other similar entities, Farmer Mac also typically requires that the counterparty (1) maintain a higher collateralization level, through either a higher overcollateralization percentage or lower loan-to-value ratio thresholds and (2) comply with specified financial covenants for the life of the related AgVantage security to avoid default. As of March 31, 2023, Farmer Mac had not experienced any credit losses on any AgVantage securities. For a more detailed description of AgVantage securities, see "Business—Farmer Mac's Lines of Business—Agricultural Finance—Other Products – Agricultural Finance—AgVantage Securities" and "Business—Farmer Mac's Lines of Business—Rural Infrastructure Finance—Other Products – Rural Infrastructure Finance—AgVantage Securities" in Farmer Mac's 2022 Annual Report.

The unpaid principal balance of outstanding on-balance sheet AgVantage securities secured by loans eligible for the Agricultural Finance line of business totaled $6.0 billion as of both March 31, 2023 and December 31, 2022. The unpaid principal balance of on-balance sheet AgVantage securities secured by loans eligible for the Rural Infrastructure Finance line of business totaled $3.5 billion as of March 31, 2023 and $3.0 billion as of December 31, 2022. The unpaid principal balance of outstanding off-balance sheet AgVantage securities totaled $1.1 million as of March 31, 2023 and $1.2 million as of December 31, 2022.

The following table provides information about the issuers of AgVantage securities and the required collateralization levels for those transactions as of March 31, 2023 and December 31, 2022:

Table 29

	As of March 31, 2023		As of December 31, 2022	
Counterparty	Balance	Required Collateralization	Balance	Required Collateralization
		(dollars in thousands)		
AgVantage:				
CFC	$ 3,516,483	100%	$ 3,045,325	100%
MetLife	2,050,000	103%	2,050,000	103%
Rabo AgriFinance	2,925,000	105%	2,855,000	105%
Other[(1)]	1,037,685	100% to 125%	1,059,600	100% to 125%
Total outstanding	$ 9,529,168		$ 9,009,925	

(1) Consists of AgVantage securities issued by 10 and 12 different issuers as of March 31, 2023 and 2022, respectively.

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 credit rating agency reports. For more information about Farmer Mac's lender eligibility requirements, see "Business—Farmer Mac's Lines of Business—Agricultural Finance—Lenders" and "Business—Farmer Mac's Lines of Business—Rural Infrastructure Finance—Lenders and Loan Servicing" in Farmer Mac’s 2022 Annual Report.

Farmer Mac manages institutional credit risk related to its interest rate swap counterparties through collateralization provisions contained in each of its swap agreements that vary 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 March 31, 2023, Farmer Mac had $0.9 billion of cash and cash equivalents and $4.7 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 regulations issued by the FCA found at 12 C.F.R. §§ 652.1-652.45 ("Liquidity and Investment Regulations"). 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.

The Liquidity and Investment Regulations and Farmer Mac's 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.

The Liquidity and Investment Regulations and Farmer Mac's internal policies also establish concentration limits, which are intended to limit exposure to any single entity, issuer, or obligor. The 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 ($137.0 million as of March 31, 2023). However, Farmer Mac's current policy limits this total credit exposure to 5% of its regulatory capital ($68.5 million as of March 31, 2023). 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 interest-earning assets on its balance sheet because of timing differences in the cash flows due to maturity, paydown, or repricing of the assets and debt together with financial derivatives. Cash flow mismatches due to changing interest rates 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 realize a decline in income if assets repay more slowly than originally forecasted and the associated maturing debt must be replaced by debt issuances at higher interest rates.

Interest Rate Risk Management

The goal of interest rate risk management at Farmer Mac is to manage the balance sheet in a manner that generates stable earnings and value across a variety of interest rate environments. Recognizing that interest rate sensitivities may change with the passage of time and as interest rates change, Farmer Mac regularly assesses this exposure and, if necessary, adjusts its portfolio of interest-earning assets, debt, and financial derivatives.

Farmer Mac's objective is to maintain its exposure to interest rate risk within appropriate limits, as approved by Farmer Mac's board of directors. Farmer Mac's management-level Asset and Liability Committee ("ALCO") provides oversight, establishes guidelines, and approves strategies to maintain interest rate risk within the board-established limits.

