As filed with the Securities and Exchange Commission on August 9, 2017

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

FORM 10-Q

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

For the quarterly period ended June 30, 2017

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, D.C.	20006
(Address of principal executive offices)	(Zip code)

(202) 872-7700

(Registrant's telephone number, including area code)

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 and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted 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 and post 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	☐ (Do not check if smaller reporting company)		
		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 7(a)(2)(B) of the Securities Act. ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).

Yes ☐ No ☒

As of August 1, 2017, the registrant had outstanding 1,030,780 shares of Class A Voting Common Stock, 500,301 shares of Class B Voting Common Stock, and 9,073,002 shares of Class C Non-Voting Common Stock.

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PART I

Item 1. Financial Statements

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

	As of	
	June 30, 2017	December 31, 2016
	(in thousands)	
Assets:		
Cash and cash equivalents	$ 319,993	$ 265,229
Investment securities:		
Available-for-sale, at fair value	2,363,805	2,515,851
Farmer Mac Guaranteed Securities:		
Available-for-sale, at fair value	5,282,562	4,853,685
Held-to-maturity, at amortized cost	2,137,786	1,149,231
Total Farmer Mac Guaranteed Securities	7,420,348	6,002,916
USDA Securities:		
Trading, at fair value	16,294	20,388
Held-to-maturity, at amortized cost	2,066,026	2,009,225
Total USDA Securities	2,082,320	2,029,613
Loans:		
Loans held for investment, at amortized cost	3,665,984	3,379,884
Loans held for investment in consolidated trusts, at amortized cost	1,240,624	1,132,966
Allowance for loan losses	(6,138)	(5,415)
Total loans, net of allowance	4,900,470	4,507,435
Real estate owned, at lower of cost or fair value	1,374	1,528
Financial derivatives, at fair value	5,546	23,182
Interest receivable (includes $13,917 and $12,584, respectively, related to consolidated trusts)	126,509	122,782
Guarantee and commitment fees receivable	37,083	38,871
Deferred tax asset, net	3,688	12,291
Prepaid expenses and other assets	6,249	86,322
Total Assets	$ 17,267,385	$ 15,606,020
Liabilities and Equity:		
Liabilities:		
Notes payable:		
Due within one year	$ 7,859,059	$ 8,440,123
Due after one year	7,281,509	5,222,977
Total notes payable	15,140,568	13,663,100
Debt securities of consolidated trusts held by third parties	1,249,627	1,142,704
Financial derivatives, at fair value	34,114	58,152
Accrued interest payable (includes $11,787 and $10,881, respectively, related to consolidated	63,960	49,700
Guarantee and commitment obligation	35,814	37,282
Accounts payable and accrued expenses	60,407	9,415
Reserve for losses	1,966	2,020
Total Liabilities	16,586,456	14,962,373
Commitments and Contingencies (Note 6)		
Equity:		
Preferred stock:		
Series A, par value $25 per share, 2,400,000 shares authorized, issued and outstanding	58,333	58,333
Series B, par value $25 per share, 3,000,000 shares authorized, issued and outstanding	73,044	73,044
Series C, par value $25 per share, 3,000,000 shares authorized, issued and outstanding	73,382	73,382
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, 9,072,644 shares and 9,007,481 shares outstanding, respectively	9,073	9,008
Additional paid-in capital	118,937	118,655
Accumulated other comprehensive income, net of tax	42,428	33,758
Retained earnings	304,201	275,714
Total Stockholders' Equity	680,929	643,425
Non-controlling interest	—	222
Total Equity	680,929	643,647
Total Liabilities and Equity	$ 17,267,385	$ 15,606,020

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

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

	For the Three Months Ended		For the Six Months Ended	
	June 30, 2017	June 30, 2016	June 30, 2017	June 30, 2016
	(in thousands, except per share amounts)			
Interest income:				
Investments and cash equivalents	$ 8,368	$ 6,560	$ 15,611	$ 13,241
Farmer Mac Guaranteed Securities and USDA Securities	50,106	37,299	92,628	72,809
Loans	39,573	33,377	76,425	65,077
Total interest income	98,047	77,236	184,664	151,127
Total interest expense	58,316	42,878	107,862	83,129
Net interest income	39,731	34,358	76,802	67,998
Provision for loan losses	(327)	(364)	(964)	(413)
Net interest income after provision for loan losses	39,404	33,994	75,838	67,585
Non-interest income/(loss):				
Guarantee and commitment fees	3,472	3,655	7,316	7,281
(Losses)/gains on financial derivatives and hedging activities	(617)	(4,696)	1,869	(11,478)
(Losses)/gains on trading securities	(2)	394	(84)	752
Losses on sale of available-for-sale investment securities	—	—	—	(9)
Gains on sale of real estate owned	757	—	752	—
Other income	134	413	687	514
Non-interest income/(loss)	3,744	(234)	10,540	(2,940)
Non-interest expense:				
Compensation and employee benefits	6,682	5,611	12,999	11,385
General and administrative	3,921	3,757	7,721	7,283
Regulatory fees	625	612	1,250	1,225
Real estate owned operating costs, net	23	—	23	39
Provision for/(release of) reserve for losses	139	94	(54)	108
Non-interest expense	11,390	10,074	21,939	20,040
Income before income taxes	31,758	23,686	64,439	44,605
Income tax expense	11,124	8,400	21,910	15,735
Net income	20,634	15,286	42,529	28,870
Less: Net loss attributable to non-controlling interest	150	16	165	44
Net income attributable to Farmer Mac	20,784	15,302	42,694	28,914
Preferred stock dividends	(3,296)	(3,296)	(6,591)	(6,591)
Net income attributable to common stockholders	$ 17,488	$ 12,006	$ 36,103	$ 22,323
Earnings per common share and dividends:				
Basic earnings per common share	$ 1.65	$ 1.15	$ 3.41	$ 2.13
Diluted earnings per common share	$ 1.62	$ 1.13	$ 3.35	$ 2.07
Common stock dividends per common share	$ 0.36	$ 0.26	$ 0.72	$ 0.52

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

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

	For the Three Months Ended		For the Six Months Ended	
	June 30, 2017	June 30, 2016	June 30, 2017	June 30, 2016
	(in thousands)			
Net income	$ 20,634	$ 15,286	$ 42,529	$ 28,870
Other comprehensive income before taxes:				
Net unrealized gains on available-for-sale securities	5,333	52,130	20,170	45,753
Net changes in held-to-maturity securities	(2,125)	(997)	(5,612)	(2,008)
Net unrealized losses on cash flow hedges	(1,848)	(2,976)	(1,219)	(7,739)
Other comprehensive income before tax	1,360	48,157	13,339	36,006
Income tax expense related to other comprehensive income	(476)	(16,856)	(4,669)	(12,603)
Other comprehensive income net of tax	884	31,301	8,670	23,403
Comprehensive income	21,518	46,587	51,199	52,273
Less: comprehensive loss attributable to non-controlling interest	150	16	165	44
Comprehensive income attributable to Farmer Mac	$ 21,668	$ 46,603	$ 51,364	$ 52,317

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	Non-controlling	Total
	Shares	Amount	Shares	Amount	Capital	Income/(Loss)	Earnings	Interest	Equity
					(in thousands)				
Balance as of December 31, 2015	8,400	$204,759	10,687	$ 10,687	$ 117,862	$ (11,019)	$ 231,228	$ 203	$ 553,720
Net income/(loss):									
Attributable to Farmer Mac	—	—	—	—	—	—	28,914	—	28,914
Attributable to non-controlling interest	—	—	—	—	—	—	—	(44)	(44)
Other comprehensive loss, net of tax	—	—	—	—	—	23,403	—	—	23,403
Cash dividends:									
Preferred stock	—	—	—	—	—	—	(6,591)	—	(6,591)
Common stock	—	—	—	—	—	—	(5,421)	—	(5,421)
Issuance of Class C Common Stock	—	—	80	80	133	—	—	—	213
Repurchase of Class C Common Stock	—	—	(307)	(307)	—	—	(8,781)	—	(9,088)
Stock-based compensation cost	—	—	—	—	1,788	—	—	—	1,788
Other stock-based award activity	—	—	—	—	(1,794)	—	—	—	(1,794)
Investment in subsidiary - non-controlling interest	—	—	—	—	—	—	—	53	53
Balance as of June 30, 2016	8,400	$204,759	10,460	$ 10,460	$ 117,989	$ 12,384	$ 239,349	$ 212	$ 585,153
Balance as of December 31, 2016	8,400	$204,759	10,539	$ 10,539	$ 118,655	$ 33,758	$ 275,714	$ 222	$ 643,647
Net income/(loss):									
Attributable to Farmer Mac	—	—	—	—	—	—	42,694	—	42,694
Attributable to non-controlling interest	—	—	—	—	—	—	—	(165)	(165)
Other comprehensive income, net of tax	—	—	—	—	—	8,670	—	—	8,670
Cash dividends:									
Preferred stock	—	—	—	—	—	—	(6,591)	—	(6,591)
Common stock	—	—	—	—	—	—	(7,616)	—	(7,616)
Issuance of Class C Common Stock	—	—	65	65	225	—	—	—	290
Stock-based compensation cost	—	—	—	—	1,784	—	—	—	1,784
Other stock-based award activity	—	—	—	—	(1,727)	—	—	—	(1,727)
Redemption of interest in subsidiary	—	—	—	—	—	—	—	(57)	(57)
Balance as of June 30, 2017	8,400	$204,759	10,604	$ 10,604	$ 118,937	$ 42,428	$ 304,201	$ —	$ 680,929

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

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

	For the Six Months Ended	
	June 30, 2017	June 30, 2016
	(in thousands)	
Cash flows from operating activities:		
Net income	$ 42,529	$ 28,870
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	534	1,035
Amortization of debt premiums, discounts and issuance costs	11,479	16,143
Net change in fair value of trading securities, hedged assets, and financial derivatives	(12,122)	4,314
Gains on sale of real estate owned	(752)	—
Total provision for losses	910	521
Excess tax benefits related to stock-based awards	832	—
Deferred income taxes	2,095	(1,964)
Other	100	9
Stock-based compensation expense	1,784	1,788
Proceeds from repayment of trading investment securities	—	325
Proceeds from repayment of loans purchased as held for sale	32,510	37,460
Net change in:		
Interest receivable	(3,700)	6,300
Guarantee and commitment fees receivable	320	536
Other assets	300	(54,970)
Accrued interest payable	14,260	285
Other liabilities	(488)	(1,777)
Net cash provided by operating activities	90,591	38,875
Cash flows from investing activities:		
Purchases of available-for-sale investment securities	(271,684)	(341,099)
Purchases of Farmer Mac Guaranteed Securities and USDA Securities	(2,108,174)	(1,506,177)
Purchases of loans held for investment	(678,710)	(459,315)
Purchases of defaulted loans	(415)	(1,415)
Proceeds from repayment of available-for-sale investment securities	508,409	624,402
Proceeds from repayment of Farmer Mac Guaranteed Securities and USDA Securities	618,340	845,206
Proceeds from repayment of loans purchased as held for investment	250,111	199,357
Proceeds from sale of available-for-sale investment securities	—	186,769
Proceeds from sale of Farmer Mac Guaranteed Securities	247,975	278,443
Proceeds from sale of real estate owned	6,144	—
Net cash used by investing activities	(1,428,004)	(173,829)
Cash flows from financing activities:		
Proceeds from issuance of discount notes	27,501,915	48,914,061
Proceeds from issuance of medium-term notes	5,257,762	2,843,542
Payments to redeem discount notes	(29,090,607)	(48,963,471)
Payments to redeem medium-term notes	(2,206,300)	(2,040,800)
Excess tax benefits related to stock-based awards	—	253
Payments to third parties on debt securities of consolidated trusts	(54,949)	(41,259)
Proceeds from common stock issuance	232	137
Tax payments related to share-based awards	(1,669)	(1,722)
Common stock repurchased	—	(9,286)
Investment in subsidiary - non-controlling interest	—	53
Dividends paid on common and preferred stock	(14,207)	(12,012)
Net cash provided by financing activities	1,392,177	689,496
Net increase in cash and cash equivalents	54,764	554,542
Cash and cash equivalents at beginning of period	265,229	1,210,084
Cash and cash equivalents at end of period	$ 319,993	$ 1,764,626

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, 2016 consolidated balance sheet presented in this report has been derived from Farmer Mac's audited 2016 consolidated financial statements. Management believes that the disclosures are adequate to present fairly the consolidated financial statements as of the dates and for the periods presented. These interim unaudited consolidated financial statements should be read in conjunction with the 2016 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, 2016 filed with the SEC on March 9, 2017. That Form 10-K describes Farmer Mac's significant accounting policies, which include its policies on Principles of Consolidation; Cash and Cash Equivalents and Statements of Cash Flows; Transfers of Financial Assets and Liabilities; Investment Securities, Farmer Mac Guaranteed Securities, and USDA Securities; Loans; Securitization of Loans; Real Estate Owned; Financial Derivatives; Notes Payable; Allowance for Loan Losses and Reserve for Losses; Earnings Per Common Share; Income Taxes; Stock-Based Compensation; Comprehensive Income; Long-Term Standby Purchase Commitments; Fair Value Measurement; and Consolidation of Variable Interest Entities ("VIEs"). 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 June 30, 2017.

Principles of Consolidation

The consolidated financial statements include the accounts of Farmer Mac and its three subsidiaries during the quarter: (1) Farmer Mac Mortgage Securities Corporation ("FMMSC"), whose principal activities are to facilitate the purchase and issuance of Farmer Mac Guaranteed Securities; (2) Farmer Mac II LLC, whose principal activity is the operation of substantially all of the business related to the USDA Guarantees line of business – primarily the acquisition of USDA Securities; and (3) Contour Valuation Services, LLC (which began doing business as AgVisory during first quarter 2016), whose principal activity is to appraise agricultural real estate. On May 1, 2017, Farmer Mac transferred its entire 65% ownership interest in AgVisory back to the limited liability company as a company redemption in exchange for $5,000. Farmer Mac recognized a loss of approximately $0.1 million after-tax upon the transfer. The consolidated financial statements also include the accounts of VIEs in which Farmer Mac determined itself to be the primary beneficiary.

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

Table 1.1

	Consolidation of Variable Interest Entities					
	As of June 30, 2017					
	Farm & Ranch	USDA Guarantees	Rural Utilities	Institutional Credit	Corporate	Total
	(in thousands)					
On-Balance Sheet:						
Consolidated VIEs:						
Loans held for investment in consolidated trusts, at amortized cost	$ 1,240,624	$ —	$ —	$ —	$ —	$ 1,240,624
Debt securities of consolidated trusts held by third parties [(1)]	1,249,627	—	—	—	—	1,249,627
Unconsolidated VIEs:						
Farmer Mac Guaranteed Securities:						
Carrying value [(2)]	—	36,881	—	—	—	36,881
Maximum exposure to loss [(3)]	—	36,516	—	—	—	36,516
Investment securities:						
Carrying value [(4)]	—	—	—	—	813,589	813,589
Maximum exposure to loss [(3)] [(4)]	—	—	—	—	811,455	811,455
Off-Balance Sheet:						
Unconsolidated VIEs:						
Farmer Mac Guaranteed Securities:						
Maximum exposure to loss [(3)] [(5)]	367,419	186,256	—	—	—	553,675

(1) Includes borrower remittances of $9.0 million. The borrower remittances had not been passed through to third party investors as of June 30, 2017.
(2) Includes $0.4 million of unamortized premiums and discounts and fair value adjustments related to the USDA Guarantees line of business.
(3) Farmer Mac uses unpaid principal balance and outstanding face amount of investment securities to represent maximum exposure to loss.
(4) Includes auction-rate certificates, asset-backed securities, and government-sponsored enterprise ("GSE")-guaranteed mortgage-backed securities.
(5) The amount under the Farm & Ranch line of business relates to unconsolidated trusts where Farmer Mac determined it was not the primary beneficiary due to shared power with an unrelated party.

	Consolidation of Variable Interest Entities					
	As of December 31, 2016					
	Farm & Ranch	USDA Guarantees	Rural Utilities	Institutional Credit	Corporate	Total
	(in thousands)					
On-Balance Sheet:						
Consolidated VIEs:						
Loans held for investment in consolidated trusts, at amortized cost	$ 1,132,966	$ —	$ —	$ —	$ —	$ 1,132,966
Debt securities of consolidated trusts held by third parties [(1)]	1,142,704	—	—	—	—	1,142,704
Unconsolidated VIEs:						
Farmer Mac Guaranteed Securities:						
Carrying value [(2)]	—	36,042	—	30,347	—	66,389
Maximum exposure to loss [(3)]	—	35,599	—	30,000	—	65,599
Investment securities:						
Carrying value [(4)]	—	—	—	—	827,874	827,874
Maximum exposure to loss [(3)] [(4)]	—	—	—	—	825,909	825,909
Off-Balance Sheet:						
Unconsolidated VIEs:						
Farmer Mac Guaranteed Securities:						
Maximum exposure to loss [(3)] [(5)]	415,441	103,976	—	970,000	—	1,489,417

(1) Includes borrower remittances of $9.7 million, which have not been passed through to third party investors as of December 31, 2016.
(2) Includes $0.4 million of unamortized premiums and discounts and fair value adjustments related to the USDA Guarantees line of business. Includes fair value adjustments related to the Institutional Credit line of business of $0.3 million.
(3) Farmer Mac uses unpaid principal balance and the outstanding face amount of investment securities to represent maximum exposure to loss.
(4) Includes auction-rate certificates, asset-backed securities, and GSE-guaranteed mortgage-backed securities.
(5) The amount under the Farm & Ranch line of business relates to unconsolidated trusts where Farmer Mac determined it was not the primary beneficiary due to shared power with an unrelated party.

(a) Statements of Cash Flows

The following table sets forth information regarding certain cash and non-cash transactions for the six months ended June 30, 2017 and 2016:

Table 1.2

	For the Six Months Ended	
	June 30, 2017	June 30, 2016
	(in thousands)	
Non-cash activity:		
Real estate owned acquired through loan liquidation	5,261	—
Loans acquired and securitized as Farmer Mac Guaranteed Securities	247,975	278,443
Consolidation of Farm & Ranch Guaranteed Securities from off-balance sheet to loans held for investment in consolidated trusts and to debt securities of consolidated trusts held by third parties	161,880	255,781
Purchases of securities - traded not yet settled	50,000	224,990

(b) Earnings Per Common Share

Basic earnings per common share ("EPS") is based on the weighted-average number of shares of common stock outstanding. Diluted earnings per common share is based on the weighted-average number of shares of common stock outstanding adjusted to include all potentially dilutive common stock options, stock appreciation rights ("SARs"), and non-vested restricted stock awards. The following schedule reconciles basic and diluted EPS for the three and six months ended June 30, 2017 and 2016:

Table 1.3

	For the Three Months Ended					
	June 30, 2017[(1)]			June 30, 2016		
	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	$ 17,488	10,600	$1.65	$ 12,006	10,456	$ 1.15
Effect of dilutive securities[(2)]						
Stock options, SARs and restricted stock	—	183	(0.03)	—	158	(0.02)
Diluted EPS	$ 17,488	10,783	$1.62	$ 12,006	10,614	$ 1.13

(1) For the effect of the adoption of the new Accounting Standard Update 2016-09, "*Improvements to Employee Share-Based Payment Accounting,*" on Basic and Diluted EPS, see Note 1(d) "New Accounting Standards."

(2) For the three months ended June 30, 2017 and 2016, stock options and SARs of 24,907 and 229,693, respectively, were outstanding but not included in the computation of diluted earnings per share of common stock because they were anti-dilutive. For the three months ended June 30, 2017 and 2016, contingent shares of non-vested restricted stock of 32,892, and 37,284, respectively, were outstanding but not included in the computation of diluted earnings per share of common stock because performance conditions had not yet been met.

	For the Six Months Ended					
	June 30, 2017[(1)]			June 30, 2016		
	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	$ 36,103	10,576	$3.41	$ 22,323	10,460	$ 2.13
Effect of dilutive securities[(2)]						
Stock options, SARs and restricted stock	—	207	(0.06)	—	348	(0.06)
Diluted EPS	$ 36,103	10,783	$3.35	$ 22,323	10,808	$ 2.07

(1) For the effect of the adoption of the new Accounting Standard Update 2016-09, "*Improvements to Employee Share-Based Payment Accounting,*" on Basic and Diluted EPS, see Note 1(d) "New Accounting Standards."

(2) For the six months ended June 30, 2017 and 2016, stock options and SARs of 37,832 and 215,547, respectively, were outstanding but not included in the computation of diluted earnings per share of common stock because they were anti-dilutive. For the six months ended June 30, 2017 and 2016, contingent shares of non-vested restricted stock of 32,892, and 37,284, respectively, were outstanding but not included in the computation of diluted earnings per share of common stock because performance conditions had not yet been met.