Farmer Mac's primary strategy for managing interest rate risk is to fund asset purchases with debt that together with financial derivatives have similar duration and convexity characteristics and help mitigate impacts from interest rate changes across the yield curve. As part of this strategy, Farmer Mac seeks to issue debt securities across a variety of maturities that together with financial derivatives closely align the forecasted debt and financial derivative cash flows with forecasted asset cash flows.

Farmer Mac issues discount notes and both callable and non-callable medium-term notes across a spectrum of maturities to execute its debt issuance strategy. Portions of Farmer Mac's callable debt is issued to mitigate prepayment risk associated with certain interest-earning assets held on balance sheet. In general, as interest rates decline, prepayments typically increase, and Farmer Mac is able to economically extinguish certain callable debt issuances. In addition, Farmer Mac enters into financial derivatives, primarily interest rate swaps, to better match the durations of Farmer Mac's assets and liabilities, thereby reducing overall sensitivity to changing interest rates.

Taking into consideration the prepayment provisions and the default probabilities associated with its portfolio of interest-earning assets, Farmer Mac incorporates behavioral models when projecting and valuing cash flows associated with these assets. In recognition that 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 the timing of asset prepayments which may, in turn, impact durations and values of the assets. Declining interest rates generally result in increased prepayments, which shortens the duration of these assets, while rising interest rates generally result in lower prepayments, thereby extending the duration of the assets.

Farmer Mac is subject to interest rate risk on loans and securities it has committed to acquire but 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 assets, 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 these loans. Farmer Mac manages the interest rate risk exposure related to these loans by entering into exchange-traded futures contracts involving U.S. Treasury securities and other financial derivatives. Similarly, when Farmer Mac commits to sell certain assets, the associated interest rate exposure is primarily managed with exchange-traded futures contracts involving U.S. Treasury securities and other financial derivatives.

Farmer Mac's $0.9 billion of cash and cash equivalents held as of March 31, 2023 mature within three months. As of March 31, 2023, $3.2 billion of the $4.7 billion of investment securities (69%) were floating rate securities with rates that adjust within one year or fixed rate securities with original maturities between three months and one year. Farmer Mac's floating rate investment securities are funded with floating rate debt. The fixed rate investment securities are generally funded in a manner consistent with Farmer Mac's overall funding strategy that approximates a duration and convexity match.

Interest Rate Risk Metrics

Farmer Mac regularly evaluates and conducts interest rate shock simulations on its portfolio of financial assets, debt, and financial derivatives and examines a variety of metrics to quantify and manage its exposure to interest rate risk. These metrics include sensitivity to interest rate movements on the market value of equity ("MVE") and forecasted net effective spread ("NES") as well as a duration gap analysis.

MVE represents management's estimate of the present value of all future cash flows from its current portfolio of 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. The MVE sensitivity analysis measures the degree to which the market values of Farmer Mac's assets, liabilities, and financial derivatives are estimated to change for a given change in interest rates.

Farmer Mac's NES simulation represents the difference between projected income over the next twelve months from the current portfolio of interest-earning assets and interest expense produced by the related funding, including associated financial derivatives. Farmer Mac's NES simulation may be impacted by changes in market interest rates resulting from timing differences between maturities and re-pricing characteristics of funded assets and debt together with the associated financial derivatives. The direction and magnitude of any such effect depends on the direction and magnitude of the change in interest rates across the yield curve as well as the composition of Farmer Mac's portfolio. The NES simulation 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, the NES simulation sensitivity statistics provide a short-term view of Farmer Mac's NES income sensitivity to interest rate shocks.

Duration is a measure of a financial instrument's fair value sensitivity to small changes in interest rates. Duration gap is calculated using the net estimated durations of Farmer Mac's interest-earning assets, debt, and financial derivatives. Duration gap quantifies the extent to which estimated fair value sensitivities are matched for interest-earning assets, debt and financial derivatives. 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 interest-earning assets is greater than the duration of its debt and financial derivatives. A positive duration gap indicates that with small changes in interest rate movements the fair value change of Farmer Mac's interest-earning assets is more sensitive than the fair value change of its debt and financial derivatives. Conversely, a negative duration gap indicates that with small changes in interest rate movements the fair value change of Farmer Mac's interest-earning assets are less sensitive than the fair value change of its debt and financial derivatives. A duration gap of zero indicates that with small changes in interest rate movements the fair value change of Farmer Mac's interest-earning assets is effectively offset by the fair value change of its debt and financial derivatives.

Each of the interest rate risk metrics is quantified using asset/liability models and derived based on management's best estimates of factors such as implied forward interest rates across the yield curve, interest rate volatility, and timing of asset prepayments and callable debt redemptions. Accordingly, these metrics are estimates rather than precise measurements. Actual results may differ to the extent there are material changes to Farmer Mac's financial asset portfolio or changes in funding or hedging 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 March 31, 2023 and December 31, 2022 to an immediate and instantaneous uniform or "parallel" shift in the yield curve:

Table 30

	Percentage Change in MVE from Base Case	
Interest Rate Scenario	As of March 31, 2023	As of December 31, 2022
+100 basis points	(3.2)%	(3.7)%
-100 basis points	2.5 %	2.7 %

	Percentage Change in NES from Base Case	
Interest Rate Scenario	As of March 31, 2023	As of December 31, 2022
+100 basis points	0.2 %	0.4 %
-100 basis points	(0.4)%	(0.6)%

As of March 31, 2023, Farmer Mac's duration gap was positive 3.1 months, compared to positive 3.6 months as of December 31, 2022. Interest rates within the yield curve flattened during 2023 with the 2-year and 10-year U.S. Treasury Note yield-to-maturity increasing by approximately 40 basis points and 41 basis points, respectively, versus year-end 2022. This rate movement contributed to shortening the duration of Farmer Mac's funded assets compared to its debt and financial derivatives, thereby narrowing 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 typically enters into the following types of financial derivative transactions principally to protect against risk from the effects of market price or interest rate movements on the value of interest-earning assets, future cash flows, and debt issuance, and 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;
- "basis swaps," in which Farmer Mac pays floating rates of interest based on one index to, and receives floating rates of interest based on a different index from, counterparties; and
- exchange-traded futures contracts involving U.S. Treasury securities.

As of March 31, 2023, Farmer Mac had $25.0 billion combined notional amount of interest rate swaps, with terms ranging from less than one year to just over thirty years, of which $9.1 billion were pay-fixed interest rate swaps, $14.1 billion were receive-fixed interest rate swaps, and $1.8 billion were basis swaps.

Farmer Mac enters into interest rate swaps to more closely match the cash flow and duration characteristics of its interest-earning assets with those of its debt. For example, Farmer Mac transacts pay-fixed interest rate swaps and issues floating rate debt to effectively create fixed rate funding that approximately matches the duration of the corresponding fixed rate assets being funded. Farmer Mac evaluates the overall cost of using interest rate swaps in conjunction with debt issuance as a funding alternative to duration-matched debt and enters into 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 or SOFR). 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 undesignated financial derivatives are reported in "Gains 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 floating 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 interest rate swap transactions are conducted under standard collateralized agreements that limit Farmer Mac's potential credit exposure to any counterparty. As of both March 31, 2023 and December 31, 2022, Farmer Mac had no uncollateralized net exposures based on the mark-to-market value of the portfolio of interest rate swaps

Re-funding and repricing risk

Farmer Mac is subject to re-funding and repricing risk on any floating rate assets that are not funded to contractual maturity. Re-funding and repricing risk arises from potential changes in funding costs resulting from a funding strategy whereby Farmer Mac issues floating rate debt across a variety of maturities to fund floating rate or synthetically floating rate assets that on average may have longer maturities. Changes in Farmer Mac's funding costs relative to the benchmark market index rate to which the assets are indexed can cause changes to net interest income when debt matures and is reissued at then current interest rates to continue funding those assets.

Farmer Mac is subject to re-funding and repricing risk on a portion 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 floating rate assets that require floating rate funding.

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

- issuing short-term fixed rate 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 floating rate to match the interest rate reset dates of the assets.

To meet certain floating rate funding needs, Farmer Mac frequently issues shorter-term floating-rate medium-term notes or fixed rate medium-term notes paired with a received-fixed interest rate swap because these funding alternatives 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 debt issuance and liquidity management strategies.