(c) Comprehensive Income

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

The following table presents the changes in accumulated other comprehensive income ("AOCI"), net of tax, by component for the three and six months ended June 30, 2017 and 2016:

Table 1.4

	As of June 30, 2017				As of June 30, 2016			
	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	$ (4,742)	$ 43,485	$ 2,801	$ 41,544	$ (14,180)	$ (1,133)	$ (3,604)	$ (18,917)
Other Comprehensive Income Before Reclassifications	6,191	—	(1,500)	4,691	36,469	—	(2,267)	34,202
Amounts reclassified from AOCI	(2,725)	(1,381)	299	(3,807)	(2,585)	(648)	332	(2,901)
Net Comprehensive Income	3,466	(1,381)	(1,201)	884	33,884	(648)	(1,935)	31,301
Ending Balance	$ (1,276)	$ 42,104	$ 1,600	$ 42,428	$ 19,704	$ (1,781)	$ (5,539)	$ 12,384
For the Six Months Ended:								
Beginning Balance	$ (14,387)	$ 45,752	$ 2,393	$ 33,758	$ (10,035)	$ (476)	$ (508)	$ (11,019)
Other Comprehensive Income Before Reclassifications	18,413	—	(1,426)	16,987	34,700	—	(5,662)	29,038
Amounts reclassified from AOCI	(5,302)	(3,648)	633	(8,317)	(4,961)	(1,305)	631	(5,635)
Net Comprehensive Income	13,111	(3,648)	(793)	8,670	29,739	(1,305)	(5,031)	23,403
Ending Balance	$ (1,276)	$ 42,104	$ 1,600	$ 42,428	$ 19,704	$ (1,781)	$ (5,539)	$ 12,384

The following table presents other comprehensive income activity, the impact on net income of amounts reclassified from each component of AOCI, and the related tax impact for the three and six months ended June 30, 2017 and 2016:

Table 1.5

	For the Three Months Ended					
	June 30, 2017			June 30, 2016		
	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	$ 9,525	$ 3,334	$ 6,191	$ 56,107	$ 19,638	$ 36,469
Less reclassification adjustments included in:						
Gains/(losses) on financial derivatives and hedging activities[1]	(4,186)	(1,465)	(2,721)	(4,016)	(1,405)	(2,611)
Other income[2]	(6)	(2)	(4)	39	13	26
Total	$ 5,333	$ 1,867	$ 3,466	$ 52,130	$ 18,246	$ 33,884
Held-to-maturity securities:						
Less reclassification adjustments included in:						
Net interest income[3]	$ (2,125)	$ (744)	$ (1,381)	$ (997)	$ (349)	$ (648)
Total	$ (2,125)	$ (744)	$ (1,381)	$ (997)	$ (349)	$ (648)
Cash flow hedges						
Unrealized gains/(losses) on cash flow hedges	$ (2,309)	$ (809)	$ (1,500)	$ (3,488)	$ (1,221)	$ (2,267)
Less reclassification adjustments included in:						
Net interest income[4]	461	162	299	512	180	332
Total	$ (1,848)	$ (647)	$ (1,201)	$ (2,976)	$ (1,041)	$ (1,935)
Other comprehensive income/(loss)	$ 1,360	$ 476	$ 884	$ 48,157	$ 16,856	$ 31,301

(1) Relates to the amortization of unrealized gains on hedged items prior to the application of fair value hedge accounting.

(2) Represents amortization of deferred gains related to certain available-for-sale USDA Securities and Farmer Mac Guaranteed USDA Securities.

(3) Relates to the amortization of unrealized gains or losses prior to the reclassification of these securities from available-for-sale to held-to-maturity. The amortization of unrealized gains or losses reported in AOCI for held-to-maturity securities will be offset by the amortization of the premium or discount created from the transfer into held-to-maturity securities, which occurred at fair value. These unrealized gains or losses will be recorded over the remaining life of the security with no impact on future net income.

(4) Relates to the recognition of unrealized gains and losses on cash flow hedges recorded in AOCI.

	For the Six Months Ended					
	June 30, 2017			June 30, 2016		
	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	$ 28,328	$ 9,915	$ 18,413	$ 53,385	$ 18,685	$ 34,700
Less reclassification adjustments included in:						
Gains/(losses) on financial derivatives and hedging activities(1)	(8,145)	(2,851)	(5,294)	(7,939)	(2,778)	(5,161)
Losses on sale of available-for-sale investment securities(2)	—	—	—	9	3	6
Other income(3)	(13)	(5)	(8)	298	104	194
Total	$ 20,170	$ 7,059	$ 13,111	$ 45,753	$ 16,014	$ 29,739
Held-to-maturity securities:						
Less reclassification adjustments included in:						
Net interest income(4)	$ (5,612)	$ (1,964)	$ (3,648)	$ (2,008)	$ (703)	$ (1,305)
Total	$ (5,612)	$ (1,964)	$ (3,648)	$ (2,008)	$ (703)	$ (1,305)
Cash flow hedges						
Unrealized gains/(losses) on cash flow hedges	(2,192)	(766)	$ (1,426)	$ (8,710)	$ (3,048)	$ (5,662)
Less reclassification adjustments included in:						
Net interest income(5)	973	340	633	971	340	631
Total	$ (1,219)	$ (426)	$ (793)	$ (7,739)	$ (2,708)	$ (5,031)
Other comprehensive income/(loss)	$ 13,339	$ 4,669	$ 8,670	$ 36,006	$ 12,603	$ 23,403

(1) Relates to the amortization of unrealized gains on hedged items prior to the application of fair value hedge accounting.

(2) Represents unrealized losses on sales of available-for-sale investment securities.

(3) Represents amortization of deferred gains related to certain available-for-sale USDA Securities and Farmer Mac Guaranteed USDA Securities.

(4) 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.

(5) Relates to the recognition of unrealized gains and losses on cash flow hedges recorded in AOCI.

(d) New Accounting Standards

In March 2016, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") 2016-09, "*Improvements to Employee Share-Based Payment Accounting,*" which provides new guidance intended to simplify several aspects of accounting and presentation for employee share-based payment transactions. The ASU became effective for Farmer Mac on January 1, 2017. The adoption of the new guidance had the following effect on Farmer Mac's financial position, results of operations, and cash flows:

- *Consolidated Statements of Operations* - The ASU requires the recognition of all net tax benefits related to share-based compensation awards in the income tax provision. Previously, these amounts were recognized in additional paid-in capital. Net tax benefits related to share-based compensation awards of $0.2 million and $0.8 million, respectively, were recognized as a reduction to income tax expense in the three and six months ended June 30, 2017 in the consolidated statement of operations. Net tax benefits result from the excess of the tax deduction over the compensation expense recognized under GAAP for share-based compensation awards. That excess arises because the tax deduction is based upon the value of share-based awards upon their exercise (or vesting, in the case of restricted stock units), whereas the compensation expense under GAAP is based upon the value of the share-based awards upon their grant date.

  The ASU also changed the calculation of diluted earnings per share. GAAP requires the "treasury stock method" to determine the number of dilutive securities in calculating diluted earnings per share. The ASU changed the calculation of "assumed proceeds" under the treasury stock method to exclude the amount of net tax benefits that would have been recognized in additional paid-in capital under the previous accounting standard. This change in the calculation reduces the amount of shares assumed to have been repurchased under the treasury stock method, thus increasing the number of dilutive shares.

  Both of these changes in the guidance were applied prospectively beginning January 1, 2017 and for the three and six months ended June 30, 2017. For the three months ended June 30, 2017, the change in the recognition of all net tax benefits related to share-based compensation awards in the income tax provision resulted in an increase of $0.01 in both basic earnings per share and diluted earnings per share for the three months ended June 30, 2017. For the six months ended June 30, 2017, the change in the recognition of all net tax benefits related to share-based compensation awards in the income tax provision resulted in an increase of $0.06 in basic earnings per share and $0.08 in diluted earnings per share. The change in the guidance for the calculation of diluted earnings per share had an immaterial impact on diluted earnings per share.

  Additionally, the ASU allows companies to choose to either include an estimate of forfeitures expected to occur in share-based compensation expense or account for them as they occur. Previously, GAAP required companies to include an estimate of forfeitures expected to occur in their share-based compensations expense. Farmer Mac has elected to account for forfeitures in compensation expense as they occur. The cumulative impact of the change in the treatment of forfeitures was not material for the three and six months ended June 30, 2017.

- *Consolidated Statements of Cash Flows* - The ASU requires excess tax benefits from share-based employee awards to be reported within operating activities. Previously, these cash flows were reported within financing activities. Farmer Mac has applied this guidance prospectively, resulting in an increase in net cash provided by operating activities and a corresponding decrease in net cash provided by financing activities of $0.2 million and $0.8 million, respectively, for the three and six months ended June 30, 2017.

The ASU requires employee taxes paid when an employer withholds shares for tax purposes to be reported within financing activities. Under the previous guidance, these cash flows were included in operating activities. These changes were required to be applied on a retrospective basis. As a result, the consolidated statement of cash flows for prior periods was revised, resulting in an increase in net cash provided by operating activities and a decrease in net cash provided by financing activities of $1.7 million for the six months ended June 30, 2016, compared to previously reported amounts. The amount of employee taxes paid for shares withheld was $1.7 million for the six months ended June 30, 2017.

In June 2016, the FASB issued ASU 2016-13, "*Financial Instruments—Credit Losses,"* which will require entities to measure all expected credit losses for financial assets held at the reporting date based on historical experience, current conditions, and reasonable and supportable forecasts. Entities will be required to use forward-looking information to form their credit loss estimates. The ASU will also require enhanced disclosures to help users of financial statements better understand significant estimates and judgments used in estimating credit losses, as well as the credit quality and underwriting standards of an entity's portfolio. The new standard is effective for fiscal years and interim periods within those fiscal years, beginning after December 15, 2019. Early application will be permitted for all entities for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2018. Farmer Mac is currently evaluating the impact that the new guidance will have on its consolidated financial statements. That impact will primarily be from the new requirement to recognize all expected losses rather than just incurred losses as of the reporting date.

In March 2017, the FASB issued ASU 2017-08, "*Receivables - Nonrefundable Fees and Other Costs (Subtopic 310-20): Premium Amortization on Purchased Callable Debt Securities,*" which shortens the amortization period for certain callable debt securities held at a premium by requiring the premium to be amortized to the earliest call date. The ASU does not require an accounting change for securities held at a discount. The new standard is effective for fiscal years and interim periods within those fiscal years, beginning after December 15, 2019. Farmer Mac does not expect that adoption of the new guidance will have a material effect on Farmer Mac's financial position, results of operations, or cash flows.

(e) Reclassifications

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

2. INVESTMENT SECURITIES

The following tables set forth information about Farmer Mac's investment securities as of June 30, 2017 and December 31, 2016:

Table 2.1

	As of June 30, 2017					
	Amount Outstanding	Unamortized Premium/ (Discount)	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
	(in thousands)					
Available-for-sale:						
Floating rate auction-rate certificates backed by Government guaranteed student loans	$ 19,700	$ —	$ 19,700	$ —	$ (1,182)	$ 18,518
Floating rate asset-backed securities	37,751	(177)	37,574	2	(153)	37,423
Floating rate corporate debt securities	10,000	—	10,000	94	—	10,094
Floating rate Government/GSE guaranteed mortgage-backed securities	1,351,804	2,529	1,354,333	2,822	(1,673)	1,355,482
Fixed rate GSE guaranteed mortgage-backed securities(1)	488	2,358	2,846	2,333	—	5,179
Fixed rate senior agency debt	179,295	1	179,296	—	(267)	179,029
Fixed rate U.S. Treasuries	758,766	38	758,804	—	(724)	758,080
Total available-for-sale	2,357,804	4,749	2,362,553	5,251	(3,999)	2,363,805
Total investment securities	$ 2,357,804	$ 4,749	$ 2,362,553	$ 5,251	$ (3,999)	$ 2,363,805

(1) Fair value includes $4.7 million of an interest-only security with a notional amount of $144.9 million.

	As of December 31, 2016					
	Amount Outstanding	Unamortized Premium/ (Discount)	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
	(in thousands)					
Available-for-sale:						
Floating rate auction-rate certificates backed by Government guaranteed student loans	$ 19,700	$ —	$ 19,700	$ —	$ (1,970)	$ 17,730
Floating rate asset-backed securities	44,442	(202)	44,240	1	(390)	43,851
Floating rate corporate debt securities	10,000	—	10,000	41	—	10,041
Floating rate Government/GSE guaranteed mortgage-backed securities	1,359,700	2,827	1,362,527	1,768	(3,266)	1,361,029
Fixed rate GSE guaranteed mortgage-backed securities(1)	538	2,582	3,120	4,505	—	7,625
Floating rate GSE subordinated debt	70,000	—	70,000	—	(3,047)	66,953
Fixed rate senior agency debt	187,295	106	187,401	—	(268)	187,133
Fixed rate U.S. Treasuries	821,619	359	821,978	47	(536)	821,489
Total available-for-sale	2,513,294	5,672	2,518,966	6,362	(9,477)	2,515,851
Total investment securities	$ 2,513,294	$ 5,672	$ 2,518,966	$ 6,362	$ (9,477)	$ 2,515,851

(1) Fair value includes $7.0 million of an interest-only security with a notional amount of $146.1 million.

Farmer Mac did not sell any securities from its available-for-sale investment portfolio during the three and six months ended June 30, 2017 and three months ended June 30, 2016. During the six months ended June 30, 2016, Farmer Mac received proceeds of $186.8 million from the sale of securities from its available-for-sale investment portfolio, resulting in gross realized gains of $0.1 million and gross realized losses of $0.1 million.

As of June 30, 2017 and December 31, 2016, unrealized losses on available-for-sale investment securities were as follows:

Table 2.2

	As of June 30, 2017			
	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)			
Floating rate auction-rate certificates backed by Government guaranteed student loans	$ —	$ —	$ 18,518	$ (1,182)
Floating rate asset-backed securities	—	—	33,372	(153)
Floating rate Government/GSE guaranteed mortgage-backed securities	116,588	(254)	387,188	(1,419)
Fixed rate U.S. Treasuries	758,080	(724)	—	—
Fixed rate senior agency debt	179,029	(267)	—	—
Total	$ 1,053,697	$ (1,245)	$ 439,078	$ (2,754)

	As of December 31, 2016			
	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)			
Floating rate auction-rate certificates backed by Government guaranteed student loans	$ —	$ —	$ 17,730	$ (1,970)
Floating rate asset-backed securities	4,654	(10)	38,077	(380)
Floating rate Government/GSE guaranteed mortgage-backed securities	384,586	(1,030)	442,041	(2,236)
Floating rate GSE subordinated debt	—	—	66,953	(3,047)
Fixed rate U.S. Treasuries	732,371	(536)	—	—
Fixed rate senior agency debt	187,133	(268)	—	—
Total	$ 1,308,744	$ (1,844)	$ 564,801	$ (7,633)

The unrealized losses presented above are principally due to a general widening of market spreads and an increase in the levels of interest rates from the dates of acquisition to June 30, 2017 and December 31, 2016, 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 June 30, 2017, 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+." As of December 31, 2016, 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+," except one that was rated "A-." The unrealized losses were on 87 and 97 individual investment securities as of June 30, 2017 and December 31, 2016, respectively.

As of June 30, 2017, 46 of the securities in loss positions had been in loss positions for more than 12 months and had a total unrealized loss of $2.8 million. As of December 31, 2016, 36 of the securities in loss positions had been in loss positions for more than 12 months and had a total unrealized loss of $7.6 million. Securities in unrealized loss positions for 12 months or longer have a fair value as of June 30, 2017 that is, on average, approximately 99 percent 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. Accordingly, Farmer Mac has concluded that none of the unrealized losses on these available-for-sale investment securities are other-than-temporary impairment as of June 30, 2017 and December 31, 2016.

Farmer Mac did not own any held-to-maturity or trading investment securities as of June 30, 2017 and December 31, 2016.

The amortized cost, fair value, and weighted-average yield of available-for-sale investment securities by remaining contractual maturity as of June 30, 2017 are set forth below. Asset-backed and mortgage-backed securities are included based on their final maturities, although the actual maturities may differ due to prepayments of the underlying assets.

Table 2.3

	As of June 30, 2017		
	Available-for-Sale Securities		
	Amortized Cost	Fair Value	Weighted-Average Yield
		(dollars in thousands)	
Due within one year	$ 916,794	$ 915,808	0.82%
Due after one year through five years	220,592	220,936	1.65%
Due after five years through ten years	406,525	409,570	1.72%
Due after ten years	818,642	817,491	1.64%
Total	$ 2,362,553	$ 2,363,805	1.34%

3. FARMER MAC GUARANTEED SECURITIES AND USDA SECURITIES

The following tables set forth information about on-balance sheet Farmer Mac Guaranteed Securities and USDA Securities as of June 30, 2017 and December 31, 2016:

Table 3.1

	As of June 30, 2017					
	Unpaid Principal Balance	Unamortized Premium/ (Discount)	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
	(in thousands)					
Held-to-maturity:						
AgVantage	$ 2,102,479	$ (1,574)	$ 2,100,905	$ 5,907	$ (5,968)	$ 2,100,844
Farmer Mac Guaranteed USDA Securities	36,516	365	36,881	85	(483)	36,483
Total Farmer Mac Guaranteed Securities	2,138,995	(1,209)	2,137,786	5,992	(6,451)	2,137,327
USDA Securities	1,998,693	67,333	2,066,026	—	(66,353)	1,999,673
Total held-to-maturity	$ 4,137,688	$ 66,124	$ 4,203,812	$ 5,992	$ (72,804)	$ 4,137,000
Available-for-sale:						
AgVantage	$ 5,295,726	$ (162)	$ 5,295,564	$ 32,981	$ (45,983)	$ 5,282,562
Trading:						
USDA Securities	$ 15,547	$ 1,180	$ 16,727	$ 61	$ (494)	$ 16,294

	As of December 31, 2016					
	Unpaid Principal Balance	Unamortized Premium/ (Discount)	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
	(in thousands)					
Held-to-maturity:						
AgVantage	$ 1,115,465	$ (2,276)	$ 1,113,189	$ 7,187	$ (3,175)	$ 1,117,201
Farmer Mac Guaranteed USDA Securities	35,599	443	36,042	5	(239)	35,808
Total Farmer Mac Guaranteed Securities	1,151,064	(1,833)	1,149,231	7,192	(3,414)	1,153,009
USDA Securities	1,935,440	73,785	2,009,225	—	(95,590)	1,913,635
Total held-to-maturity	$ 3,086,504	$ 71,952	$ 3,158,456	$ 7,192	$ (99,004)	$ 3,066,644
Available-for-sale:						
AgVantage	$ 4,889,007	$ (103)	$ 4,888,904	$ 28,715	$ (63,934)	$ 4,853,685
Trading:						
USDA Securities	$ 19,360	$ 1,377	$ 20,737	$ 41	$ (390)	$ 20,388

On October 1, 2016, Farmer Mac transferred $2.0 billion of USDA Securities and $32.8 million of Farmer Mac Guaranteed USDA Securities from available-for-sale to held-to-maturity to reflect Farmer Mac's positive intent and ability to hold these securities until maturity or payoff. Farmer Mac transferred these securities at fair value as of the date of the transfer, which included a cost basis adjustment of unrealized appreciation in the amount of $73.1 million for the USDA Securities and $0.7 million for the Farmer Mac Guaranteed USDA Securities. The accumulated unrealized appreciation was retained in accumulated other comprehensive income in the amount of $73.8 million, pre-tax. Farmer Mac accounts for held-to-maturity securities at amortized cost. Both the cost basis adjustment and accumulated unrealized appreciation will be amortized as an adjustment to the yield on the held-to-maturity USDA Securities over the remaining term of the transferred securities.