However, if the funding cost of Farmer Mac’s discount notes or medium-term notes increased relative to the benchmark market index of the associated assets 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 of net effective spread. Conversely, if the funding cost on Farmer Mac’s discount notes or medium-term notes decreased relative to the benchmark market index during that time, Farmer Mac would benefit from a commensurate increase to net effective spread.

Farmer Mac's debt 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. Farmer Mac regularly adjusts its funding strategies to mitigate the effects of interest rate variability and seeks to maintain an effective mixture of funding structures in the context of its overall liability and liquidity management strategies.

As of March 31, 2023, Farmer Mac held $7.6 billion of floating rate assets in its lines of business and its investment portfolio that reset based on floating rate market indices, such as LIBOR or SOFR. As of the same date, Farmer Mac also had $9.1 billion of interest rate swaps outstanding where Farmer Mac pays a fixed rate of interest and receives a floating rate of interest, primarily LIBOR or SOFR.

Discontinuation of LIBOR

As described in "Risk Factors—Market Risk" in Part I, Item 1A of the 2022 Annual Report, 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. Farmer Mac continues to evaluate the potential effect on our business of replacement benchmark interest rates expected to replace LIBOR, including SOFR, which is the replacement benchmark rate recommended by the Alternative Reference Rates Committee and designated by the Adjustable Interest Rate (LIBOR) Act and implementing regulations.

As of March 31, 2023, Farmer Mac held $2.6 billion of floating rate assets in its lines of business and its investment portfolio, had issued $0.2 billion of floating rate debt, and had entered into $9.8 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 alternative benchmark interest rate indices may be complicated and is expected to require term and credit adjustments to accommodate for differences between the benchmark interest rate indices. The transition may also result in different financial performance for existing transactions, may require different hedging strategies, or may require renegotiation of existing transactions. As of March 31, 2023, we had $1.2 billion outstanding in medium-term notes based on SOFR, a potential alternative benchmark interest rate index.

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 and investment securities. Farmer Mac regularly accesses the debt capital markets for funding, and Farmer Mac has maintained steady access to the debt capital markets throughout 2023. 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 debt capital markets. As of March 31, 2023, Farmer Mac had outstanding discount notes of $0.9 billion, medium-term notes that mature within one year of $7.6 billion, and medium-term notes that mature after one year of $16.8 billion.

Assuming continued access to the debt 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 has a contingency funding plan to manage unanticipated disruptions in its access to the debt capital markets. Farmer Mac must maintain a minimum of 90 days of liquidity under the Liquidity and Investment Regulations. In accordance with the methodology for calculating available days of liquidity under those regulations, Farmer Mac maintained a monthly average of 295 days of liquidity throughout first quarter 2023 and had 286 days of liquidity as of March 31, 2023.

Farmer Mac maintains cash, cash equivalents (including U.S. Treasury securities, operational deposits, 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 March 31, 2023 and December 31, 2022:

Table 31

	As of March 31, 2023	As of December 31, 2022
	(in thousands)	
Cash and cash equivalents	$ 864,594	$ 861,002
Investment securities:		
Guaranteed by U.S. Government and its agencies	1,285,145	1,444,650
Guaranteed by GSEs	3,388,320	3,160,919
Asset-backed securities	19,031	19,027
Total	$ 5,557,090	$ 5,485,598

The objectives of the investment portfolio as of March 31, 2023 and December 31, 2022 are to provide a level of liquidity that mitigates enterprise risk, provides a reliable source of short-term and long-term liquidity, to prepare for the possibility of future volatility in the debt capital markets, and to support program asset growth.

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 March 31, 2023, Farmer Mac was in compliance with its statutory capital requirements and was classified as within "level 1" (the highest compliance level).

In accordance with the 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 March 31, 2023 and 2022, Farmer Mac's Tier 1 capital ratio was 15.7% and 14.9%, respectively. As of March 31, 2023, Farmer Mac was in compliance with its capital adequacy policy. Farmer Mac does not expect its compliance on an ongoing basis with the 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 the FCA's rule on capital planning, see "Business—Government Regulation of Farmer Mac—Capital Standards" in Farmer Mac's 2022 Annual Report. See Note 8 to the consolidated financial statements for more information about Farmer Mac's capital position.

Other Matters

None.

Supplemental Information

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

Table 32

New Business Volume

	Agricultural Finance		Rural Infrastructure Finance		
	Farm & Ranch	Corporate AgFinance	Rural Utilities	Renewable Energy	Total
			(in thousands)		
For the quarter ended:					
March 31, 2023	$ 750,040	$ 203,211	$ 683,232	$ 89,747	$ 1,726,230
December 31, 2022	1,114,255	165,395	140,222	43,737	1,463,609
September 30, 2022	1,927,209	169,932	547,117	61,653	2,705,911
June 30, 2022	1,418,397	107,916	326,899	35,307	1,888,519
March 31, 2022	2,452,539	103,353	377,965	41,636	2,975,493
December 31, 2021	2,075,540	411,838	631,338	12,594	3,131,310
September 30, 2021	1,791,662	122,043	609,745	4,152	2,527,602
June 30, 2021	925,950	159,958	410,666	3,441	1,500,015
March 31, 2021	1,087,897	186,393	171,546	23,484	1,469,320
For the year ended:					
December 31, 2022	$ 6,912,400	$ 546,596	$ 1,392,203	$ 182,333	$ 9,033,532
December 31, 2021	5,881,049	880,232	1,823,295	43,671	8,628,247

Table 33

Repayments of Assets	Agricultural Finance		Rural Infrastructure Finance		
	Farm & Ranch	Corporate AgFinance	Rural Utilities	Renewable Energy	Total
			(in thousands)		
For the quarter ended:					
Scheduled	$ 279,676	$ 78,482	$ 95,809	$ 11,424	$ 465,391
Unscheduled	231,288	128,254	57,354	—	416,896
March 31, 2023	$ 510,964	$ 206,736	$ 153,163	$ 11,424	$ 882,287
Scheduled	$ 447,976	$ 64,308	$ 75,671	$ 9,809	$ 597,764
Unscheduled	136,245	132,366	1,201	—	269,812
December 31, 2022	$ 584,221	$ 196,674	$ 76,872	$ 9,809	$ 867,576
Scheduled	$ 724,580	$ 38,018	$ 422,917	$ 13,429	$ 1,198,944
Unscheduled	296,763	64,439	—	—	361,202
September 30, 2022	$ 1,021,343	$ 102,457	$ 422,917	$ 13,429	$ 1,560,146
Scheduled	$ 1,114,779	$ 42,162	$ 159,491	$ 7,898	$ 1,324,330
Unscheduled	286,303	30,203	1,791	—	318,297
June 30, 2022	$ 1,401,082	$ 72,365	$ 161,282	$ 7,898	$ 1,642,627
Scheduled	$ 1,535,369	$ 39,480	$ 266,349	$ 7,790	$ 1,848,988
Unscheduled	434,794	60,947	397	—	496,138
March 31, 2022	$ 1,970,163	$ 100,427	$ 266,746	$ 7,790	$ 2,345,126
Scheduled	$ 928,663	$ 205,778	$ 816,802	$ 18,526	$ 1,969,769
Unscheduled	318,024	48,042	—	—	366,066
December 31, 2021	$ 1,246,687	$ 253,820	$ 816,802	$ 18,526	$ 2,335,835
Scheduled	$ 725,713	$ 406,285	$ 95,443	$ 4,043	$ 1,231,484
Unscheduled	374,287	—	201	—	374,488
September 30, 2021	$ 1,100,000	$ 406,285	$ 95,644	$ 4,043	$ 1,605,972
Scheduled	$ 380,684	$ 139,774	$ 225,257	$ 4,704	$ 750,419
Unscheduled	409,393	3,921	1,652	—	414,966
June 30, 2021	$ 790,077	$ 143,695	$ 226,909	$ 4,704	$ 1,165,385
Scheduled	$ 721,090	$ 120,621	$ 100,482	$ 2,671	$ 944,864
Unscheduled	501,651	82,090	2,279	—	586,020
March 31, 2021	$ 1,222,741	$ 202,711	$ 102,761	$ 2,671	$ 1,530,884
For the year ended:					
Scheduled	$ 3,822,704	$ 183,968	$ 924,428	$ 38,926	$ 4,970,026
Unscheduled	1,154,105	287,955	3,389	—	1,445,449
December 31, 2022	$ 4,976,809	$ 471,923	$ 927,817	$ 38,926	$ 6,415,475
Scheduled	$ 2,756,150	$ 872,458	$ 1,237,984	$ 29,944	$ 4,896,536
Unscheduled	1,603,355	134,053	4,132	—	1,741,540
December 31, 2021	$ 4,359,505	$ 1,006,511	$ 1,242,116	$ 29,944	$ 6,638,076