As of June 30, 2017 and December 31, 2016, unrealized losses on held-to-maturity and available-for-sale on-balance sheet Farmer Mac Guaranteed Securities and USDA Securities were as follows:

Table 3.2

	As of June 30, 2017			
	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	$ 1,447,267	$ (5,968)	$ —	$ —
Farmer Mac Guaranteed USDA Securities	30,869	(483)	—	—
USDA Securities	1,909,400	(66,306)	91,364	(47)
Total held-to-maturity	$ 3,387,536	$ (72,757)	$ 91,364	$ (47)
Available-for-sale:				
AgVantage	$ 1,787,931	$ (21,001)	$ 966,689	$ (24,982)

	As of December 31, 2016			
	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	$ 358,575	$ (3,175)	$ —	$ —
Farmer Mac Guaranteed USDA Securities	30,575	(239)	—	—
USDA Securities	1,816,366	(95,582)	97,270	(8)
Total held-to-maturity	$ 2,205,516	$ (98,996)	$ 97,270	$ (8)
Available-for-sale:				
AgVantage	$ 982,538	$ (18,482)	$ 1,131,930	$ (45,452)

The unrealized losses presented above are principally due to higher interest rates from the date of acquisition to June 30, 2017 and December 31, 2016, as applicable. In addition, the unrealized losses on the held-to-maturity USDA Securities as of both June 30, 2017 and December 31, 2016 reflect their increased cost basis resulting from their transfer to held-to-maturity as of October 1, 2016, as described above. The credit exposure related to Farmer Mac's USDA Guarantees line of business is covered by the full faith and credit guarantee of the United States. The unrealized losses from AgVantage securities were on 25 available-for-sale securities as of June 30, 2017. There were 14 held-to-maturity AgVantage securities with an unrealized loss as of June 30, 2017. The unrealized losses from AgVantage securities were on 22 available-for-sale securities as of December 31, 2016. There were 7 unrealized losses from held-to-maturity securities as of December 31, 2016. As of June 30, 2017, 7 available-for-sale AgVantage securities had been in a loss position for more than 12 months with a total unrealized loss of $25.0 million.

As of December 31, 2016, 10 available-for-sale AgVantage securities had been in a loss position for more than 12 months with a total unrealized loss of $45.5 million. Farmer Mac has concluded that none of the unrealized losses on its held-to-maturity Farmer Mac Guaranteed Securities and USDA Securities and available-for-sale Farmer Mac Guaranteed Securities are other-than-temporary impairment as of either June 30, 2017 or December 31, 2016. Farmer Mac does not intend to sell these securities, and it is not more likely than not that Farmer Mac will be required to sell the securities before recovery of the amortized cost basis.

During the three and six months ended June 30, 2017 and 2016, Farmer Mac realized no gains or losses from the sale of Farmer Mac Guaranteed Securities and USDA Securities.

The amortized cost, fair value, and weighted-average yield of available-for-sale and held-to-maturity Farmer Mac Guaranteed Securities and USDA Securities by remaining contractual maturity as of June 30, 2017 are set forth below. The balances presented are based on their final maturities, although the actual maturities may differ due to prepayments of the underlying assets.

Table 3.3

	As of June 30, 2017		
	Available-for-Sale Securities		
	Amortized Cost	Fair Value	Weighted-Average Yield
		(dollars in thousands)	
Due within one year	$ 287,343	$ 287,029	1.60%
Due after one year through five years	3,096,037	3,108,402	2.09%
Due after five years through ten years	885,908	892,382	2.69%
Due after ten years	1,026,276	994,749	1.83%
Total	$ 5,295,564	$ 5,282,562	2.11%

	As of June 30, 2017		
	Held-to-Maturity Securities		
	Amortized Cost	Fair Value	Weighted-Average Yield
		(dollars in thousands)	
Due within one year	$ 855,465	$ 855,175	1.80%
Due after one year through five years	1,316,883	1,315,234	2.16%
Due after five years through ten years	188,751	182,992	3.04%
Due after ten years	1,842,713	1,783,599	3.32%
Total	$ 4,203,812	$ 4,137,000	2.62%

As of June 30, 2017, Farmer Mac owned trading USDA Securities with an amortized cost of $16.7 million, a fair value of $16.3 million, and a weighted-average yield of 5.33 percent. As of December 31, 2016, Farmer Mac owned trading USDA Securities with an amortized cost of $20.7 million, a fair value of $20.4 million, and a weighted-average yield of 5.44 percent.

4. FINANCIAL DERIVATIVES

Farmer Mac enters into financial derivative transactions principally 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, primarily classified as available-for-sale, to protect against fair value changes in the assets related to a benchmark interest rate (i.e., LIBOR). Other financial derivatives are designated as cash flow hedges to mitigate the volatility of future interest rate payments on floating rate debt.

All financial derivatives are recorded on the balance sheet at fair value as a freestanding asset or liability. Changes in the fair values of financial derivatives not designated as cash flow hedges are reported in "(Losses)/gains on financial derivatives and hedging activities" 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, which are primarily fixed rate AgVantage securities and fixed rate medium-term notes, related to the risk being hedged are also reported in "(Losses)/gains on financial derivatives and hedging activities" in the consolidated statements of operations. Interest accruals on derivatives designated in fair value hedge accounting relationships are recorded in "Net interest income" in the consolidated statements of operations. For the three and six months ended June 30, 2017 the amount of interest expense recognized on those derivatives was $1.8 million and $5.0 million, respectively. For the three and six months ended June 30, 2016, the amount of interest expense recognized on those derivatives was $4.1 million and $8.9 million, respectively. For financial derivatives designated in cash flow hedge accounting relationships, the effective portion of the derivative gain/loss is recorded in other comprehensive income and any ineffective portion is recognized immediately in "(Losses)/gains on financial derivatives and hedging activities" in the consolidated statements of operations. Because the hedging instrument is an interest rate swap and the hedged forecasted transactions are future interest payments on variable-rate debt, amounts recorded in accumulated other comprehensive income are reclassified to "Total interest expense" in conjunction with the recognition of interest expense on the debt. For the three and six months ended June 30, 2017, $0.5 million and $1.0 million, respectively, was reclassified out of accumulated other comprehensive income into interest expense. For the three and six months ended June 30, 2016, $0.5 million and $1.0 million, respectively, was reclassified out of accumulated other comprehensive income into interest expense. As of June 30, 2017, Farmer Mac expects to reclassify $1.2 million pretax, or $0.8 million after-tax, from accumulated other comprehensive income, net of tax, to earnings over the next twelve months. This amount could differ from amounts actually recognized due to changes in interest rates, hedge de-designations, and the addition of other hedges subsequent to June 30, 2017. During the three and six months ended June 30, 2017 and 2016, there were no gains or losses from interest rate swaps designated as cash flow hedges reclassified to earnings because it became probable the original forecasted transaction would not occur.

Fees that Farmer Mac receives upon the inception of swaps are also reported in "(Losses)/gains on financial derivatives and hedging activities" in the consolidated statements of operations. These fees are offset dollar-for-dollar by the discount on the associated hedged debt. However, the swap fees are recognized immediately in (Losses)/gains on financial derivatives and hedging activities, whereas the offsetting discount on the hedged debt is amortized over the term of the debt as an adjustment to its yield. Thus, there is a timing difference between the recognition of the swap fees in (Losses)/gains on financial derivatives and hedging activities and the recognition of the discount in interest expense. There is also a presentation difference because the swap fees are included in (Losses)/gains on financial derivatives and hedging activities, whereas the amortization of the discount is included in interest expense. Additionally, the amount of swap fees varies depending upon the number of swaps initiated during a quarter.

The following tables summarize information related to Farmer Mac's financial derivatives on a gross basis without giving consideration to master netting arrangements as of June 30, 2017 and and December 31, 2016 and the effects of financial derivatives on the consolidated statements of operations for the three and six months ended June 30, 2017 and 2016:

Table 4.1

	As of June 30, 2017						
		Fair Value					
	Notional Amount	Asset	(Liability)	Weighted-Average Pay Rate	Weighted-Average Receive Rate	Weighted-Average Forward Price	Weighted-Average Remaining Life (in years)
				(dollars in thousands)			
Fair value hedges:							
Interest rate swaps:							
Pay fixed non-callable	$ 2,003,581	$ 4,549	$ (9,832)	1.74%	1.13%		5.34
Receive fixed non-callable	1,431,700	97	(3,182)	1.11%	1.42%		1.99
Cash flow hedges:							
Interest rate swaps:							
Pay fixed non-callable	277,000	496	(467)	2.11%	1.41%		6.57
No hedge designation:							
Interest rate swaps:							
Pay fixed non-callable	353,534	174	(20,753)	3.89%	1.18%		6.71
Receive fixed non-callable	3,194,132	—	—	1.02%	0.99%		0.70
Basis swaps	970,000	117	(10)	0.95%	1.14%		0.97
Treasury futures	14,600	120	—			126.36	
Credit valuation adjustment		(7)	130				
Total financial derivatives	$ 8,244,547	$ 5,546	$ (34,114)				
Collateral pledged		—	25,066				
Net amount		$ 5,546	$ (9,048)				

	As of December 31, 2016						
		Fair Value					
	Notional Amount	Asset	(Liability)	Weighted-Average Pay Rate	Weighted-Average Receive Rate	Weighted-Average Forward Price	Weighted-Average Remaining Life (in years)
	(dollars in thousands)						
Fair value hedges:							
Interest rate swaps:							
Pay fixed non-callable	$ 1,642,609	$ 18,508	$ (18,909)	1.73%	0.90%		4.70
Cash flow hedges:							
Interest rate swaps:							
Pay fixed non-callable	207,000	3,706	(955)	2.18%	1.11%		7.28
No hedge designation:							
Interest rate swaps:							
Pay fixed non-callable	435,827	339	(32,951)	4.06%	0.89%		5.90
Receive fixed non-callable	4,991,821	607	(5,064)	0.74%	0.75%		0.60
Receive fixed callable	30,000	—	(33)	0.82%	0.58%		0.33
Basis swaps	765,000	36	(243)	0.78%	0.78%		0.87
Treasury futures	28,000	—	(155)			123.73	
Credit valuation adjustment		(14)	158				
Total financial derivatives	$ 8,100,257	$ 23,182	$ (58,152)				
Collateral pledged		—	25,643				
Net amount		$ 23,182	$ (32,509)				

Table 4.2

	(Losses)/gains on financial derivatives and hedging activities			
	For the Three Months Ended		For the Six Months Ended	
	June 30, 2017	June 30, 2016	June 30, 2017	June 30, 2016
	(in thousands)			
Fair value hedges:				
Interest rate swaps[(1)]	$ (8,568)	$ (14,440)	$ (7,041)	$ (41,339)
Hedged items	9,988	16,541	4,584	46,329
Gains/(losses) on fair value hedges	1,420	2,101	(2,457)	4,990
Cash flow hedges:				
Loss recognized (ineffective portion)	(146)	(105)	(175)	(254)
Losses on cash flow hedges	(146)	(105)	(175)	(254)
No hedge designation:				
Interest rate swaps	(1,648)	(6,345)	5,036	(14,487)
Agency forwards	(189)	10	(588)	(868)
Treasury futures	(54)	(357)	53	(859)
(Losses)/gains on financial derivatives not designated in hedging relationships	(1,891)	(6,692)	4,501	(16,214)
(Losses)/gains on financial derivatives and hedging activities	$ (617)	$ (4,696)	$ 1,869	$ (11,478)

(1) Included in the assessment of hedge effectiveness as of June 30, 2017, but excluded from the amounts in the table, were losses of $1.3 million and gains of $2.3 million, respectively, for the three and six months ended June 30, 2017, attributable to the fair value of the swaps at the inception of the hedging relationship. Accordingly, the amounts recognized as hedge ineffectiveness for three and six months ended June 30, 2017 were gains of $0.1 million and losses of 0.1 million, respectively. The comparable amounts as of June 30, 2016 were losses of $1.8 million and $3.3 million for the three and six months ended June 30, 2016, attributable to the fair value of the swaps at the inception of the hedging relationship and, accordingly, gains of $0.3 million and $1.7 million for the three and six months ended June 30, 2016, attributable to hedge ineffectiveness.

As of June 30, 2017 and December 31, 2016, Farmer Mac's credit exposure to interest rate swap counterparties, excluding netting arrangements and any adjustment for nonperformance risk, but including accrued interest, was $22.7 million and $24.5 million, respectively; however, including netting arrangements and accrued interest, Farmer Mac's credit exposure was $0.3 million and $0.2 million as of June 30, 2017 and December 31, 2016, respectively. As of June 30, 2017, Farmer Mac held no cash as collateral for its derivatives in net asset positions resulting in uncollateralized net asset positions of $0.3 million. As of December 31, 2016, Farmer Mac held no cash collateral for its derivatives in net asset positions, resulting in uncollateralized net asset positions of $0.2 million.

As of June 30, 2017 and December 31, 2016, the fair value of Farmer Mac's derivatives in a net liability position including accrued interest but excluding netting arrangements and any adjustment for nonperformance risk, was $65.4 million and $65.7 million, respectively; however, including netting arrangements and accrued interest, the fair value of Farmer Mac's derivatives in a net liability position at the counterparty level was $32.8 million and $41.4 million as of June 30, 2017 and December 31, 2016, respectively. Farmer Mac posted cash of $0.1 million and $25.0 million of investment securities as of June 30, 2017 and posted cash of $1.0 million and $24.6 million investment securities as of December 31, 2016. Farmer Mac records posted cash as a reduction in the outstanding balance of cash and cash equivalents and an increase in the balance of prepaid expenses and other assets. Any investment securities posted as collateral are included in the investment securities balances on the consolidated balance sheets. If Farmer Mac had breached certain provisions of the derivative contracts as of June 30, 2017 and December 31, 2016, it could have been required to settle its obligations under the agreements or post additional collateral of $7.7 million and $15.8 million, respectively. As of June 30, 2017 and December 31, 2016, 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.

For certain derivatives, Farmer Mac clears interest rate swaps through a clearinghouse, the Chicago Mercantile Exchange ("CME"). Farmer Mac posts initial and variation margins to this clearinghouse through which centrally-cleared derivatives and futures contracts are traded. These collateral postings expose Farmer Mac to institutional credit risk in the event that either the clearinghouse or the futures commission merchant that Farmer Mac uses to post collateral to the clearinghouse fails to meet its obligations. Conversely, the use of centrally-cleared derivatives mitigates Farmer Mac's credit risk to individual counterparties because clearinghouses assume the credit risk among counterparties in centrally-cleared derivatives transactions. Of Farmer Mac's $8.2 billion notional amount of interest rate swaps outstanding as of June 30, 2017, $7.2 billion were cleared through swap clearinghouses. Of Farmer Mac's $8.1 billion notional amount of interest rate swaps outstanding as of December 31, 2016, $6.9 billion were cleared through swap clearinghouses.

Effective January 3, 2017, the CME implemented a change in its rules related to the exchange of variation margin. Specifically, the exchange of variation margin between derivatives counterparties is now deemed by CME to be a partial settlement of each respective derivative contract rather than as collateral pledged by a counterparty. Accordingly, beginning in first quarter 2017, Farmer Mac presented its cleared derivatives portfolio net of variation margin payments on its consolidated balance sheets and recognized realized gains or losses as a result of these payments within "Gains/(losses) on financial derivatives and hedging activities" on its consolidated statements of operations. Prior to first quarter 2017, Farmer Mac accounted for variation margin as collateral and associated unrealized gains or losses on those centrally cleared derivative contracts. Farmer Mac included those unrealized gains or losses within "Gains/(losses) on financial derivatives and hedging activities" in its consolidated statements of operations prior to first quarter 2017. See Note 9 for information about the effect of this rule change on the calculation of core earnings beginning in 2017.

5. LOANS AND ALLOWANCE FOR LOSSES

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 adjustments. Loans held for sale are reported at the lower of cost or fair value determined on a pooled basis. As of June 30, 2017 and December 31, 2016, Farmer Mac had no loans held for sale. The following table displays the composition of the loan balances as of June 30, 2017 and December 31, 2016:

Table 5.1

	As of June 30, 2017			As of December 31, 2016		
	Unsecuritized	In Consolidated Trusts	Total	Unsecuritized	In Consolidated Trusts	Total
			(in thousands)			
Farm & Ranch	$ 2,641,850	$ 1,240,624	$ 3,882,474	$ 2,381,488	$ 1,132,966	$ 3,514,454
Rural Utilities	1,024,130	—	1,024,130	999,512	—	999,512
Total unpaid principal balance[1]	3,665,980	1,240,624	4,906,604	3,381,000	1,132,966	4,513,966
Unamortized premiums, discounts and other cost basis adjustments	4	—	4	(1,116)	—	(1,116)
Total loans	3,665,984	1,240,624	4,906,608	3,379,884	1,132,966	4,512,850
Allowance for loan losses	(4,947)	(1,191)	(6,138)	(4,437)	(978)	(5,415)
Total loans, net of allowance	$ 3,661,037	$ 1,239,433	$ 4,900,470	$ 3,375,447	$ 1,131,988	$ 4,507,435

(1) Unpaid principal balance is the basis of presentation in disclosures of outstanding balances for Farmer Mac's lines of business.

Allowance for Losses

Farmer Mac maintains an allowance for losses presented in two components on its consolidated balance sheets: (1) an allowance for loan losses to account for estimated probable losses on loans held, and (2) a reserve for losses to account for estimated probable losses on loans underlying LTSPCs and off-balance sheet Farmer Mac Guaranteed Securities (excluding AgVantage securities). Farmer Mac's total allowance for losses was $8.1 million as of June 30, 2017 and $7.4 million as of December 31, 2016. See Note 6 for more information about off-balance sheet Farmer Mac Guaranteed Securities and LTSPCs.

The following is a summary of the changes in the total allowance for losses for the three and six months ended June 30, 2017 and 2016:

Table 5.2

	As of June 30, 2017			As of June 30, 2016		
	Allowance for Loan Losses	Reserve for Losses	Total Allowance for Losses	Allowance for Loan Losses	Reserve for Losses	Total Allowance for Losses
	(in thousands)					
For the Three Months Ended:						
Beginning Balance	$ 5,811	$ 1,827	$ 7,638	$ 4,529	$ 2,097	$ 6,626
Provision for/(release of) losses	327	139	466	364	94	458
Ending Balance	$ 6,138	$ 1,966	$ 8,104	$ 4,893	$ 2,191	$ 7,084
For the Six Months Ended:						
Beginning Balance	$ 5,415	$ 2,020	$ 7,435	$ 4,480	$ 2,083	$ 6,563
Provision for/(release of) losses	964	(54)	910	413	108	521
Charge-offs	(241)	—	(241)	—	—	—
Ending Balance	$ 6,138	$ 1,966	$ 8,104	$ 4,893	$ 2,191	$ 7,084

During second quarter 2017, Farmer Mac recorded provisions to its allowance for loan losses and reserve for losses of $0.3 million and $0.1 million, respectively. The provisions to the allowance for loan losses recorded during second quarter 2017 were primarily attributable an increase in the general allowance due to overall net volume growth in on-balance sheet Farm & Ranch loans. The provision to the reserve for losses recorded during the second quarter 2017 was primarily attributable to an increase in the general reserve due to downgrades in risk ratings on certain unimpaired crop and permanent planting loans underlying LTSPCs and off-balance sheet Farmer Mac Guaranteed Securities. Farmer Mac recorded no charge-offs to its allowance for loan losses during second quarter 2017.

During second quarter 2016, Farmer Mac recorded provisions to its allowance for loan losses of $0.4 million and provisions to its reserve for losses of $0.1 million. The provisions to the allowance for loan losses recorded during second quarter 2016 were attributable to the establishment of a specific reserve for a long-standing impaired permanent planting loan due to collateral shortfalls relative to the unpaid principal balance and an increase in the specific allowance for on-balance sheet impaired loans resulting from a modest increase in the outstanding balance of such loans. The provisions to the reserve for losses recorded during the three months ended June 30, 2016 were attributable to an increase in the general allowance due to downgrades in risk rating on certain unimpaired crop loans and permanent planting loans underlying LTSPCs. The provisions were partially offset by a decrease in the general allowance of Agricultural Storage and Processing loans, both purchased and underlying LTSPCs, due to paydowns of these loans. Farmer Mac recorded no charge-offs to its allowance for loan losses during second quarter 2016.