Table 34

Outstanding Business Volume					
	Agricultural Finance		Rural Infrastructure Finance		
	Farm & Ranch	Corporate AgFinance	Rural Utilities	Renewable Energy	Total
			(in thousands)		
As of:					
March 31, 2023	$ 17,685,961	$ 1,599,982	$ 6,889,682	$ 308,493	$ 26,484,118
December 31, 2022	17,728,792	1,603,507	6,359,613	230,170	25,922,082
September 30, 2022	17,199,347	1,634,786	6,296,263	196,242	25,326,638
June 30, 2022	16,591,999	1,567,311	6,172,063	148,018	24,479,391
March 31, 2022	16,575,595	1,540,760	6,006,446	120,609	24,243,410
December 31, 2021	16,094,639	1,537,834	5,895,227	86,763	23,614,463
September 30, 2021	15,565,589	1,379,816	6,080,691	92,695	23,118,791
June 30, 2021	14,873,926	1,664,059	5,566,591	92,585	22,197,161
March 31, 2021	14,738,052	1,647,796	5,382,835	93,848	21,862,531

Table 35

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:				
March 31, 2023	$ 13,607,740	$ 3,020,229	$ 5,924,032	$ 22,552,001
December 31, 2022	13,693,810	3,031,288	5,251,427	21,976,525
September 30, 2022	13,810,162	2,960,596	4,644,958	21,415,716
June 30, 2022	13,798,771	2,939,467	3,993,956	20,732,194
March 31, 2022	14,174,611	2,858,521	3,443,816	20,476,948
December 31, 2021	13,228,675	2,896,014	3,695,269	19,819,958
September 30, 2021	12,921,572	2,872,499	3,818,550	19,612,621
June 30, 2021	11,800,429	2,878,637	4,254,625	18,933,691
March 31, 2021	11,454,321	2,824,551	4,410,661	18,689,533

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

Table 36

	Net Effective Spread[1]													
	Agricultural Finance				Rural Infrastructure Finance				Treasury					
	Farm & Ranch		Corporate AgFinance		Rural Utilities		Renewable Energy		Funding		Investments		Net Effective Spread	
	Dollars	Yield	Dollars	Yield	Dollars	Yield	Dollars	Yield	Dollars	Yield	Dollars	Yield	Dollars	Yield
	(dollars in thousands)													
For the quarter ended:														
March 31, 2023[2]	$32,465	0.97 %	$ 7,148	1.94 %	$ 5,507	0.36 %	$ 858	1.53 %	$31,738	0.47 %	$ (543)	(0.04)%	$77,173	1.15 %
December 31, 2022	32,770	0.98 %	7,471	1.94 %	4,960	0.34 %	935	1.76 %	27,656	0.42 %	(2,689)	(0.19)%	71,103	1.07 %
September 30, 2022	33,343	1.04 %	7,600	1.99 %	4,220	0.30 %	705	1.97 %	22,564	0.36 %	(2,791)	(0.21)%	65,641	1.03 %
June 30, 2022	32,590	1.05 %	6,929	1.87 %	3,733	0.27 %	468	1.78 %	18,508	0.30 %	(1,282)	(0.10)%	60,946	0.99 %
March 31, 2022[2]	30,354	1.02 %	7,209	1.96 %	3,159	0.23 %	375	1.69 %	16,738	0.28 %	4	— %	57,839	0.97 %
December 31, 2021	28,998	0.99 %	6,321	1.84 %	2,521	0.19 %	356	1.53 %	15,979	0.28 %	158	0.01 %	54,333	0.94 %
September 30, 2021	28,914	1.06 %	7,163	1.80 %	2,067	0.16 %	236	1.09 %	17,386	0.31 %	159	0.01 %	55,925	0.99 %
June 30, 2021	29,163	1.06 %	6,676	1.65 %	1,759	0.14 %	378	1.80 %	18,449	0.33 %	126	0.01 %	56,551	1.01 %
March 31, 2021	26,461	0.98 %	6,921	1.67 %	1,720	0.14 %	249	1.28 %	18,394	0.33 %	114	0.01 %	53,859	0.97 %