The following tables present the changes in the total allowance for losses for the three and six months ended June 30, 2017 and 2016 by commodity type:

Table 5.3

	June 30, 2017						
	Crops	Permanent Plantings	Livestock	Part-time Farm	Ag. Storage and Processing	Other	Total
				(in thousands)			
For the Three Months Ended:							
Beginning Balance	$ 3,562	$ 1,870	$ 1,379	$ 324	$ 472	$ 31	$ 7,638
Provision for/(release of) losses	173	294	(145)	73	86	(15)	466
Ending Balance	$ 3,735	$ 2,164	$ 1,234	$ 397	$ 558	$ 16	$ 8,104
For the Six Months Ended:							
Beginning Balance	$ 3,365	$ 1,723	$ 1,375	$ 405	$ 533	$ 34	$ 7,435
Provision for/(release of) losses	598	441	(128)	(8)	25	(18)	910
Charge-offs	(228)	—	(13)	—	—	—	(241)
Ending Balance	$ 3,735	$ 2,164	$ 1,234	$ 397	$ 558	$ 16	$ 8,104

	June 30, 2016						
	Crops	Permanent Plantings	Livestock	Part-time Farm	Ag. Storage and Processing	Other	Total
				(in thousands)			
For the Three Months Ended:							
Beginning Balance	$ 2,892	$ 937	$ 1,763	$ 444	$ 587	$ 3	$ 6,626
Provision for/(release of) losses	219	207	143	3	(114)	—	458
Ending Balance	$ 3,111	$ 1,144	$ 1,906	$ 447	$ 473	$ 3	$ 7,084
For the Six Months Ended:							
Beginning Balance	$ 2,791	$ 931	$ 1,781	$ 408	$ 649	$ 3	$ 6,563
Provision for/(release of) losses	320	213	125	39	(176)	—	521
Ending Balance	$ 3,111	$ 1,144	$ 1,906	$ 447	$ 473	$ 3	$ 7,084

The following tables present the unpaid principal balances of loans held and loans underlying LTSPCs and off-balance sheet Farmer Mac Guaranteed Securities (excluding AgVantage securities) and the related total allowance for losses by impairment method and commodity type as of June 30, 2017 and December 31, 2016:

Table 5.4

	As of June 30, 2017						
	Crops	Permanent Plantings	Livestock	Part-time Farm	Ag. Storage and Processing	Other	Total
				(in thousands)			
Ending Balance:							
Collectively evaluated for impairment:							
On-balance sheet	$ 2,214,663	$ 711,209	$ 602,815	$ 225,948	$ 13,508	$ 9,061	$ 3,777,204
Off-balance sheet	1,246,599	405,072	682,658	148,932	40,491	4,072	2,527,824
Total	$ 3,461,262	$ 1,116,281	$ 1,285,473	$ 374,880	$ 53,999	$ 13,133	$ 6,305,028
Individually evaluated for impairment:							
On-balance sheet	$ 58,659	$ 31,020	$ 8,634	$ 6,957	$ —	$ —	$ 105,270
Off-balance sheet	8,430	2,259	4,544	907	—	80	16,220
Total	$ 67,089	$ 33,279	$ 13,178	$ 7,864	$ —	$ 80	$ 121,490
Total Farm & Ranch loans:							
On-balance sheet	$ 2,273,322	$ 742,229	$ 611,449	$ 232,905	$ 13,508	$ 9,061	$ 3,882,474
Off-balance sheet	1,255,029	407,331	687,202	149,839	40,491	4,152	2,544,044
Total	$ 3,528,351	$ 1,149,560	$ 1,298,651	$ 382,744	$ 53,999	$ 13,213	$ 6,426,518
Allowance for Losses:							
Collectively evaluated for impairment:							
On-balance sheet	$ 2,007	$ 896	$ 776	$ 190	$ 89	$ 9	$ 3,967
Off-balance sheet	487	328	202	54	469	5	1,545
Total	$ 2,494	$ 1,224	$ 978	$ 244	$ 558	$ 14	$ 5,512
Individually evaluated for impairment:							
On-balance sheet	$ 969	$ 933	$ 141	$ 128	$ —	$ —	$ 2,171
Off-balance sheet	272	7	115	25	—	2	421
Total	$ 1,241	$ 940	$ 256	$ 153	$ —	$ 2	$ 2,592
Total Farm & Ranch loans:							
On-balance sheet	$ 2,976	$ 1,829	$ 917	$ 318	$ 89	$ 9	$ 6,138
Off-balance sheet	759	335	317	79	469	7	1,966
Total	$ 3,735	$ 2,164	$ 1,234	$ 397	$ 558	$ 16	$ 8,104

	As of December 31, 2016						
	Crops	Permanent Plantings	Livestock	Part-time Farm	Ag. Storage and Processing	Other	Total
				(in thousands)			
Ending Balance:							
Collectively evaluated for impairment:							
On-balance sheet	$ 2,115,450	$ 569,360	$ 537,859	$ 183,660	$ 11,545	$ 8,894	$ 3,426,768
Off-balance sheet	1,241,851	437,575	752,473	131,889	36,506	4,503	2,604,797
Total	$ 3,357,301	$ 1,006,935	$ 1,290,332	$ 315,549	$ 48,051	$ 13,397	$ 6,031,565
Individually evaluated for impairment:							
On-balance sheet	$ 41,648	$ 27,770	$ 10,658	$ 7,610	$ —	$ —	$ 87,686
Off-balance sheet	11,549	2,735	4,854	915	—	—	20,053
Total	$ 53,197	$ 30,505	$ 15,512	$ 8,525	$ —	$ —	$ 107,739
Total Farm & Ranch loans:							
On-balance sheet	$ 2,157,098	$ 597,130	$ 548,517	$ 191,270	$ 11,545	$ 8,894	$ 3,514,454
Off-balance sheet	1,253,400	440,310	757,327	132,804	36,506	4,503	2,624,850
Total	$ 3,410,498	$ 1,037,440	$ 1,305,844	$ 324,074	$ 48,051	$ 13,397	$ 6,139,304
Allowance for Losses:							
Collectively evaluated for impairment:							
On-balance sheet	$ 2,000	$ 652	$ 735	$ 193	$ 22	$ 28	$ 3,630
Off-balance sheet	420	281	241	54	511	6	1,513
Total	$ 2,420	$ 933	$ 976	$ 247	$ 533	$ 34	$ 5,143
Individually evaluated for impairment:							
On-balance sheet	$ 613	$ 770	$ 270	$ 132	$ —	$ —	$ 1,785
Off-balance sheet	332	20	129	26	—	—	507
Total	$ 945	$ 790	$ 399	$ 158	$ —	$ —	$ 2,292
Total Farm & Ranch loans:							
On-balance sheet	$ 2,613	$ 1,422	$ 1,005	$ 325	$ 22	$ 28	$ 5,415
Off-balance sheet	752	301	370	80	511	6	2,020
Total	$ 3,365	$ 1,723	$ 1,375	$ 405	$ 533	$ 34	$ 7,435

The following tables present by commodity type the unpaid principal balances, recorded investment, and specific allowance for losses related to impaired loans and the recorded investment in loans on nonaccrual status as of June 30, 2017 and December 31, 2016:

Table 5.5

	As of June 30, 2017						
	Crops	Permanent Plantings	Livestock	Part-time Farm	Ag. Storage and Processing	Other	Total
				(in thousands)			
Impaired Loans:							
With no specific allowance:							
Recorded investment	$ 9,011	$ 3,657	$ 1,204	$ 1,959	$ —	$ —	$ 15,831
Unpaid principal balance	9,016	3,657	1,204	1,960	—	—	15,837
With a specific allowance:							
Recorded investment(1)	58,049	29,607	11,970	5,901	—	80	105,607
Unpaid principal balance	58,073	29,622	11,974	5,904	—	80	105,653
Associated allowance	1,241	940	256	153	—	2	2,592
Total:							
Recorded investment	67,060	33,264	13,174	7,860	—	80	121,438
Unpaid principal balance	67,089	33,279	13,178	7,864	—	80	121,490
Associated allowance	1,241	940	256	153	—	2	2,592
Recorded investment of loans on nonaccrual status(2)	$ 20,270	$ 25,838	$ 1,902	$ 4,771	$ —	$ —	$ 52,781

(1) Impairment analysis was performed in the aggregate in consideration of similar risk characteristics of the assets and historical statistics on $104.2 million (86 percent) of impaired loans as of June 30, 2017, which resulted in a specific allowance of $2.3 million.

(2) Includes $11.3 million of loans that are less than 90 days delinquent but which have not met Farmer Mac's performance criteria for returning to accrual status.

	As of December 31, 2016						
	Crops	Permanent Plantings	Livestock	Part-time Farm	Ag. Storage and Processing	Other	Total
				(in thousands)			
Impaired Loans:							
With no specific allowance:							
Recorded investment	$ 20,761	$ 3,683	$ 1,054	$ 1,970	$ —	$ —	$ 27,468
Unpaid principal balance	20,816	3,688	1,055	1,975	—	—	27,534
With a specific allowance:							
Recorded investment(1)	32,326	26,748	14,322	6,535	—	—	79,931
Unpaid principal balance	32,381	26,817	14,457	6,550	—	—	80,205
Associated allowance	945	790	399	158	—	—	2,292
Total:							
Recorded investment	53,087	30,431	15,376	8,505	—	—	107,399
Unpaid principal balance	53,197	30,505	15,512	8,525	—	—	107,739
Associated allowance	945	790	399	158	—	—	2,292
Recorded investment of loans on nonaccrual status(2)	$ 13,405	$ 10,785	$ 2,696	$ 5,256	$ —	$ —	$ 32,142

(1) Impairment analysis was performed in the aggregate in consideration of similar risk characteristics of the assets and historical statistics on $76.5 million (71 percent) of impaired loans as of December 31, 2016, which resulted in a specific allowance of $1.6 million.

(2) Includes $12.4 million of loans that are less than 90 days delinquent but which have not met Farmer Mac's performance criteria for returning to accrual status.

The following table presents by commodity type the average recorded investment and interest income recognized on impaired loans for the three and six months ended June 30, 2017 and 2016:

Table 5.6

	June 30, 2017						
	Crops	Permanent Plantings	Livestock	Part-time Farm	Ag. Storage and Processing	Other	Total
				(in thousands)			
For the Three Months Ended:							
Average recorded investment in impaired loans	$ 65,295	$ 33,222	$ 12,557	$ 7,926	$ —	$ 40	$ 119,040
Income recognized on impaired loans	160	68	22	71	—	—	321
For the Six Months Ended:							
Average recorded investment in impaired loans	$ 61,226	$ 32,292	$ 13,497	$ 8,119	$ —	$ 27	$ 115,161
Income recognized on impaired loans	462	220	199	174	—	—	1,055

	June 30, 2016						
	Crops	Permanent Plantings	Livestock	Part-time Farm	Ag. Storage and Processing	Other	Total
				(in thousands)			
For the Three Months Ended:							
Average recorded investment in impaired loans	$ 28,732	$ 24,133	$ 14,883	$ 8,772	$ —	$ —	$ 76,520
Income recognized on impaired loans	60	509	133	105	—	—	807
For the Six Months Ended:							
Average recorded investment in impaired loans	$ 26,121	$ 29,673	$ 13,906	$ 9,111	$ 7,368	$ —	$ 86,179
Income recognized on impaired loans	62	553	148	177	—	—	940

For the three and six months ended June 30, 2017, the recorded investment of loans determined to be troubled debt restructurings ("TDRs") was $0.2 million both before and after restructuring. For the three and six months ended June 30, 2016, there were no TDRs. As of June 30, 2017 and 2016, there were no TDRs identified during the previous 12 months that were in default under the modified terms. The impact of TDRs on Farmer Mac's allowance for loan losses was immaterial for the three and six months ended June 30, 2017 and 2016.

When particular criteria are met, such as the default of the borrower, Farmer Mac becomes entitled to purchase the defaulted loans underlying Farmer Mac Guaranteed Securities (commonly referred to as "removal-of-account" provisions). Farmer Mac records all such defaulted loans at their unpaid principal balance during the period in which Farmer Mac becomes entitled to purchase the loans and, therefore, regains effective control over the transferred loans. In accordance with the terms of all LTSPCs, Farmer Mac acquires loans that are either 90 days or 120 days delinquent (depending on the provisions of the applicable agreement) upon the request of the counterparty. Subsequent to the purchase, these defaulted loans are treated as nonaccrual loans and, therefore, interest is accounted for on the cash basis. Any decreases in expected cash flows are recognized as impairment.

The following tables present information related to Farmer Mac's acquisition of defaulted loans for the three and six months ended June 30, 2017 and 2016 and the outstanding balances and carrying amounts of all such loans as of June 30, 2017 and December 31, 2016:

Table 5.7

	For the Three Months Ended		For the Six Months Ended	
	June 30, 2017	June 30, 2016	June 30, 2017	June 30, 2016
	($ in thousands)			
Unpaid principal balance at acquisition date:				
Loans underlying LTSPCs	$ —	$ —	$ 311	$ 1,267
Loans underlying off-balance sheet Farmer Mac Guaranteed Securities (excluding AgVantage securities)	104	—	104	148
Total unpaid principal balance at acquisition date	104	—	415	1,415
Contractually required payments receivable	105	—	416	1,435
Impairment recognized subsequent to acquisition	—	208	—	208
Recovery/release of allowance for all outstanding acquired defaulted loans	128	6	142	10
Number of defaulted loans purchased	1	—	4	5

	As of	
	June 30, 2017	December 31, 2016
	(in thousands)	
Outstanding balance	$ 14,156	$ 14,669
Carrying amount	12,969	13,069

Net credit losses and 90-day delinquencies as of and for the periods indicated for loans held and loans underlying off-balance sheet securities representing interests in pools of eligible Farm & Ranch loans ("Farm & Ranch Guaranteed Securities") and LTSPCs are presented in the table below. As of June 30, 2017, there were no delinquencies and no probable losses inherent in Farmer Mac's Rural Utilities loan portfolio and Farmer Mac had not experienced credit losses on any Rural Utilities loans.

Table 5.8

	90-Day Delinquencies[1] As of		Net Credit (Recoveries)/Losses For the Six Months Ended	
	June 30, 2017	December 31, 2016	June 30, 2017	June 30, 2016
	(in thousands)			
On-balance sheet assets:				
Farm & Ranch:				
Loans	$ 41,433	$ 19,757	$ (488)	$ 39
Total on-balance sheet	$ 41,433	$ 19,757	$ (488)	$ 39
Off-balance sheet assets:				
Farm & Ranch:				
LTSPCs	$ 468	$ 1,281	$ —	$ —
Total off-balance sheet	$ 468	$ 1,281	$ —	$ —
Total	$ 41,901	$ 21,038	$ (488)	$ 39

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

Of the $41.4 million of on-balance sheet loans reported as 90-day delinquencies as of June 30, 2017, $1.4 million were loans subject to "removal-of-account" provisions. Of the $19.8 million of on-balance sheet loans reported as 90-day delinquencies as of December 31, 2016, $0.1 million were loans subject to "removal-of-account" provisions.

Credit Quality Indicators

The following tables present credit quality indicators related to Farm & Ranch loans held and loans underlying LTSPCs and off-balance sheet Farm & Ranch Guaranteed Securities as of June 30, 2017 and December 31, 2016:

Table 5.9

	As of June 30, 2017						
	Crops	Permanent Plantings	Livestock	Part-time Farm	Ag. Storage and Processing	Other	Total
				(in thousands)			
Credit risk profile by internally assigned grade(1)							
On-balance sheet:							
Acceptable	$ 2,167,881	$ 710,339	$ 579,367	$ 220,707	$ 13,508	$ 9,061	$ 3,700,863
Special mention(2)	46,782	870	23,448	5,241	—	—	76,341
Substandard(3)	58,659	31,020	8,634	6,957	—	—	105,270
Total on-balance sheet	$ 2,273,322	$ 742,229	$ 611,449	$ 232,905	$ 13,508	$ 9,061	$ 3,882,474
Off-Balance Sheet:							
Acceptable	$ 1,184,805	$ 365,541	$ 658,528	$ 143,232	$ 38,680	$ 3,589	$ 2,394,375
Special mention(2)	36,862	11,102	13,478	1,348	—	8	62,798
Substandard(3)	33,362	30,688	15,196	5,259	1,811	555	86,871
Total off-balance sheet	$ 1,255,029	$ 407,331	$ 687,202	$ 149,839	$ 40,491	$ 4,152	$ 2,544,044
Total Ending Balance:							
Acceptable	$ 3,352,686	$ 1,075,880	$1,237,895	$ 363,939	$ 52,188	$ 12,650	$ 6,095,238
Special mention(2)	83,644	11,972	36,926	6,589	—	8	139,139
Substandard(3)	92,021	61,708	23,830	12,216	1,811	555	192,141
Total	$ 3,528,351	$ 1,149,560	$1,298,651	$ 382,744	$ 53,999	$ 13,213	$ 6,426,518
Commodity analysis of past due loans(1)							
On-balance sheet	$ 18,878	$ 18,569	$ 966	$ 3,020	$ —	$ —	$ 41,433
Off-balance sheet	—	—	—	468	—	—	468
90 days or more past due	$ 18,878	$ 18,569	$ 966	$ 3,488	$ —	$ —	$ 41,901

(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, 2016						
	Crops	Permanent Plantings	Livestock	Part-time Farm	Ag. Storage and Processing	Other	Total
				(in thousands)			
Credit risk profile by internally assigned grade[1]							
On-balance sheet:							
Acceptable	$ 2,080,227	$ 568,221	$ 504,784	$ 179,288	$ 11,545	$ 8,894	$ 3,352,959
Special mention[2]	35,223	1,139	33,075	4,372	—	—	73,809
Substandard[3]	41,648	27,770	10,658	7,610	—	—	87,686
Total on-balance sheet	$ 2,157,098	$ 597,130	$ 548,517	$ 191,270	$ 11,545	$ 8,894	$ 3,514,454
Off-Balance Sheet							
Acceptable	$ 1,201,144	$ 403,256	$ 724,056	$ 125,440	$ 34,537	$ 3,916	$ 2,492,349
Special mention[2]	20,422	16,881	15,341	2,344	—	6	54,994
Substandard[3]	31,834	20,173	17,930	5,020	1,969	581	77,507
Total off-balance sheet	$ 1,253,400	$ 440,310	$ 757,327	$ 132,804	$ 36,506	$ 4,503	$ 2,624,850
Total Ending Balance:							
Acceptable	$ 3,281,371	$ 971,477	$ 1,228,840	$ 304,728	$ 46,082	$ 12,810	$ 5,845,308
Special mention[2]	55,645	18,020	48,416	6,716	—	6	128,803
Substandard[3]	73,482	47,943	28,588	12,630	1,969	581	165,193
Total	$ 3,410,498	$ 1,037,440	$ 1,305,844	$ 324,074	$ 48,051	$ 13,397	$ 6,139,304
Commodity analysis of past due loans[1]							
On-balance sheet	$ 13,449	$ 3,245	$ 669	$ 2,394	$ —	$ —	$ 19,757
Off-balance sheet	373	407	38	463	—	—	1,281
90 days or more past due	$ 13,822	$ 3,652	$ 707	$ 2,857	$ —	$ —	$ 21,038

(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.

Concentrations of Credit Risk

The following table sets forth the geographic and commodity/collateral diversification, as well as the range of original loan-to-value ratios, for all Farm & Ranch loans held and loans underlying off-balance sheet Farm & Ranch Guaranteed Securities and LTSPCs as of June 30, 2017 and December 31, 2016:

Table 5.10

	As of	
	June 30, 2017	December 31, 2016
	(in thousands)	
By commodity/collateral type:		
Crops	$ 3,528,351	$ 3,410,498
Permanent plantings	1,149,560	1,037,440
Livestock	1,298,651	1,305,844
Part-time farm	382,744	324,074
Ag. Storage and Processing	53,999	48,051
Other	13,213	13,397
Total	$ 6,426,518	$ 6,139,304
By geographic region(1):		
Northwest	$ 706,366	$ 657,403
Southwest	1,898,171	1,791,745
Mid-North	2,196,291	2,104,867
Mid-South	860,428	837,121
Northeast	259,254	229,679
Southeast	506,008	518,489
Total	$ 6,426,518	$ 6,139,304
By original loan-to-value ratio(2):		
0.00% to 40.00%	$ 1,250,561	$ 1,220,432
40.01% to 50.00%	1,607,806	1,466,047
50.01% to 60.00%	2,170,648	2,078,099
60.01% to 70.00%	1,149,539	1,167,395
70.01% to 80.00%	220,932	191,664
80.01% to 90.00%	27,032	15,667
Total	$ 6,426,518	$ 6,139,304

(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).

(2) As of second quarter 2017, Farmer Mac revised its calculation of the original loan-to-value ratio of a loan to combine for any cross-collateralized loans: (i) the original loan principal balance amounts in the numerator and (ii) the original appraised property values in the denominator. In previous periods, the ratio was calculated on a loan-by-loan basis without considering the effects of any cross-collateralization. Prior period information has been reclassified to conform to the current period calculation and presentation.

The original loan-to-value ratio is calculated by dividing the loan principal balance at the time of guarantee, purchase, or commitment by the appraised value at the date of loan origination or, when available, the updated appraised value at the time of guarantee, purchase, or commitment. Current loan-to-value ratios may be higher or lower than the original loan-to-value ratios.

6. GUARANTEES AND LONG-TERM STANDBY PURCHASE COMMITMENTS

Farmer Mac offers two credit enhancement alternatives to direct loan purchases that allow approved lenders the ability to retain the cash flow benefits of their loans and increase their liquidity and lending capacity: (1) Farmer Mac Guaranteed Securities, which are available through each of the Farm & Ranch, USDA Guarantees, Rural Utilities, and Institutional Credit lines of business, and (2) LTSPCs, which are available through the Farm & Ranch or the Rural Utilities lines of business.