(1) Farmer Mac excludes the Corporate segment in the presentation above because the segment does not have any interest-earning assets.

(2) See Note 10 to the consolidated financial statements for a reconciliation of GAAP net interest income by segment to net effective spread by segment for the three months ended March 31, 2023 and 2022.

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

Table 37

	Core Earnings by Quarter End								
	March 2023	December 2022	September 2022	June 2022	March 2022	December 2021	September 2021	June 2021	March 2021
	(in thousands)								
Revenues:									
Net effective spread	$ 77,173	$ 71,103	$ 65,641	$ 60,946	$ 57,839	$ 54,333	$ 55,925	$ 56,551	$ 53,859
Guarantee and commitment fees	4,654	4,677	4,201	4,709	4,557	4,637	4,322	4,334	4,240
Gains on sale of mortgage loans	—	—	—	—	—	6,539	—	—	—
Other	1,067	390	473	307	514	241	687	301	451
Total revenues	82,894	76,170	70,315	65,962	62,910	65,750	60,934	61,186	58,550
Credit related expense/(income):									
Provision for/(release of) losses	750	1,945	450	(1,535)	(54)	(1,428)	255	(983)	(31)
REO operating expenses	—	819	—	—	—	—	—	—	—
Losses on sale of REO	—	—	—	—	—	—	—	—	—
Total credit related expense/(income)	750	2,764	450	(1,535)	(54)	(1,428)	255	(983)	(31)
Operating expenses:									
Compensation and employee benefits	15,351	12,105	11,648	11,715	13,298	11,246	10,027	9,779	11,795
General and administrative	7,527	8,055	6,919	7,520	7,278	8,492	6,330	6,349	6,336
Regulatory fees	835	832	812	813	812	812	750	750	750
Total operating expenses	23,713	20,992	19,379	20,048	21,388	20,550	17,107	16,878	18,881
Net earnings	58,431	52,414	50,486	47,449	41,576	46,628	43,572	45,291	39,700
Income tax expense	12,756	11,210	10,303	9,909	9,024	9,809	9,152	9,463	8,520
Preferred stock dividends	6,791	6,791	6,791	6,792	6,791	6,792	6,774	5,842	5,269
Core earnings	$ 38,884	$ 34,413	$ 33,392	$ 30,748	$ 25,761	$ 30,027	$ 27,646	$ 29,986	$ 25,911
Reconciling items:									
Gains/(losses) on undesignated financial derivatives due to fair value changes	$ 916	$ 1,596	$ 6,441	$ 2,846	$ 2,612	$ (1,242)	$ (405)	$ (3,020)	$ 3,236
(Losses)/gains on hedging activities due to fair value changes	(105)	(148)	(624)	428	5,687	(2,079)	1,818	(5,866)	4,317
Unrealized gains/(losses) on trading assets	359	31	(757)	(285)	94	(76)	36	(61)	(14)
Net effects of amortization of premiums/discounts and deferred gains on assets consolidated at fair value	29	57	24	(62)	20	71	23	20	16
Net effects of terminations or net settlements on financial derivatives	523	1,268	(3,522)	2,536	15,512	(429)	(351)	109	1,165
Income tax effect related to reconciling items	(362)	(590)	(327)	(1,148)	(5,024)	789	(236)	1,852	(1,831)
Net income attributable to common stockholders	$ 40,244	$ 36,627	$ 34,627	$ 35,063	$ 44,662	$ 27,061	$ 28,531	$ 23,020	$ 32,800

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 March 31, 2023.

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 March 31, 2023.