The following table presents the maximum principal amount of potential undiscounted future payments that Farmer Mac could be required to make under all off-balance sheet Farmer Mac Guaranteed Securities as of June 30, 2017 and December 31, 2016, not including offsets provided by any recourse provisions, recoveries from third parties, or collateral for the underlying loans:

Table 6.1

Outstanding Balance of Off-Balance Sheet Farmer Mac Guaranteed Securities

	As of June 30, 2017	As of December 31, 2016
	(in thousands)	
Farm & Ranch:		
Guaranteed Securities	$ 367,419	$ 415,441
USDA Guarantees:		
Farmer Mac Guaranteed USDA Securities	186,256	103,976
Institutional Credit:		
AgVantage Securities	13,214	983,214
Revolving floating rate AgVantage facility[1]	300,000	300,000
Total off-balance sheet Farmer Mac Guaranteed Securities	$ 866,889	$ 1,802,631

(1) Relates to a revolving floating rate AgVantage facility subject to specified contractual terms. Farmer Mac receives a fixed fee based on the full dollar amount of the facility.

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

Table 6.2

	For the Six Months Ended	
	June 30, 2017	June 30, 2016
	(in thousands)	
Proceeds from new securitizations	$ 247,975	$ 278,443
Guarantee fees received	1,701	1,823
Purchases of assets from the trusts	(104)	(1,267)

Farmer Mac has recorded a liability for its obligation to stand ready under the guarantee in the guarantee and commitment obligation on the consolidated balance sheets. This liability approximated $4.0 million as of June 30, 2017 and $5.5 million as of December 31, 2016. As of June 30, 2017 and December 31, 2016, the weighted-average remaining maturity of all loans underlying off-balance sheet Farmer Mac Guaranteed Securities, excluding AgVantage securities, was 10.4 years and 10.7 years, respectively. As of June 30, 2017 and December 31, 2016, the weighted-average remaining maturity of the off-balance sheet AgVantage securities was 1.4 years and 0.7 years, respectively.

Long-Term Standby Purchase Commitments

An LTSPC is a commitment by Farmer Mac to purchase eligible loans from an identified pool of loans under specified circumstances set forth in the applicable agreement, either for cash or in exchange for Farmer Mac Guaranteed Securities, on one or more undetermined future dates. As consideration for its assumption of the credit risk on loans underlying an LTSPC, Farmer Mac receives a commitment fee payable monthly in arrears in an amount approximating what would have been the guarantee fee if the transaction were structured as a swap for Farmer Mac Guaranteed Securities.

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, was $3.0 billion as of June 30, 2017 and $3.1 billion as of December 31, 2016.

As of both June 30, 2017 and December 31, 2016, the weighted-average remaining maturity of all loans underlying LTSPCs was 15.1 years. For those LTSPCs issued or modified on or after January 1, 2003, 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. This liability approximated $31.8 million as of both June 30, 2017 and December 31, 2016.

7. EQUITY

Common Stock

On September 8, 2015, Farmer Mac's board of directors approved a share repurchase program authorizing Farmer Mac to repurchase up to $25 million of its outstanding Class C non-voting common stock through September 8, 2017. As of June 30, 2017, Farmer Mac had repurchased approximately 668,000 shares of Class C non-voting common stock at a cost of approximately $19.6 million pursuant to the share repurchase program. In August 2017, Farmer Mac's board of directors approved the continuation of the share repurchase program on its existing terms through August 2019 for the repurchase of up to $5.4 million of Farmer Mac's outstanding Class C non-voting common stock, which is the amount currently remaining under the share repurchase program originally authorized in third quarter 2015.

Capital Requirements

Farmer Mac is subject to the following capital requirements:

- Statutory minimum capital requirement – Farmer Mac's statutory minimum capital level is an amount of core capital (stockholders' equity less accumulated other comprehensive income) equal to the sum of 2.75 percent of Farmer Mac's aggregate on-balance sheet assets, as calculated for regulatory purposes, plus 0.75 percent of the aggregate off-balance sheet obligations of Farmer Mac, specifically including:
    - the unpaid principal balance of outstanding Farmer Mac Guaranteed Securities;
    - instruments issued or guaranteed by Farmer Mac that are substantially equivalent to Farmer Mac Guaranteed Securities, including LTSPCs; and
    - other off-balance sheet obligations of Farmer Mac.

- Statutory critical capital requirement – Farmer Mac's critical capital level is an amount of core capital equal to 50 percent of the total minimum capital requirement at that time.
- Risk-based capital requirement – Farmer Mac's charter directs the Farm Credit Administration ("FCA"), an independent agency in the executive branch of the United States government that regulates Farmer Mac, to establish a risk-based capital stress test for Farmer Mac, using specified stress-test parameters.

Farmer Mac is required to comply with the higher of the minimum capital requirement and the risk-based capital requirement. As of both June 30, 2017 and December 31, 2016, the minimum capital requirement was greater than the risk-based capital requirement. Farmer Mac's ability to declare and pay dividends could be restricted if it fails to comply with applicable capital requirements.

As of June 30, 2017, Farmer Mac's minimum capital requirement was $504.4 million and its core capital level was $638.5 million, which was $134.1 million above the minimum capital requirement as of that date. As of December 31, 2016, Farmer Mac's minimum capital requirement was $466.5 million and its core capital level was $609.7 million, which was $143.2 million above the minimum capital requirement as of that date.

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

8. FAIR VALUE DISCLOSURES

As of June 30, 2017, Farmer Mac's assets and liabilities recorded at fair value included financial instruments valued at $5.3 billion whose fair values were estimated by management in the absence of readily determinable fair values (i.e., level 3). These financial instruments measured as level 3 represented 31 percent of total assets and 69 percent of financial instruments measured at fair value as of June 30, 2017. As of December 31, 2016, Farmer Mac's assets and liabilities recorded at fair value included financial instruments valued at $4.9 billion whose fair values were estimated by management in the absence of readily determinable fair values. These financial instruments measured as level 3 represented 31 percent of total assets and 65 percent of financial instruments measured at fair value as of December 31, 2016.

Transfers in and/or out of the different levels within the fair value hierarchy are based on the fair values of the assets and liabilities as of the beginning of the reporting period. During the first half of 2017 there was one transfer within fair value hierarchy from Level 2 to Level 3 for the fair value measurement of a fixed-rate GSE guaranteed mortgage-backed security (interest only strip). The transfer to Level 3 was because unobservable inputs became significant to the overall estimate of the fair value of the security as of March 31, 2017. There were no transfers within the fair value hierarchy for fair value measurements of Farmer Mac's investment securities, Farmer Mac Guaranteed Securities, USDA Securities, and financial derivatives during the first half of 2016. See Note 3 for information about the transfer of available-for-sale USDA and Farmer Mac Guaranteed USDA securities to held-to-maturity as of October 1, 2016.

The following tables present information about Farmer Mac's assets and liabilities measured at fair value on a recurring and non-recurring basis as of June 30, 2017 and December 31, 2016, respectively, and indicate the fair value hierarchy of the valuation techniques used by Farmer Mac to determine such fair value:

Table 8.1

Assets and Liabilities Measured at Fair Value as of June 30, 2017

	Level 1	Level 2	Level 3	Total
		(in thousands)		
Recurring:				
Assets:				
Investment Securities:				
Available-for-sale:				
Floating rate auction-rate certificates backed by Government guaranteed student loans	$ —	$ —	$ 18,518	$ 18,518
Floating rate asset-backed securities	—	37,423	—	37,423
Floating rate corporate debt securities	—	10,094	—	10,094
Floating rate Government/GSE guaranteed mortgage-backed securities	—	1,355,482	—	1,355,482
Fixed rate GSE guaranteed mortgage-backed securities	—	528	4,651	5,179
Floating rate GSE subordinated debt	—	—	—	—
Fixed rate senior agency debt	—	179,029	—	179,029
Fixed rate U.S. Treasuries	758,080	—	—	758,080
Total Investment Securities	758,080	1,582,556	23,169	2,363,805
Farmer Mac Guaranteed Securities:				
Available-for-sale:				
AgVantage	—	—	5,282,562	5,282,562
Total Farmer Mac Guaranteed Securities	—	—	5,282,562	5,282,562
USDA Securities:				
Trading	—	—	16,294	16,294
Total USDA Securities	—	—	16,294	16,294
Financial derivatives	120	5,426	—	5,546
Total Assets at fair value	$ 758,200	$ 1,587,982	$ 5,322,025	$ 7,668,207
Liabilities:				
Financial derivatives	$ —	$ 34,114	$ —	$ 34,114
Total Liabilities at fair value	$ —	$ 34,114	$ —	$ 34,114
Non-recurring:				
Assets:				
Loans held for investment	$ —	$ —	$ 1,135	$ 1,135
REO	—	—	1,374	1,374
Total Non-recurring Assets at fair value	$ —	$ —	$ 2,509	$ 2,509

Assets and Liabilities Measured at Fair Value as of December 31, 2016				
	Level 1	Level 2	Level 3	Total
		(in thousands)		
Recurring:				
Assets:				
Investment Securities:				
Available-for-sale:				
Floating rate auction-rate certificates backed by Government guaranteed student loans	$ —	$ —	$ 17,730	$ 17,730
Floating rate asset-backed securities	—	43,851	—	43,851
Floating rate corporate debt securities	—	10,041	—	10,041
Floating rate Government/GSE guaranteed mortgage-backed securities	—	1,361,029	—	1,361,029
Fixed rate GSE guaranteed mortgage-backed securities	—	7,625	—	7,625
Floating rate GSE subordinated debt	—	66,953	—	66,953
Fixed rate senior agency debt	—	187,133	—	187,133
Fixed rate U.S. Treasuries	821,489	—	—	821,489
Total Investment Securities	821,489	1,676,632	17,730	2,515,851
Farmer Mac Guaranteed Securities:				
Available-for-sale:				
AgVantage	—	—	4,853,685	4,853,685
Total Farmer Mac Guaranteed Securities	—	—	4,853,685	4,853,685
USDA Securities:				
Trading	—	—	20,388	20,388
Total USDA Securities	—	—	20,388	20,388
Financial derivatives	—	23,182	—	23,182
Total Assets at fair value	$ 821,489	$ 1,699,814	$ 4,891,803	$ 7,413,106
Liabilities:				
Financial derivatives	$ 155	$ 57,997	$ —	$ 58,152
Total Liabilities at fair value	$ 155	$ 57,997	$ —	$ 58,152
Non-recurring:				
Assets:				
Loans held for investment	$ —	$ —	$ 2,799	$ 2,799
REO	—	—	349	349
Total Non-recurring Assets at fair value	$ —	$ —	$ 3,148	$ 3,148

The following tables present additional information about assets and liabilities measured at fair value on a recurring basis for which Farmer Mac has used significant unobservable inputs to determine fair value. Net transfers in and/or out of level 3 are based on the fair values of the assets and liabilities as of the beginning of the reporting period. There were no liabilities measured at fair value using significant unobservable inputs during the three and six months ended June 30, 2017 and 2016.

Table 8.2

Level 3 Assets and Liabilities Measured at Fair Value for the Three Months Ended June 30, 2017

	Beginning Balance	Transfers in	Purchases	Sales	Settlements	Realized and Unrealized Gains/ (Losses) included in Income	Unrealized Gains/ (Losses) included in Other Comprehe- nsive Income	Ending Balance
				(in thousands)				
Recurring:								
Assets:								
Investment Securities:								
Available-for-sale:								
Floating rate auction-rate certificates backed by Government guaranteed student loans	$ 18,124	—	$ —	$ —	$ —	$ —	$ 394	$ 18,518
Fixed rate GSE guaranteed mortgage-backed securities	4,819	—	—	—	(111)	—	(57)	4,651
Total available-for-sale	22,943	—	—	—	(111)	—	337	23,169
Farmer Mac Guaranteed Securities:								
Available-for-sale:								
AgVantage	5,243,046	—	194,288	—	(165,248)	9,552	924	5,282,562
Total available-for-sale	5,243,046	—	194,288	—	(165,248)	9,552	924	5,282,562
USDA Securities:								
Available-for-sale	—	—	53,506	(53,506)	—	—	—	—
Trading[(1)]	18,602	—	—	—	(2,306)	(2)	—	16,294
Total USDA Securities	18,602	—	53,506	(53,506)	(2,306)	(2)	—	16,294
Total Assets at fair value	$ 5,284,591	$ —	$ 247,794	$ (53,506)	$ (167,665)	$ 9,550	$ 1,261	$ 5,322,025

(1) Includes unrealized gains of $0.1 million attributable to assets still held as of June 30, 2017 that are recorded in "(Losses)/gains on trading securities."

Level 3 Assets and Liabilities Measured at Fair Value for the Three Months Ended June 30, 2016

	Beginning Balance	Purchases	Sales	Settlements	Realized and Unrealized Gains included in Income	Unrealized 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	$ 17,730	$ —	$ —	$ —	$ —	$ —	$ 17,730
Total available-for-sale	17,730	—	—	—	—	—	17,730
Trading:							
Floating rate asset-backed securities[1]	383	—	—	(120)	18	—	281
Total trading	383	—	—	(120)	18	—	281
Total Investment Securities	18,113	—	—	(120)	18	—	18,011
Farmer Mac Guaranteed Securities:							
Available-for-sale:							
AgVantage	4,534,810	163,845	—	(16,699)	13,137	2,491	4,697,584
Farmer Mac Guaranteed USDA Securities	30,694	4,100	—	(2,238)	—	891	33,447
Total Farmer Mac Guaranteed Securities	4,565,504	167,945	—	(18,937)	13,137	3,382	4,731,031
USDA Securities:							
Available-for-sale	1,908,014	129,645	(19,014)	(97,303)	—	46,417	1,967,759
Trading[2]	26,869	—	—	(2,459)	377	—	24,787
Total USDA Securities	1,934,883	129,645	(19,014)	(99,762)	377	46,417	1,992,546
Total Assets at fair value	$ 6,518,500	$ 297,590	$(19,014)	$ (118,819)	$ 13,532	$ 49,799	$ 6,741,588

(1) Unrealized gains are attributable to assets still held as of June 30, 2016 and are recorded in "(Losses)/gains on trading securities."
(2) Includes unrealized gains of $0.3 million attributable to assets still held as of June 30, 2016 that are recorded in "(Losses)/gains on trading securities."

Level 3 Assets and Liabilities Measured at Fair Value for the Six Months Ended June 30, 2017

	Beginning Balance	Transfers in	Purchases	Sales	Settlements	Realized and Unrealized Gains/ (Losses) included in Income	Unrealized Gains/ (Losses) included in Other Comprehe-nsive Income	Ending Balance
					(in thousands)			
Recurring:								
Assets:								
Investment Securities:								
Available-for-sale:								
Floating rate auction-rate certificates backed by Government guaranteed student loans	$ 17,730	—	$ —	$ —	$ —	$ —	$ 788	$ 18,518
Fixed rate GSE guaranteed mortgage-backed securities	—	7,041	—	—	(223)	—	(2,167)	4,651
Total available-for-sale	17,730	7,041	—	—	(223)	—	(1,379)	23,169
Farmer Mac Guaranteed Securities:								
Available-for-sale:								
AgVantage	4,853,685	—	733,815	—	(327,155)	6,337	15,880	5,282,562
Total available-for-sale	4,853,685	—	733,815	—	(327,155)	6,337	15,880	5,282,562
USDA Securities:								
Available-for-sale	—	—	86,095	(86,095)	—	—	—	—
Trading[(1)]	20,388	—	—	—	(4,010)	(84)	—	16,294
Total USDA Securities	20,388	—	86,095	(86,095)	(4,010)	(84)	—	16,294
Total Assets at fair value	$ 4,891,803	$ 7,041	$ 819,910	$ (86,095)	$ (331,388)	$ 6,253	$ 14,501	$ 5,322,025

(1) Includes unrealized gains of $7,000 attributable to assets still held as of June 30, 2017 that are recorded in "(Losses)/gains on trading securities."

Level 3 Assets and Liabilities Measured at Fair Value for the Six Months Ended June 30, 2016

	Beginning Balance	Purchases	Sales	Settlements	Realized and Unrealized Gains included in Income	Unrealized (Losses)/ Gains included in Other Comprehe-nsive Income	Ending Balance
				(in thousands)			
Recurring:							
Assets:							
Investment Securities:							
Available-for-sale:							
Floating rate auction-rate certificates backed by Government guaranteed student loans	$ 44,924	$ —	$ (26,806)	$ —	$ 6	$ (394)	$ 17,730
Total available-for-sale	44,924	—	(26,806)	—	6	(394)	17,730
Trading:							
Floating rate asset-backed securities(1)	491	—	—	(326)	116	—	281
Total trading	491	—	—	(326)	116	—	281
Total Investment Securities	45,415	—	(26,806)	(326)	122	(394)	18,011
Farmer Mac Guaranteed Securities:							
Available-for-sale:							
AgVantage	4,121,244	1,079,376	—	(529,229)	37,435	(11,242)	4,697,584
Farmer Mac Guaranteed USDA Securities	31,361	4,100	—	(2,736)	—	722	33,447
Total Farmer Mac Guaranteed Securities	4,152,605	1,083,476	—	(531,965)	37,435	(10,520)	4,731,031
USDA Securities:							
Available-for-sale	1,888,344	228,613	(22,662)	(181,490)	—	54,954	1,967,759
Trading(2)	28,975	—	—	(4,824)	636	—	24,787
Total USDA Securities	1,917,319	228,613	(22,662)	(186,314)	636	54,954	1,992,546
Total Assets at fair value	$ 6,115,339	$1,312,089	$ (49,468)	$ (718,605)	$ 38,193	$ 44,040	$ 6,741,588

(1) Unrealized gains are attributable to assets still held as of June 30, 2016 and are recorded in "(Losses)/gains on trading securities."

(2) Includes unrealized gains of $0.6 million attributable to assets still held as of June 30, 2016 that are recorded in "(Losses)/gains on trading securities."

The following tables present additional information about the significant unobservable inputs, such as discount rates and constant prepayment rates ("CPR"), used in the fair value measurements categorized in level 3 of the fair value hierarchy as of June 30, 2017 and December 31, 2016.

Table 8.3

	As of June 30, 2017			
Financial Instruments	Fair Value	Valuation Technique	Unobservable Input	Range (Weighted-Average)
			(in thousands)	
Assets:				
Investment securities:				
Floating rate auction-rate certificates backed by Government guaranteed student loans	$ 18,518	Indicative bids	Range of broker quotes	94.0% - 94.0% (94.0%)
Fixed rate GSE guaranteed mortgage-backed securities	$ 4,651	Discounted cash flow	Discount rate	3.6%
			CPR	0 %
Farmer Mac Guaranteed Securities:				
AgVantage	$ 5,282,562	Discounted cash flow	Discount rate	1.9% - 3.1% (2.1%)
USDA Securities	$ 16,294	Discounted cash flow	Discount rate	3.7% - 5.2% (5.0%)
			CPR	9% - 19% (18%)

	As of December 31, 2016			
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	$ 17,730	Indicative bids	Range of broker quotes	90.0% - 90.0% (90.0%)
Farmer Mac Guaranteed Securities:				
AgVantage	$ 4,853,685	Discounted cash flow	Discount rate	1.5% - 3.3% (1.9%)
USDA Securities	$ 20,388	Discounted cash flow	Discount rate	4.0% - 5.3% (5.0%)
			CPR	13% - 18% (17%)

The significant unobservable inputs used in the fair value measurements of Farmer Mac Guaranteed Securities and USDA Securities are prepayment rates and discount rates 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. Prepayment rates are not presented in the table above for AgVantage securities because they generally do not pay down principal based on amortization schedules but instead typically have fixed maturity dates when the secured general obligations are due.

Disclosures on Fair Value of Financial Instruments

The following table sets forth the estimated fair values and carrying values for financial assets, liabilities, and guarantees and commitments as of June 30, 2017 and December 31, 2016:

Table 8.4

	As of June 30, 2017		As of December 31, 2016	
	Fair Value	Carrying Amount	Fair Value	Carrying Amount
	(in thousands)			
Financial assets:				
Cash and cash equivalents	$ 319,993	$ 319,993	$ 265,229	$ 265,229
Investment securities	2,363,805	2,363,805	2,515,851	2,515,851
Farmer Mac Guaranteed Securities	7,419,889	7,420,348	6,006,694	6,002,916
USDA Securities	2,016,660	2,082,320	1,934,023	2,029,613
Loans	4,892,895	4,900,470	4,481,019	4,507,435
Financial derivatives	5,546	5,546	23,182	23,182
Guarantee and commitment fees receivable:				
LTSPCs	32,687	32,638	34,720	32,656
Farmer Mac Guaranteed Securities	4,740	4,445	6,197	6,215
Financial liabilities:				
Notes payable:				
Due within one year	7,853,621	7,859,059	8,439,515	8,440,123
Due after one year	7,338,172	7,281,509	5,260,497	5,222,977
Debt securities of consolidated trusts held by third parties	1,221,460	1,249,627	1,107,513	1,142,704
Financial derivatives	34,114	34,114	58,152	58,152
Guarantee and commitment obligations:				
LTSPCs	31,896	31,846	33,860	31,796
Farmer Mac Guaranteed Securities	4,263	3,968	5,467	5,486

The carrying value of cash and cash equivalents is a reasonable estimate of their approximate fair value and is classified as level 1 within the fair value hierarchy. Investment securities primarily are valued based on unadjusted quoted prices in active markets and are classified as level 2 within the fair value hierarchy. 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 within the fair value hierarchy. Financial derivatives primarily are valued using unadjusted counterparty valuations and are classified as level 2 within the fair value hierarchy. 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 within the fair value hierarchy. 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 within the fair value hierarchy. 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.

9. BUSINESS SEGMENT REPORTING

The following tables present core earnings for Farmer Mac's operating segments and a reconciliation to consolidated net income for the three and six months ended June 30, 2017 and 2016:

Table 9.1

Core Earnings by Business Segment

For the Three Months Ended June 30, 2017

	Farm & Ranch	USDA Guarantees	Rural Utilities	Institutional Credit	Corporate	Reconciling Adjustments		Consolidated Net Income
				(in thousands)				
Net interest income	$ 13,338	$ 5,176	$ 3,003	$ 15,431	$ 2,783	$ —		$ 39,731
Less: reconciling adjustments(1)(2)(3)	(2,007)	(495)	(267)	(1,036)	(316)	4,121		—
Net effective spread	11,331	4,681	2,736	14,395	2,467	4,121		—
Guarantee and commitment fees(2)	4,191	99	487	165	—	(1,470)		3,472
Other income/(expense)(3)(4)	994	11	5	—	(450)	(288)		272
Non-interest income/(loss)	5,185	110	492	165	(450)	(1,758)		3,744
Provision for loan losses	(327)	—	—	—	—	—		(327)
Provision for reserve for losses	(139)	—	—	—	—	—		(139)
Other non-interest expense	(4,446)	(1,166)	(643)	(1,622)	(3,374)	—		(11,251)
Non-interest expense(5)	(4,585)	(1,166)	(643)	(1,622)	(3,374)	—		(11,390)
Core earnings before income taxes	11,604	3,625	2,585	12,938	(1,357)	2,363	(6)	31,758
Income tax (expense)/benefit	(4,061)	(1,269)	(905)	(4,528)	466	(827)		(11,124)
Core earnings before preferred stock dividends and attribution of income to non-controlling interest	7,543	2,356	1,680	8,410	(891)	1,536	(6)	20,634
Preferred stock dividends	—	—	—	—	(3,296)	—		(3,296)
Non-controlling interest	—	—	—	—	150	—		150
Segment core earnings/(losses)	$ 7,543	$ 2,356	$ 1,680	$ 8,410	$ (4,037)	$ 1,536	(6)	$ 17,488
Total assets at carrying value	$ 3,958,344	$ 2,141,569	$ 1,038,383	$ 7,425,774	$ 2,703,315	$ —		$ 17,267,385
Total on- and off-balance sheet program assets at principal balance	$ 6,426,518	$ 2,237,013	$ 1,883,909	$ 7,711,418		—		$ 18,258,858

(1) Excludes 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 "(Losses)/gains on financial derivatives and hedging activities" on the consolidated financial statements, to determine the effective funding cost for each operating segment.

(4) Includes reconciling adjustments for fair value adjustments on financial derivatives and trading assets. Also includes a reconciling adjustment related to the recognition of deferred gains over the estimated lives of certain Farmer Mac Guaranteed Securities and USDA Securities. In 2016 and prior periods, fair value adjustments on financial derivatives included variation margin payment amounts because those amounts were considered to be collateral of the related exposure and were accounted for as unrealized gains or losses. However, effective first quarter 2017, CME implemented a change in its rules related to the exchange of variation margin, whereby variation margin payments are considered to be a partial settlement of the respective derivatives contracts rather than as pledged collateral, and accounted for as realized gains and losses. See Note 4 for more information about this rule change. Farmer Mac believes that even though these variation margin amounts are now accounted for as realized gains or losses on financial derivatives and hedging activities as a result of the CME rule change, their economic character will remain the same as they were before the change. The exchange of variation margin, whether considered a partial settlement of or the pledge of collateral under a derivatives contract, is not expected to have a cumulative net impact on Farmer Mac's financial condition or results of operations reported in accordance with GAAP because the related financial instruments are expected to be held to maturity. Therefore, beginning in 2017, this reconciling adjustment includes realized gains and losses on financial derivatives centrally cleared through CME resulting from the exchange of variation margin. As a result, core earnings subsequent to 2016 will be presented on a consistent basis with core earnings in 2016 and prior periods.

(5) Includes directly attributable costs and an allocation of indirectly attributable costs based on staffing.

(6) 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 and attribution of income to non-controlling interest reconciled to net income; and segment core earnings reconciled to net income attributable to common stockholders.

Core Earnings by Business Segment

For the Three Months Ended June 30, 2016

	Farm & Ranch	USDA Guarantees	Rural Utilities	Institutional Credit	Corporate	Reconciling Adjustments	Consolidated Net Income
				(in thousands)			
Net interest income	$ 11,606	$ 4,938	$ 2,855	$ 12,109	$ 2,850	$ —	$ 34,358
Less: reconciling adjustments(1)(2)(3)	(1,731)	(350)	(293)	(702)	(256)	3,332	—
Net effective spread	9,875	4,588	2,562	11,407	2,594	3,332	—
Guarantee and commitment fees(2)	3,965	14	373	458	—	(1,155)	3,655
Other income/(expense)(3)(4)	78	25	—	—	(228)	(3,764)	(3,889)
Non-interest income/(loss)	4,043	39	373	458	(228)	(4,919)	(234)
Provision for loan losses	(364)	—	—	—	—	—	(364)
Provision for reserve for losses	(94)	—	—	—	—	—	(94)
Other non-interest expense	(4,112)	(1,092)	(830)	(538)	(3,408)	—	(9,980)
Non-interest expense(5)	(4,206)	(1,092)	(830)	(538)	(3,408)	—	(10,074)
Core earnings before income taxes	9,348	3,535	2,105	11,327	(1,042)	(1,587) (6)	23,686
Income tax (expense)/benefit	(3,272)	(1,237)	(737)	(3,964)	254	556	(8,400)
Core earnings before preferred stock dividends and attribution of income to non-controlling interest	6,076	2,298	1,368	7,363	(788)	(1,031) (6)	15,286
Preferred stock dividends	—	—	—	—	(3,296)	—	(3,296)
Non-controlling interest	—	—	—	—	16	—	16
Segment core earnings/(losses)	$ 6,076	$ 2,298	$ 1,368	$ 7,363	$ (4,068)	$ (1,031) (6)	$ 12,006
Total assets at carrying value	$ 3,311,270	$ 2,046,516	$1,023,630	$ 6,071,924	$ 4,369,850	$ —	$ 16,823,190
Total on- and off-balance sheet program assets at principal balance	$ 5,830,533	$ 1,960,358	$1,934,473	$ 7,391,172		—	$ 17,116,536

(1) Excludes 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 "(Losses)/gains on financial derivatives and hedging activities" on the consolidated financial statements, to determine the effective funding cost for each operating segment.

(4) Includes reconciling adjustments for fair value adjustments on financial derivatives and trading assets. Also includes a reconciling adjustment related to the recognition of deferred gains over the estimated lives of certain Farmer Mac Guaranteed Securities and USDA Securities.

(5) Includes directly attributable costs and an allocation of indirectly attributable costs based on staffing.

(6) 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 and attribution of income to non-controlling interest reconciled to net income; and segment core earnings reconciled to net income attributable to common stockholders.

Core Earnings by Business Segment

For the Six Months Ended June 30, 2017

	Farm & Ranch	USDA Guarantees	Rural Utilities	Institutional Credit	Corporate	Reconciling Adjustments	Consolidated Net Income
				(in thousands)			
Net interest income	$ 26,092	$ 10,459	$ 5,951	$ 28,933	$ 5,367	$ —	$ 76,802
Less: reconciling adjustments(1)(2)(3)	(4,077)	(1,075)	(576)	(1,957)	(641)	8,326	—
Net effective spread	22,015	9,384	5,375	26,976	4,726	8,326	—
Guarantee and commitment fees(2)	8,486	173	979	620	—	(2,942)	7,316
Other income/(expense)(3)(4)	1,188	25	10	—	393	1,608	3,224
Non-interest income/(loss)	9,674	198	989	620	393	(1,334)	10,540
Provision for loan losses	(964)	—	—	—	—	—	(964)
Release of reserve for losses	54	—	—	—	—	—	54
Other non-interest expense	(8,511)	(2,253)	(1,230)	(3,143)	(6,856)	—	(21,993)
Non-interest expense(5)	(8,457)	(2,253)	(1,230)	(3,143)	(6,856)	—	(21,939)
Core earnings before income taxes	22,268	7,329	5,134	24,453	(1,737)	6,992 (6)	64,439
Income tax (expense)/benefit	(7,793)	(2,565)	(1,797)	(8,558)	1,251	(2,448)	(21,910)
Core earnings before preferred stock dividends and attribution of income to non-controlling interest	14,475	4,764	3,337	15,895	(486)	4,544 (6)	42,529
Preferred stock dividends	—	—	—	—	(6,591)	—	(6,591)
Non-controlling interest	—	—	—	—	165	—	165
Segment core earnings/(losses)	$ 14,475	$ 4,764	$ 3,337	$ 15,895	$ (6,912)	$ 4,544 (6)	$ 36,103
Total assets at carrying value	$ 3,958,344	$ 2,141,569	$ 1,038,383	$ 7,425,774	$ 2,703,315	$ —	$ 17,267,385
Total on- and off-balance sheet program assets at principal balance	$ 6,426,518	$ 2,237,013	$ 1,883,909	$ 7,711,418		—	$ 18,258,858

(1) Excludes 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 "(Losses)/gains on financial derivatives and hedging activities" on the consolidated financial statements, to determine the effective funding cost for each operating segment.

(4) Includes reconciling adjustments for fair value adjustments on financial derivatives and trading assets. Also includes a reconciling adjustment related to the recognition of deferred gains over the estimated lives of certain Farmer Mac Guaranteed Securities and USDA Securities. In 2016 and prior periods, fair value adjustments on financial derivatives included variation margin payment amounts because those amounts were considered to be collateral of the related exposure and were accounted for as unrealized gains or losses. However, effective first quarter 2017, CME implemented a change in its rules related to the exchange of variation margin, whereby variation margin payments are considered to be a partial settlement of the respective derivatives contracts rather than as pledged collateral, and accounted for as realized gains and losses. See Note 4 for more information about this rule change. Farmer Mac believes that even though these variation margin amounts are now accounted for as realized gains or losses on financial derivatives and hedging activities as a result of the CME rule change, their economic character will remain the same as they were before the change. The exchange of variation margin, whether considered a partial settlement of or the pledge of collateral under a derivatives contract, is not expected to have a cumulative net impact on Farmer Mac's financial condition or results of operations reported in accordance with GAAP because the related financial instruments are expected to be held to maturity. Therefore, beginning in 2017, this reconciling adjustment includes realized gains and losses on financial derivatives centrally cleared through CME resulting from the exchange of variation margin. As a result, core earnings subsequent to 2016 will be presented on a consistent basis with core earnings in 2016 and prior periods.

(5) Includes directly attributable costs and an allocation of indirectly attributable costs based on staffing.

(6) 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 and attribution of income to non-controlling interest reconciled to net income; and segment core earnings reconciled to net income attributable to common stockholders.

Core Earnings by Business Segment

For the Six Months Ended June 30, 2016

	Farm & Ranch	USDA Guarantees	Rural Utilities	Institutional Credit	Corporate	Reconciling Adjustments	Consolidated Net Income
				(in thousands)			
Net interest income	$ 22,733	$ 9,990	$ 5,719	$ 23,858	$ 5,698	$ —	$ 67,998
Less: reconciling adjustments[(1)(2)(3)]	(3,397)	(1,094)	(619)	(1,361)	(552)	7,023	—
Net effective spread	19,336	8,896	5,100	22,497	5,146	7,023	—
Guarantee and commitment fees[(2)]	7,874	21	668	916	—	(2,198)	7,281
Other income/(expense)[(3)(4)]	175	83	—	—	(900)	(9,579)	(10,221)
Non-interest income/(loss)	8,049	104	668	916	(900)	(11,777)	(2,940)
Provision for loan losses	(413)	—	—	—	—	—	(413)
Provision for reserve for losses	(108)	—	—	—	—	—	(108)
Other non-interest expense	(8,273)	(2,185)	(1,661)	(1,077)	(6,736)	—	(19,932)
Non-interest expense[(5)]	(8,381)	(2,185)	(1,661)	(1,077)	(6,736)	—	(20,040)
Core earnings before income taxes	18,591	6,815	4,107	22,336	(2,490)	(4,754) [(6)]	44,605
Income tax (expense)/benefit	(6,508)	(2,385)	(1,438)	(7,816)	747	1,665	(15,735)
Core earnings before preferred stock dividends and attribution of income to non-controlling interest	12,083	4,430	2,669	14,520	(1,743)	(3,089) [(6)]	28,870
Preferred stock dividends	—	—	—	—	(6,591)	—	(6,591)
Non-controlling interest	—	—	—	—	44	—	44
Segment core earnings/(losses)	$ 12,083	$ 4,430	$ 2,669	$ 14,520	$ (8,290)	$ (3,089) [(6)]	$ 22,323
Total assets at carrying value	$ 3,311,270	$ 2,046,516	$1,023,630	$ 6,071,924	$ 4,369,850	$ —	$ 16,823,190
Total on- and off-balance sheet program assets at principal balance	$ 5,830,533	$ 1,960,358	$1,934,473	$ 7,391,172		—	$ 17,116,536

(1) Excludes 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 "(Losses)/gains on financial derivatives and hedging activities" on the consolidated financial statements, to determine the effective funding cost for each operating segment.

(4) Includes reconciling adjustments for fair value adjustments on financial derivatives and trading assets. Also includes a reconciling adjustment related to the recognition of deferred gains over the estimated lives of certain Farmer Mac Guaranteed Securities and USDA Securities.

(5) Includes directly attributable costs and an allocation of indirectly attributable costs based on staffing.

(6) 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 and attribution of income to non-controlling interest reconciled to net income; and segment core earnings reconciled to net income attributable to common stockholders.

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

Financial information included in this report is consolidated to include the accounts of Farmer Mac and its three subsidiaries during the quarter – Farmer Mac Mortgage Securities Corporation, Farmer Mac II LLC, and Contour Valuation Services, LLC (which began doing business as AgVisory during first quarter 2016 and in which Farmer Mac redeemed its ownership interest on May 1, 2017) ("AgVisory"). 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, 2016 filed with the SEC on March 9, 2017.

FORWARD-LOOKING STATEMENTS

Some statements made in this report, and in particular in the "Management's Discussion & Analysis of Financial Condition and Results of Operations" section, are "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995 pertaining to management's current expectations as to 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 are accompanied by, and identified with, terms such as "anticipates," "believes," "expects," "intends," "plans," "potential," "may," "should," and similar phrases. 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;
- 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 a number of assumptions and estimates and the evaluation of risks and uncertainties. Various factors or events, both known and unknown, could cause Farmer Mac's actual results to differ materially from the expectations as expressed or implied by the forward-looking statements, including the factors discussed under "Risk Factors" in Part I, Item 1A of Farmer Mac's Annual Report on Form 10-K for the fiscal period ended December 31, 2016 filed with the SEC on March 9, 2017, and uncertainties regarding:

- the availability to Farmer Mac of debt and equity financing and, if available, the reasonableness of rates and terms;
- legislative or regulatory developments that could affect Farmer Mac, its sources of business, or the agricultural or rural utilities industries;

- fluctuations in the fair value of assets held by Farmer Mac and its subsidiaries;
- the rate and direction of development of the secondary market for agricultural mortgage and rural utilities loans, including lender interest in Farmer Mac's products and the secondary market provided by Farmer Mac;
- the general rate of growth in agricultural mortgage and rural utilities indebtedness;
- the effect of economic conditions, including the effects of drought and other weather-related conditions and fluctuations in agricultural real estate values, on agricultural mortgage lending and borrower repayment capacity;
- developments in the financial markets, including possible investor, analyst, and rating agency reactions to events involving government-sponsored enterprises, including Farmer Mac;
- changes in the level and direction of interest rates, which could, among other things, affect the value of collateral securing Farmer Mac's agricultural mortgage loan assets;
- the degree to which Farmer Mac is exposed to basis risk, which results from fluctuations in Farmer Mac's borrowing costs relative to market indexes such as LIBOR; and
- volatility in commodity prices relative to costs of production and/or export demand for U.S. agricultural products.

In light of these potential risks and uncertainties, no undue reliance should be placed on any forward-looking statements expressed in this report. Furthermore, Farmer Mac undertakes no obligation to release publicly the results of revisions to any forward-looking statements that may be made to reflect new information or any future events or circumstances, except as otherwise mandated by the SEC. The information contained in this report is not necessarily indicative of future results.

Overview

In second quarter 2017, Farmer Mac increased its outstanding business volume by $0.4 billion, to $18.3 billion, driven primarily by net portfolio growth across Farmer Mac's products and lines of business, including: (1) $0.2 billion in Farm & Ranch loans, (2) $0.1 billion in AgVantage securities in the Institutional Credit line of business, and (3) $0.1 billion in USDA Securities. Also during second quarter 2017, Farmer Mac fully refinanced a $1.0 billion AgVantage security that matured in April 2017 into three new on-balance sheet AgVantage securities. Previously, $970.0 million of the $1.0 billion maturing AgVantage security was reported as off-balance sheet business volume because it was owned by third-party investors. In regards to credit, Farmer Mac's total allowance for losses and substandard assets both increased modestly in dollars and as a percent of the Farm & Ranch portfolio during second quarter 2017 compared to first quarter 2017. As of June 30, 2017, 90-day delinquencies decreased, in terms of both dollars and percent of the Farm & Ranch portfolio, compared to first quarter 2017 levels and the 90-day delinquency rate remained below Farmer Mac's historical average.

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

Net Income and Core Earnings

Farmer Mac's net income attributable to common stockholders for second quarter 2017 was $17.5 million, compared to $18.6 million in first quarter 2017 and $12.0 million in second quarter 2016.

The $1.1 million sequential decrease was primarily driven by (1) the effects of fair value changes on financial derivatives and hedged assets, which was a $1.4 million after-tax gain in second quarter 2017 compared to a $3.1 million after-tax gain in first quarter 2017; (2) a $0.5 million after-tax increase in non-interest expense primarily attributable to higher compensation and employee benefits expenses and an increase in the provision for the reserve for losses; (3) a $0.5 million after-tax decrease in fees received upon the inception of swaps due to a lower volume of swaps executed during the quarter; and (4) a $0.5 million decrease in tax benefits recognized from stock-based awards. The decrease was offset in part by an increase in net interest income of $1.7 million after-tax and an increase in net realized gains of $0.5 million, after-tax, on the sale of real estate owned properties.

The $5.5 million year-over-year increase was driven by an increase in net interest income of $3.5 million, after tax. Also contributing to the year-over-year increase was the effect of fair value changes on financial derivatives and hedged assets, which was a $1.4 million after-tax gain in second quarter 2017 compared to a $1.3 million after-tax loss in second quarter 2016. The increase was offset in part by a $0.8 million after-tax increase in non-interest expense primarily attributable to higher compensation and employee benefits expenses.

Farmer Mac's non-GAAP core earnings for second quarter 2017 were $16.0 million, compared to $15.6 million in first quarter 2017 and $13.0 million in second quarter 2016.

The $0.4 million sequential increase in core earnings was attributable to a $1.8 million after-tax increase in net effective spread and an increase in net realized gains of $0.5 million after tax on the sale of real estate owned properties. The increase was offset in part primarily by (1) a $0.8 million after-tax decrease in other income, primarily driven by a decrease in fees received upon the inception of swaps and (2) a $0.5 million decrease in tax benefits recognized from stock-based awards. Other offsetting factors included (1) a decrease of $0.2 million after tax in guarantee and commitment fees driven by the refinancing during second quarter 2017 of the $1.0 billion AgVantage security reported as off-balance sheet business volume in the Institutional Credit line of business upon which Farmer Mac previously earned a guarantee fee to an on-balance sheet asset upon which Farmer Mac earns interest income and (2) an increase of $0.2 million after tax in compensation and employee benefits expenses primarily due to higher payouts of variable incentive compensation during second quarter 2017 resulting from actual performance exceeding certain performance target amounts.