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 March 31, 2023 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

Information about risk factors can be found in "Management's Discussion and Analysis of Financial Condition and Results of Operations—Forward-Looking Statements" in Part I, Item 2 of this Form 10-Q and in Part I, Item 1A of Farmer Mac's 2022 Annual Report.

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 first quarter 2023, 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 452 shares of its Class C non-voting common stock in January 2023 to the six 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 $112.71 per share, which was the closing price of the Class C non-voting common stock on December 31, 2022 (the last trading day of the previous quarter) as reported by the New York Stock Exchange.

In addition to the March 9, 2023 grants of stock appreciation rights ("SARs") and restricted stock units ("RSUs") to the five named executive officers and fifteen directors reported in Farmer Mac's Current Report on Form 8-K filed with the SEC on March 15, 2023, Farmer Mac made the following additional grants under its Amended and Restated 2008 Omnibus Incentive Plan on March 9, 2023 to other individuals as incentive compensation:

- an aggregate of 2,190 SARs to three executive officers, which have the same terms as the SARs granted to the named executive officers on March 9, 2023 – a grant price of $135.20 per share, an expiration date of March 9, 2033, and vesting in three equal annual installments on each of March 31, 2024, March 31, 2025, and March 31, 2026;

- an aggregate of 708 target number of performance-vested RSUs to three executive officers, which have the same terms as the performance-vested RSUs granted to the named executive officers on March 9, 2023 and are eligible for "cliff" vesting on March 31, 2026 in an amount between 0% and 200% of the target number of RSUs granted based on performance objectives related to cumulative core earnings before credit, subject to "gatekeeper" metrics related to compliance with regulatory capital requirements, for the performance period of January 1, 2023 to December 31, 2025;

- an aggregate of 1,419 time-vested RSUs to three executive officers vesting in three equal annual installments on March 31, 2024, March 31, 2025, and March 31, 2026; and

- an aggregate of 17,820 time-vested RSUs to 64 employees, vesting in three equal annual installments on March 31, 2024, March 31, 2025, and March 31, 2026.

(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

None.

Item 6. Exhibits

*	3.1	—	Title VIII of the Farm Credit Act of 1971, as most recently amended on June 18, 2020 (Previously filed as Exhibit 3.1 to Form 10-Q filed August 10, 2020).
*	3.2	—	Amended and Restated By-Laws of the Registrant (Previously filed as Exhibit 3.2 to Form 10-K filed February 24, 2023).
*	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 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).
*	4.4.1	—	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).
*	4.5	—	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).
*	4.5.1	—	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).
*	4.6	—	Specimen Certificate for 5.750% Non-Cumulative Preferred Stock, Series E (Previously filed as Exhibit 4.7 to Form 10-Q filed August 10, 2020).
*	4.6.1	—	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).
*	4.7	—	Specimen Certificate for 5.250% Non-Cumulative Preferred Stock, Series F (Previously filed as Exhibit 4.8 to Form 10-Q filed November 9, 2020).
*	4.7.1	—	Certificate of Designation of Terms and Conditions of 5.250% Non-Cumulative Preferred Stock, Series F (Previously filed as Exhibit 4.1 to Form 8-A filed August 20, 2020).
*	4.8		Specimen Certificate for 4.875% Non-Cumulative Preferred Stock, Series G (Previously filed as Exhibit 4.8 to Form 10-Q filed August 5, 2021).
*	4.8.1		Certificate of Designation of Terms and Conditions of 4.875% Non-Cumulative Preferred Stock, Series G (Previously filed as Exhibit 4.1 to Form 8-A filed May 27, 2021).
*	4.9	—	Description of the Registrant's securities that are registered under Section 12 of the Securities Exchange Act of 1934 (Previously filed as Exhibit 4.9 to Form 10-Q filed August 5, 2021).
*	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 March 31, 2023, 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 March 31, 2023, 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 March 31, 2023, 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

*	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	May 9, 2023
By: Bradford T. Nordholm President and Chief Executive Officer (Principal Executive Officer)	
/s/ Aparna Ramesh	May 9, 2023
By: Aparna Ramesh Executive Vice President – Chief Financial Officer and Treasurer (Principal Financial Officer)	