The $3.0 million year-over-year increase in core earnings was primarily attributable to higher total revenues, which included (1) a $3.0 million after-tax increase in net effective spread; and (2) a $0.1 million after-tax increase in guarantee and commitment fee income. Farmer Mac also realized net gains of $0.5 million after tax in second quarter 2017 on the sale of real estate owned properties compared to no sales of real estate owned properties in second quarter 2016. Partially offsetting the year-over-year increase was a $0.7 million after-tax increase in compensation and employee benefit expenses due primarily to an increase in staffing, related employee health insurance costs and benefits, and higher payouts of variable incentive compensation resulting from actual performance exceeding certain performance target amounts.

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

Net interest income was $39.7 million for second quarter 2017, compared to $37.1 million for first quarter 2017 and $34.4 million for second quarter 2016. The overall net interest yield was 0.95 percent for second quarter 2017, compared to 0.96 percent for first quarter 2017 and 0.88 percent for second quarter 2016.

The $2.6 million sequential increase in net interest income was primarily driven by (1) growth in on-balance sheet AgVantage Securities and Farm & Ranch loans, (2) the full quarter effect of an increase in short-term interest rates on assets and liabilities indexed to LIBOR related to the Federal Reserve's decision to raise the target range for the federal funds rate in March 2017, and (3) the incremental effect of the Federal Reserve's decision to raise the target range for the federal funds rate again in June 2017. This effect on net interest income occurred because interest expense used to calculate net interest income does not include all the funding expenses related to these assets, such as the expense on financial derivatives not designated in hedge accounting relationships. This increase in short-term rates on assets and liabilities indexed to LIBOR did not have a similar effect on net effective spread because net effective spread includes interest expense from all funding related to those assets, including interest expense from financial derivatives not designated in hedge accounting relationships. The sequential increase in net interest income was offset in part by an increase in the application of hedge accounting, as funding expense from financial derivatives designated in hedge accounting relationships is included in net interest income. The one basis point sequential decrease in net interest income in percentage terms was primarily attributable to the dilutive effect of the refinancing of a $1.0 billion AgVantage security into three new on-balance sheet AgVantage securities during second quarter 2017. $970.0 million of the refinanced AgVantage security was previously held by third party investors and reported as off-balance sheet business volume in the Institutional Credit line of business.

The $5.3 million year-over-year increase in net interest income was driven by net growth in Farm & Ranch loans, USDA Securities, and on-balance sheet AgVantage Securities. Another factor contributing to the increase was the increases of the federal funds rate in December 2016, March 2017, and June 2017 noted above, which affected assets and liabilities indexed to LIBOR. An increase in the net effect of consolidated trusts resulting from an increase in securitization of Farm & Ranch loans throughout 2016 and the first six months of 2017 also contributed to the year-over-year increase in net interest income. Farmer Mac earns the difference between the interest income recognized on loans in consolidated trusts and the related interest expense recognized on debt securities of consolidated trusts held by third parties. The increase in net interest income was offset in part by an increase in the application of hedge accounting, as funding expense from financial derivatives designated in hedge accounting relationships is included in net interest income and a decrease in the amount of cash basis interest income recognized on nonaccrual Farm & Ranch loans. The 7 basis point year-over-year increase in net interest income in percentage terms was primarily attributable to a reduction in the average balance of lower-earning cash and cash equivalents.

Net effective spread, a non-GAAP measure, was $35.6 million for second quarter 2017, compared to $32.9 million in first quarter 2017 and $31.0 million in second quarter 2016. In percentage terms, net effective spread for second quarter 2017 was 0.92 percent, compared to 0.91 percent in first quarter 2017 and 0.84 percent in second quarter 2016. Farmer Mac uses net effective spread as an alternative measure 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.

The $2.7 million sequential increase in net effective spread in dollars was primarily attributable to (1) growth in on-balance sheet AgVantage securities, Farm & Ranch loans, and other business volume, which increased net effective spread by approximately $2.0 million; and (2) changes in Farmer Mac's funding strategies and LIBOR-based short-term funding costs for floating rate assets indexed to LIBOR that remained favorable throughout most of second quarter 2017, which added approximately $0.7 million. The one basis point sequential increase in net effective spread in percentage terms was primarily attributable to the effects of the changes in Farmer Mac's funding strategy noted above and a favorable LIBOR-based funding market, which added approximately 2 basis points. This increase was offset in part by the effect of the refinancing of a $1.0 billion AgVantage security into three new on-balance sheet AgVantage securities as described above, which resulted in an average spread that was less than the overall average net effective spread in percentage terms.

The $4.6 million year-over-year increase in net effective spread in dollars was primarily attributable to (1) growth in on-balance sheet AgVantage securities, Farm & Ranch loans, and other business volume, which increased net effective spread by approximately $3.4 million; and (2) changes in Farmer Mac's funding strategies and LIBOR-based short-term funding costs for floating rate assets indexed to LIBOR that remained favorable throughout most of second quarter 2017, which added approximately $2.0 million. The increase was offset in part by a decrease in the amount of cash basis interest income recognized on nonaccrual Farm & Ranch loans, which reduced net effective spread by $0.8 million. The 8 basis point year-over-year increase in net effective spread in percentage terms was primarily attributable to a significant reduction in the average balance of cash and cash equivalents, which added approximately 5 basis points to net effective spread. Also contributing to the increase were the effects of the changes in Farmer Mac's funding strategy and a favorable LIBOR-based funding market, which added approximately 5 basis points. The increase in percentage terms was offset in part by a decrease in the amount of cash basis interest income recognized on nonaccrual Farm & Ranch loans, which reduced net effective spread by approximately 2 basis points.

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 6 in "Management's Discussion and Analysis of Financial Condition and Results of Operations—Results of Operations—Net Interest Income."

Business Volume

Farmer Mac added $1.9 billion of new business volume during second quarter 2017. The new business volume included purchases of $1.3 billion of AgVantage securities, purchases of $312.2 million of newly originated Farm & Ranch loans, purchases of $115.8 million of USDA Securities, Farm & Ranch loans added under LTSPCs of $55.9 million, issuance of $53.5 million of Farmer Mac Guaranteed USDA Securities, and purchases of Rural Utilities loans of $25.0 million. Taking into account maturities and paydowns on existing assets, Farmer Mac's outstanding business volume was $18.3 billion as of June 30, 2017, an increase of $0.4 billion from March 31, 2017, and $0.9 billion from December 31, 2016.

Capital

As of June 30, 2017, Farmer Mac's core capital level was $638.5 million, which was $134.1 million above the minimum capital level required by Farmer Mac's statutory charter. As of December 31, 2016, Farmer Mac's core capital level was $609.7 million, which was $143.2 million above the minimum capital requirement. The decrease in capital in excess of the minimum capital level was due primarily to an increase in minimum capital required to support the growth of on-balance sheet assets during the first half of 2017, which was offset in part by an increase in retained earnings. In particular, the refinancing of a $1.0 billion AgVantage security that matured in April 2017 into three new on-balance sheet AgVantage securities significantly increased Farmer Mac's on-balance sheet assets because $970 million of the refinanced security was previously held by third party investors and reported as off-balance sheet business volume.

Farmer Mac's board of directors approved a share repurchase program during third quarter 2015 authorizing Farmer Mac to repurchase up to $25 million of its outstanding Class C non-voting common stock through September 2017. Farmer Mac did not repurchase shares during the first half of 2017 under this program. Farmer Mac also did not repurchase any shares under this program in fourth, third or second quarter 2016, but did repurchase 307,000 shares in first quarter 2016. As of June 30, 2017, Farmer Mac had repurchased approximately 668,000 shares of Class C non-voting common stock at a cost of approximately $19.6 million under the share repurchase program. In August 2017, Farmer Mac's board of directors approved the continuation of the share repurchase program on its existing terms through August 2019 for the repurchase of up to $5.4 million of Farmer Mac's outstanding Class C non-voting common stock, which is the amount currently remaining under the share repurchase program originally authorized in third quarter 2015.

Credit Quality

The total allowance for losses and substandard assets increased modestly in second quarter 2017 in terms of both dollars and as a percent of the Farm & Ranch portfolio from their March 31, 2017 levels. The provisions to the allowance for losses in both second quarter 2017 and 2016 were $0.5 million. The provisions to the allowance for losses recorded during second quarter 2017 were primarily attributable to an increase in the general allowance due to overall net volume growth in on-balance sheet Farm & Ranch loans. The provisions in second quarter 2016 primarily related to the establishment of a specific reserve for a long-standing impaired loan due to collateral shortfall relative to the unpaid principal balance and an increase in the specific allowance for on-balance sheet impaired loans resulting from a modest increase in the outstanding balance of such loans.

As of June 30, 2017, Farmer Mac's substandard assets were $192.1 million (3.0 percent of the Farm & Ranch portfolio), compared to $171.5 million (2.7 percent of the Farm & Ranch portfolio) as of March 31, 2017 and $165.2 million (2.7 percent of the Farm & Ranch portfolio) as of December 31, 2016. The increase in substandard assets from first quarter 2017 was primarily driven by credit downgrades in loans underlying LTSPCs.

As of June 30, 2017, Farmer Mac's 90-day delinquencies were $41.9 million (0.65 percent of the Farm & Ranch portfolio), compared to $50.8 million (0.81 percent of the Farm & Ranch portfolio) as of March 31, 2017 and $21.0 million (0.34 percent of the Farm & Ranch portfolio) as of December 31, 2016. The decrease in 90-day delinquencies from first quarter 2017 is consistent with the seasonal pattern of Farmer Mac's 90-day delinquencies fluctuating from quarter to quarter, both in dollars and as a percentage of the outstanding Farm & Ranch portfolio, with higher levels generally observed at the end of the first and third quarters and lower levels generally observed at the end of the second and fourth quarters of each year as a result of the annual (January 1st) and semi-annual (January 1st and July 1st) payment terms of most Farm & Ranch loans.

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

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

Core Earnings and Core Earnings Per Share

Core earnings and core earnings per share principally differ from net income attributable to common stockholders and earnings per common share, respectively, by excluding the effects of fair value fluctuations. These fluctuations are not expected to have a cumulative net impact on Farmer Mac's financial condition or results of operations reported in accordance with GAAP if the related financial instruments are held to maturity, as is expected. Among other items, these fair value fluctuations have included unrealized gains or losses on financial derivatives and hedging activities. Variation margin is exchanged between Farmer Mac and its counterparties on both its cleared and non-cleared derivatives portfolios. Prior to first quarter 2017, Farmer Mac accounted for variation margin as collateral and associated unrealized gains or losses on its centrally cleared derivative contracts. However, beginning in first quarter 2017, the variation margin amounts exchanged between Farmer Mac and its counterparties on cleared derivatives are considered as settlement rather than collateral as a result of a change in variation margin rules implemented by the Chicago Mercantile Exchange ("CME"), the central clearinghouse used by Farmer Mac. Specifically, effective January 3, 2017, CME began to deem the exchange of variation margin between derivatives counterparties as a partial settlement of each respective derivative contract rather than as collateral pledged by a counterparty. Accordingly, beginning in first quarter 2017, Farmer Mac presents its cleared derivatives portfolio net of variation margin payments on its consolidated balance sheets and recognizes realized gains or losses as a result of these payments on its consolidated statements of operations. However, Farmer Mac believes that even though these variation margin amounts are accounted for as realized gains or losses on financial derivatives and hedging activities as a result of the CME rule change, the economic character of these transactions remains the same as they were before the change. The exchange of variation margin, whether considered a partial settlement of or the pledge of collateral under a derivatives contract, is not expected to have a cumulative net impact on Farmer Mac's financial condition or results of operations reported in accordance with GAAP because the related financial instruments are expected to be held to maturity. Therefore, beginning in first quarter 2017, Farmer Mac excludes the effects of realized gains or losses resulting from the exchange of variation margin on its cleared derivatives portfolio in its calculations of core earnings and core earnings per share to present them on a consistent basis with quarters prior to 2017.

Core earnings and core earnings per share also differ from net income attributable to common stockholders and earnings per common share, respectively, by excluding specified infrequent or unusual transactions that Farmer Mac believes are not indicative of future operating results and that may not reflect the trends and economic financial performance of Farmer Mac's core business. For example, the loss from retirement of the Farmer Mac II LLC Preferred Stock in first quarter 2015 was excluded from core earnings and core earnings per share during that quarter because it was not a frequently occurring transaction and not indicative of future operating results. This is also consistent with Farmer Mac's previous treatment of these types of origination costs associated with securities underwriting that are capitalized and deferred during the life of the security. For a reconciliation of Farmer Mac's net income attributable to common stockholders to core earnings and of earnings per common share to core earnings per share, see "Management's Discussion and Analysis of Financial Condition and Results of Operations —Results of Operations."

Net Effective Spread

Farmer Mac uses net effective spread to measure the net spread Farmer Mac earns between its interest-earning assets and the related net funding costs of these assets. Net effective spread differs from net interest income and net interest yield because it excludes: (1) the amortization of premiums and discounts on assets consolidated at fair value that are amortized as adjustments to yield in interest income over the contractual or estimated remaining lives of the underlying assets; and (2) interest income and interest expense related to consolidated trusts with beneficial interests owned by third parties, which are presented on Farmer Mac's consolidated balance sheets as "Loans held for investment in consolidated trusts, at amortized cost." Farmer Mac excludes from net effective spread the premiums and discounts on assets consolidated at fair value because they either do not reflect actual cash premiums paid for the assets at acquisition or are not expected to have an economic effect on Farmer Mac's financial performance if the assets are held to maturity, as is expected. Farmer Mac also excludes from net effective spread the interest income and interest expense associated with the consolidated trusts and the average balance of the loans underlying these trusts to reflect management's view that the net interest income Farmer Mac earns on the related Farmer Mac Guaranteed Securities owned by third parties is effectively a guarantee fee. Accordingly, the excluded interest income and interest expense associated with consolidated trusts is reclassified to guarantee and commitment fees for purposes of determining Farmer Mac's core earnings.

Net effective spread also principally differs from net interest income and net interest yield because it includes the accrual of income and expense related to the contractual amounts due on financial derivatives that are not designated in hedge accounting relationships ("undesignated financial derivatives"). Farmer Mac uses interest rate swaps to manage its interest rate risk exposure by synthetically modifying the interest rate reset or maturity characteristics of certain assets and liabilities. The accrual of the contractual amounts due on interest rate swaps designated in hedge accounting relationships is included as an adjustment to the yield or cost of the hedged item and is included in net interest income. For undesignated financial derivatives, Farmer Mac records the income or expense related to the accrual of the contractual amounts due in "(Losses)/gains on financial derivatives and hedging activities" 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, which is intended to reflect management's view of the net spread between an asset and all of its related funding, including any associated derivatives, whether or not they are in a hedge accounting relationship. For a reconciliation of net interest income and net interest yield to net effective spread, see Table 6 in "Management's Discussion and Analysis of Financial Condition and Results of Operations—Results of Operations—Net Interest Income."

Results of Operations

Farmer Mac's net income attributable to common stockholders for the three months ended June 30, 2017 was $17.5 million ($1.62 per diluted common share), compared to $12.0 million ($1.13 per diluted common share) for the same period in 2016. For the six months ended June 30, 2017, Farmer Mac's net income attributable to common stockholders was $36.1 million ($3.35 per diluted common share), compared to $22.3 million ($2.07 per diluted common share) for the same period in 2016. Farmer Mac's non-GAAP core earnings for the three months ended June 30, 2017 were $16.0 million ($1.48 per diluted common share), compared to $13.0 million ($1.23 per diluted common share) for the same period in 2016. Farmer Mac's non-GAAP core earnings for the six months ended June 30, 2017 were $31.6 million ($2.93 per diluted common share), compared to $25.4 million ($2.35 per diluted common share) for the same period in 2016. For more information about the changes in net income attributable to common stockholders and core earnings, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Overview—Net Income and Core Earnings."

A reconciliation 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 a breakdown of the composition of core earnings:

Table 1

Reconciliation of Net Income Attributable to Common Stockholders to Core Earnings

	For the Three Months Ended	
	June 30, 2017	June 30, 2016
	(in thousands, except per share amounts)	
Net income attributable to common stockholders	$ 17,488	$ 12,006
Less reconciling items:		
Gains/(losses) on financial derivatives and hedging activities due to fair value changes	2,221	(2,076)
Unrealized (losses)/gains on trading securities	(2)	394
Amortization of premiums/discounts and deferred gains on assets consolidated at fair value	(117)	(371)
Net effects of settlements on agency forward contracts	261	466
Income tax effect related to reconciling items	(827)	556
Sub-total	1,536	(1,031)
Core earnings	$ 15,952	$ 13,037
Composition of Core Earnings:		
Revenues:		
Net effective spread[(1)]	$ 35,610	$ 31,026
Guarantee and commitment fees[(2)]	4,942	4,810
Other[(3)]	(197)	(125)
Total revenues	40,355	35,711
Credit related expense (GAAP):		
Provision for losses	466	458
REO operating expenses	23	—
Gains on sale of REO	(757)	—
Total credit related (income)/expense	(268)	458
Operating expenses (GAAP):		
Compensation and employee benefits	6,682	5,611
General and administrative	3,921	3,757
Regulatory fees	625	612
Total operating expenses	11,228	9,980
Net earnings	29,395	25,273
Income tax expense[(4)]	10,297	8,956
Net loss attributable to non-controlling interest (GAAP)	(150)	(16)
Preferred stock dividends (GAAP)	3,296	3,296
Core earnings	$ 15,952	$ 13,037
Core earnings per share:		
Basic	$ 1.50	$ 1.25
Diluted	1.48	1.23
Weighted-average shares:		
Basic	10,600	10,456
Diluted	10,783	10,614

(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 6 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 fair value adjustments on financial derivatives and trading assets and a reconciling adjustment to exclude the recognition of deferred gains over the estimated lives of certain Farmer Mac Guaranteed Securities and USDA Securities. Second quarter 2017 includes $0.3 million of fees received upon the inception of swaps and $0.6 million of hedging losses, compared to no fees received and $0.6 million of hedging losses, respectively, in second quarter 2016.

(4) Includes the tax impact of non-GAAP reconciling items between net income attributable to common stockholders and core earnings. Second quarter 2017 includes $0.2 million of tax benefits upon the vesting of restricted stock and the exercise of SARs under new accounting guidance for stock-based awards that became effective in first quarter 2017.

Reconciliation of Net Income Attributable to Common Stockholders to Core Earnings

	For the Six Months Ended	
	June 30, 2017	June 30, 2016
	(in thousands, except per share amounts)	
Net income attributable to common stockholders	$ 36,103	$ 22,323
Less reconciling items:		
Gains/(losses) on financial derivatives and hedging activities due to fair value changes	7,026	(5,065)
Unrealized (losses)/gains on trading securities	(84)	752
Amortization of premiums/discounts and deferred gains on assets consolidated at fair value	(244)	(652)
Net effects of settlements on agency forward contracts	293	211
Income tax effect related to reconciling items	(2,447)	1,665
Sub-total	4,544	(3,089)
Core earnings	$ 31,559	$ 25,412
Composition of Core Earnings:		
Revenues:		
Net effective spread(1)	$ 68,476	$ 60,975
Guarantee and commitment fees(2)	10,259	9,479
Other(3)	864	(642)
Total revenues	79,599	69,812
Credit related expense (GAAP):		
Provision for losses	910	521
REO operating expenses	23	39
Gains on sale of REO	(752)	—
Total credit related expense	181	560
Operating expenses (GAAP):		
Compensation and employee benefits	12,999	11,385
General and administrative	7,721	7,283
Regulatory fees	1,250	1,225
Total operating expenses	21,970	19,893
Net earnings	57,448	49,359
Income tax expense(4)	19,463	17,400
Net loss attributable to non-controlling interest (GAAP)	(165)	(44)
Preferred stock dividends (GAAP)	6,591	6,591
Core earnings	$ 31,559	$ 25,412
Core earnings per share:		
Basic	$ 2.98	$ 2.43
Diluted	2.93	2.35
Weighted-average shares:		
Basic	10,576	10,460
Diluted	10,783	10,808

(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 6 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 fair value adjustments on financial derivatives and trading assets and a reconciling adjustment to exclude the recognition of deferred gains over the estimated lives of certain Farmer Mac Guaranteed Securities and USDA Securities. The first six months of 2017 includes $1.3 million of fees received upon the inception of swaps and $1.1 million of hedging losses, compared to $0.1 million of fees received and $1.5 million of hedging losses, respectively, in the first six months of 2016.

(4) Includes the tax impact of non-GAAP reconciling items between net income attributable to common stockholders and core earnings. The first half of 2017 includes $0.8 million of tax benefits upon the vesting of restricted stock and the exercise of SARs under new accounting guidance for stock-based awards that became effective in first quarter 2017.

Table 2

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

	For the Three Months Ended		For the Six Months Ended	
	June 30, 2017	June 30, 2016	June 30, 2017	June 30, 2016
	(in thousands, except per share amounts)			
GAAP - Basic EPS	$ 1.65	$ 1.15	$ 3.41	$ 2.13
Less reconciling items:				
Gains/(losses) on financial derivatives and hedging activities due to fair value changes	0.22	(0.19)	0.65	(0.49)
Unrealized (losses)/gains on trading securities	—	0.04	(0.01)	0.07
Amortization of premiums/discounts and deferred gains on assets consolidated at fair value	(0.01)	(0.04)	(0.02)	(0.06)
Net effects of settlements on agency forward contracts	0.02	0.04	0.03	0.02
Income tax effect related to reconciling items	(0.08)	0.05	(0.23)	0.16
Sub-total	0.15	(0.10)	0.42	(0.30)
Core Earnings - Basic EPS	$ 1.50	$ 1.25	$ 2.99	$ 2.43
Shares used in per share calculation (GAAP and Core Earnings)	10,600	10,456	10,576	10,460

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

	For the Three Months Ended		For the Six Months Ended	
	June 30, 2017	June 30, 2016	June 30, 2017	June 30, 2016
	(in thousands, except per share amounts)			
GAAP - Diluted EPS	$ 1.62	$ 1.13	$ 3.35	$ 2.07
Less reconciling items:				
Gains/(losses) on financial derivatives and hedging activities due to fair value changes	0.21	(0.20)	0.65	(0.46)
Unrealized (losses)/gains on trading securities	—	0.04	(0.01)	0.07
Amortization of premiums/discounts and deferred gains on assets consolidated at fair value	(0.01)	(0.03)	(0.02)	(0.06)
Net effects of settlements on agency forward contracts	0.02	0.04	0.03	0.02
Income tax effect related to reconciling items	(0.08)	0.05	(0.23)	0.15
Sub-total	0.14	(0.10)	0.42	(0.28)
Core Earnings - Diluted EPS	$ 1.48	$ 1.23	$ 2.93	$ 2.35
Shares used in per share calculation (GAAP and Core Earnings)	10,783	10,614	10,783	10,808

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

1. Gains/(losses) on financial derivatives and hedging activities due to fair value changes. The table below calculates the non-GAAP reconciling item for gains/(losses) on financial derivatives and hedging activities due to fair value changes.

Table 3

Non-GAAP Reconciling Item for Gains/(Losses) on Financial Derivatives and Hedging Activities Due to Fair Value Changes

	For the Three Months Ended		For the Six Months Ended	
	June 30, 2017	June 30, 2016	June 30, 2017	June 30, 2016
	(in thousands)			
Fair value hedges:				
Gains/(losses) due to fair value changes (see Table 8)	$ 1,420	$ 2,101	$ (2,457)	$ 4,990
No hedge designation:				
Gains/(losses) due to fair value changes (see Table 8)	801	(4,177)	9,483	(10,055)
Gains/(losses) on financial derivatives and hedging activities due to fair value changes	$ 2,221	$ (2,076)	$ 7,026	$ (5,065)

2. Unrealized (losses)/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. 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 effect of settlements on agency forward contracts. These agency forward contracts are used as a short-term economic hedge of the issuance of debt. For GAAP purposes, realized gains or losses on settlements of agency forward contracts used as a short-term hedge of the issuance of debt are reported in the consolidated statements of operations in the period in which they occur. For core earnings purposes, these realized gains or losses on settlements of agency forward contracts 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 regarding specific components of Farmer Mac's results of operations.

Net Interest Income. The following table provides information regarding interest-earning assets and funding for the six months ended June 30, 2017 and 2016. 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 4

	For the Six Months Ended					
	June 30, 2017			June 30, 2016		
	Average Balance	Income/ Expense	Average Rate	Average Balance	Income/ Expense	Average Rate
	(dollars in thousands)					
Interest-earning assets:						
Cash and investments	$ 2,791,522	$ 15,611	1.12%	$ 3,745,379	$ 13,241	0.71%
Loans, Farmer Mac Guaranteed Securities and USDA Securities[1]	12,162,589	148,194	2.44%	10,873,414	123,439	2.27%
Total interest-earning assets	14,954,111	163,805	2.19%	14,618,793	136,680	1.87%
Funding:						
Notes payable due within one year	5,657,478	23,152	0.82%	7,221,753	16,528	0.46%
Notes payable due after one year[2]	8,672,316	66,793	1.54%	6,974,570	54,353	1.56%
Total interest-bearing liabilities[3]	14,329,794	89,945	1.26%	14,196,323	70,881	1.00%
Net non-interest-bearing funding	624,317	—		422,470	—	
Total funding	14,954,111	89,945	1.20%	14,618,793	70,881	0.97%
Net interest income/yield prior to consolidation of certain trusts	14,954,111	73,860	0.99%	14,618,793	65,799	0.90%
Net effect of consolidated trusts[4]	1,173,014	2,942	0.50%	797,936	2,199	0.55%
Net interest income/yield	$16,127,125	$ 76,802	0.95%	$15,416,729	$ 67,998	0.88%

(1) Excludes interest income of $20.9 million and $14.4 million in the first half of 2017 and 2016, 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 $17.9 million and $12.2 million in the first half of 2017 and 2016, 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.

Net interest income was $76.8 million for the six months ended June 30, 2017, compared to $68.0 million for the same period in 2016. The overall net interest yield was 0.95 percent for the six months ended June 30, 2017, compared to 0.88 percent for the same period in 2016.

The $8.8 million increase in net interest income for the six months ended June 30, 2017 compared to the same period in 2016 was driven by net growth in Farm & Ranch loans, AgVantage Securities, and other business volume. Another factor contributing to the increase was the effect of an increase in short-term interest rates on assets and liabilities indexed to LIBOR due to the Federal Reserve's decision to raise the target range for the federal funds rate in December 2016 and March 2017, and the incremental impact from the Federal Reserve's decision to raise the target range again in June 2017. This effect on net interest income occurred because interest expense used to calculate net interest income does not include all the funding expenses related to these assets, specifically the expense on financial derivatives not designated in hedge accounting relationships. This increase in short-term rates on assets and liabilities indexed to LIBOR did not have a similar effect on net effective spread because net effective spread includes interest expense from all funding related to those assets, including interest expense from financial derivatives not designated in hedge accounting relationships. Also contributing to the increase was an increase in the net effect of consolidated trusts resulting from an increase in securitization of Farm & Ranch loans throughout 2016 and the first six months of 2017. Farmer Mac earns the difference between the interest income recognized on loans in consolidated trusts and the related interest expense recognized on debt securities of consolidated trusts held by third parties. The increase in net interest income was offset in part by an increase in funding costs due to greater application of hedge accounting as funding expense from financial derivatives designated in hedge accounting relationships is included in net interest income and due to a decrease in the amount of cash basis interest income recognized on nonaccrual Farm & Ranch loans. Typically, interest income from Farm & Ranch loans on nonaccrual status is recognized when cash is received.

The 7 basis point increase in net interest yield for the six months ended June 30, 2017 compared to the same period in 2016 was driven by (1) a reduction in the average balance of lower-earning cash and cash equivalents; (2) a full quarter effect from the Federal Reserve's decision to raise the short-term target range for the federal funds interest rate in December 2016 and March 2017; and (3) the incremental effect of the additional increase in the target range in June 2017. As mentioned above, this increase in short-term rates on assets and liabilities indexed to LIBOR did not have a similar effect on net effective spread because net effective spread includes interest expense from all funding related to those assets, including interest expense from financial derivatives not designated in hedge accounting relationships.

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

Table 5

	For the Six Months Ended June 30, 2017 Compared to Same Period in 2016		
	Increase/(Decrease) Due to		
	Rate	Volume	Total
		(in thousands)	
Income from interest-earning assets:			
Cash and investments	$ 6,340	$ (3,970)	$ 2,370
Loans, Farmer Mac Guaranteed Securities and USDA Securities	9,457	15,298	24,755
Total	15,797	11,328	27,125
Expense from other interest-bearing liabilities	18,392	672	19,064
Change in net interest income prior to consolidation of certain trusts[(1)]	$ (2,595)	$ 10,656	$ 8,061

(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 yield to net effective spread. Net effective spread is measured by including income or expense related to contractual amounts due on financial derivatives not designated in hedge accounting relationships (the income or expense related to financial derivatives designated in hedge accounting relationships is already included in net interest income) and excluding the amortization of premiums and discounts on assets consolidated at fair value and the net effects of consolidated trusts with beneficial interests owned by third parties.

Table 6

	For the Three Months Ended				For the Six Months Ended			
	June 30, 2017		June 30, 2016		June 30, 2017		June 30, 2016	
	Dollars	Yield	Dollars	Yield	Dollars	Yield	Dollars	Yield
	(dollars in thousands)							
Net interest income/yield	$ 39,731	0.95 %	$ 34,358	0.88 %	$ 76,802	0.95 %	$ 67,998	0.88 %
Net effects of consolidated trusts	(1,470)	0.04 %	(1,155)	0.02 %	(2,942)	0.04 %	(2,199)	0.02 %
Expense related to undesignated financial derivatives	(2,775)	(0.07)%	(2,509)	(0.07)%	(5,642)	(0.07)%	(5,178)	(0.07)%
Amortization of premiums/discounts on assets consolidated at fair value	124	— %	332	0.01 %	258	— %	354	— %
Net effective spread	$ 35,610	0.92 %	$ 31,026	0.84 %	$ 68,476	0.92 %	$ 60,975	0.83 %

Net effective spread was $35.6 million and $68.5 million for the three and six months ended June 30, 2017 compared to $31.0 million and $61.0 million for the same periods in 2016, respectively. In percentage terms, net effective spread for both the three and six months ended June 30, 2017 was 0.92 percent, compared to 0.84 percent and 0.83 percent for the same periods in 2016, respectively.

For the first six months of 2017 compared to the same period in 2016, the $7.5 million increase in net effective spread in dollars was primarily attributable to (1) growth in AgVantage securities, Farm & Ranch loans, and other business volume, which increased net effective spread by approximately $5.7 million; and (2) changes in Farmer Mac's funding strategies and favorable LIBOR-based short-term funding costs for floating rate assets indexed to LIBOR, which added approximately $3.0 million. This increase was offset in part by a $0.9 million decrease in the amount of cash basis interest income recognized on nonaccrual Farm & Ranch loans. The 9 basis point year-over-year increase in net effective spread in percentage terms was primarily attributable to a significant reduction in the average balance of cash and cash equivalents, which added approximately 5 basis points to net effective spread. Also contributing to the increase were the effects of the aforementioned changes in Farmer Mac's funding strategy and a favorable LIBOR-based funding market, which added approximately 4 basis points. This increase was offset in part by the effect of the refinancing of a $1.0 billion AgVantage security at an average spread that was less than the overall average net effective spread percentage, which reduced net effective spread by approximately one basis point.

See Note 9 to the consolidated financial statements for more information regarding net interest income and net effective spread from Farmer Mac's individual business segments. See "—Supplemental Information" for quarterly net effective spread by line of business.

Provision for and Release of Allowance for Loan Losses and Reserve for Losses. The following table summarizes the components of Farmer Mac's total allowance for losses for the three and six months ended June 30, 2017 and 2016:

Table 7

	As of June 30, 2017			As of June 30, 2016		
	Allowance for Loan Losses	Reserve for Losses	Total Allowance for Losses	Allowance for Loan Losses	Reserve for Losses	Total Allowance for Losses
	(in thousands)					
For the Three Months Ended:						
Beginning Balance	$ 5,811	$ 1,827	$ 7,638	$ 4,529	$ 2,097	$ 6,626
Provision for losses	327	139	466	364	94	458
Ending Balance	$ 6,138	$ 1,966	$ 8,104	$ 4,893	$ 2,191	$ 7,084
For the Six Months Ended:						
Beginning Balance	$ 5,415	$ 2,020	$ 7,435	$ 4,480	$ 2,083	$ 6,563
Provision for/(release of) losses	964	(54)	910	413	108	521
Charge-offs	(241)	—	(241)	—	—	—
Ending Balance	$ 6,138	$ 1,966	$ 8,104	$ 4,893	$ 2,191	$ 7,084

The provisions to the allowance for loan losses recorded during the three and six months ended June 30, 2017 were attributable to an increase in the general allowance due to overall net volume growth in on-balance sheet Farm & Ranch loans. The provisions to the allowance for loan losses recorded during the six months ended June 30, 2017 were also attributable to an increase in the specific allowance for certain impaired on-balance sheet crop and permanent planting loans resulting from both an increase in the outstanding balance of such loans and downgrade in risk ratings on certain loans. The increase was offset in part by a modest decline in loss rates used to estimate probable losses. The provision to the reserve for losses recorded during the three months ended June 30, 2017 was primarily attributable to an increase in the general reserve due to downgrades in risk ratings on certain unimpaired crop and permanent planting loans underlying LTSPCs and off-balance sheet Farmer Mac Guaranteed Securities. The releases to the reserve for losses recorded during the six months ended June 30, 2017 was primarily attributable to a net decrease in the balance of loans underlying LTSPCs and off-balance sheet Farmer Mac Guaranteed Securities. The charge-offs recorded during the first half of 2017 were primarily related to two impaired crop loans with one borrower that were foreclosed and transitioned to REO during first quarter 2017. Farmer Mac had previously recorded a specific allowance of $0.2 million on these impaired crop loans as of December 31, 2016. During second quarter 2017, Farmer Mac sold the related properties for $5.4 million and recognized a $0.8 million gain on sale of REO.

The provisions to the allowance for loan losses recorded during the three and six months ended June 30, 2016 were attributable to the establishment of a specific reserve for a long-standing impaired permanent planting loan due to collateral shortfalls relative to the unpaid principal balance and an increase in the specific allowance for on-balance sheet impaired loans resulting from a modest increase in the outstanding balance of such loans. The provisions to the reserve for losses recorded during the three and six months ended June 30, 2016 were attributable to an increase in the general allowance due to downgrades in risk rating on certain unimpaired crop loans and permanent planting loans underlying LTSPCs. The provisions were partially offset by a decrease in the general allowance of both Agricultural Storage and Processing loans purchased and underlying LTSPCs due to paydowns of these loans.

As of June 30, 2017 and December 31, 2016, Farmer Mac's allowance for loan losses was $6.1 million and $5.4 million, respectively, and its reserve for losses was $2.0 million. See Note 5 to the consolidated financial statements and "Management's Discussion and Analysis of Financial Condition and Results of Operations—Risk Management—Credit Risk – Loans and Guarantees."

Guarantee and Commitment Fees. 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, were $3.5 million and $7.3 million, respectively, for the three and six months ended June 30, 2017, compared to $3.7 million and $7.3 million for the same periods in 2016, respectively. The year-over-year quarterly decrease in guarantee and commitment fees was attributable to the refinancing of a $1.0 billion AgVantage security with Metropolitan Life Insurance Company ("MetLife") in April 2017. Previously, $970.0 million of the $1.0 billion AgVantage security that matured in April 2017 had been sold to third parties and reported as off-balance sheet business volume in the Institutional Credit line of business on which Farmer Mac earned a guarantee fee. Guarantee and commitment fees for the first half of 2017 compared to the first half of 2016 were flat as the effect from the second quarter 2016 addition of $0.4 billion of Rural Utilities loans under LTSPCs and an increase in the average outstanding balance of off-balance sheet Farmer Mac Guaranteed USDA Securities were offset by the aforementioned refinancing of the $1.0 billion AgVantage security with Metlife and a lower average outstanding balance of loans underlying-off balance sheet Farmer Mac Guaranteed Securities. For more information about the AgVantage transaction with MetLife, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Business Volume."

(Losses)/Gains on Financial Derivatives and Hedging Activities. The effect of unrealized and realized gains and losses on Farmer Mac's financial derivatives and hedging activities was net losses of $0.6 million and net gains of $1.9 million for the three and six months ended June 30, 2017, respectively, compared to net losses of $4.7 million and $11.5 million for the same periods in 2016, respectively.

The components of gains and losses on financial derivatives and hedging activities for the three and six months ended June 30, 2017 and 2016 are summarized in the following table:

Table 8

	For the Three Months Ended		For the Six Months Ended	
	June 30, 2017	June 30, 2016	June 30, 2017	June 30, 2016
	(in thousands)			
Fair value hedges:				
Gains/(losses) due to fair value changes:				
Financial derivatives[1]	$ (8,568)	$ (14,440)	$ (7,041)	$ (41,339)
Hedged items	9,988	16,541	4,584	46,329
Gains/(losses) on fair value hedging activities	1,420	2,101	(2,457)	4,990
Cash flow hedges:				
Loss recognized (ineffective portion)	(146)	(105)	(175)	(254)
Losses on cash flow hedges	(146)	(105)	(175)	(254)
No hedge designation:				
Gains/(losses) due to fair value changes	801	(4,177)	9,483	(10,055)
Accrual of contractual payments	(2,629)	(2,404)	(5,467)	(4,924)
Gains/(losses) due to terminations or net settlements	(63)	(111)	485	(1,235)
Losses/(gains) on financial derivatives not designated in hedging relationships	(1,891)	(6,692)	4,501	(16,214)
(Losses)/gains on financial derivatives and hedging activities	$ (617)	$ (4,696)	$ 1,869	$ (11,478)

(1) Included in the assessment of hedge effectiveness as of June 30, 2017, but excluded from the amounts in the table, were losses of $1.3 million and gains of $2.3 million for the three and six months ended June 30, 2017, attributable to the fair value of the swaps at the inception of the hedging relationship. Accordingly, the amounts recognized as hedge ineffectiveness for three and six months ended June 30, 2017 were gains of $0.1 million and losses of $0.1 million, respectively. The comparable amounts as of June 30, 2016 were losses of $1.8 million and $3.3 million for the three and six months ended June 30, 2016, attributable to the fair value of the swaps at the inception of the hedging relationship and, accordingly, gains of $0.3 million and $1.7 million for the three and six months ended June 30, 2016, attributable to hedge ineffectiveness.

Changes in the fair values of Farmer Mac's open derivative positions for both designated and undesignated hedges are captured in the table above in gains/(losses) due to fair value changes and are primarily the result of fluctuations in long-term interest rates. For financial derivatives designated in fair value hedge accounting relationships, changes in the fair values of the hedged items attributable to the hedged risk are also included in the table above in gains/(losses) due to fair value changes. For financial derivatives designated in cash flow hedge accounting relationships, the ineffective portion of changes in fair value are included as losses on cash flow hedges. The accrual of periodic cash settlements for interest paid or received from Farmer Mac's interest rate swaps that are not designated in hedge accounting relationships is shown as expense related to financial derivatives. Payments or receipts to terminate derivative positions or net cash settled forward sales contracts on the debt of other GSEs and U.S. Treasury futures that are not designated in hedge accounting relationships and fees received upon the inception of swaps are included in gains/(losses) due to terminations or net settlements. Fees that Farmer Mac receives upon the inception of swaps are offset dollar-for-dollar by the discount on the associated hedged debt. However, the swap fees are recognized immediately in (Losses)/gains on financial derivatives and hedging activities, whereas the offsetting discount on the hedged debt is amortized over the term of the debt as an adjustment to its yield. Thus, there is a timing difference between the recognition of the swap fees in (Losses)/gains on financial derivatives and hedging activities and the recognition of the discount in interest expense. There is also a presentation difference because the swap fees are included in (Losses)/gains on financial derivatives and hedging activities, whereas the amortization of the discount is included in interest expense. Additionally, the amount of swap fees varies depending upon the number of swaps initiated during a quarter.

(Losses)/Gains on Trading Securities. During the three and six months ended June 30, 2017, Farmer Mac recorded unrealized losses on trading securities of $2,000 and $0.1 million, respectively, compared to unrealized gains of $0.4 million and $0.8 million during the same periods in 2016, respectively. During the three and six months ended June 30, 2017, all of the unrealized losses related to financial assets selected to be carried at fair value with changes in fair value included in earnings (the fair value option), compared to $0.4 million and $0.6 million of unrealized gains for the same period last year.

Gains on Sale of Real Estate Owned. During the three and six months ended June 30, 2017, Farmer Mac realized net gains of $0.8 million on the sales of real estate owned properties. Farmer Mac did not incur any sales of real estate owned properties during the first half of 2016.

Other Income. Other income totaled $0.1 million and $0.7 million for the three and six months ended June 30, 2017, respectively, compared to $0.4 million and $0.5 million for the same periods in 2016, respectively. Other income during the three and six months ended June 30, 2017 included the recognition of $0.1 million and $0.4 million, respectively, of appraisal fees received by Farmer Mac's consolidated appraisal company subsidiary, AgVisory, compared to $0.3 million and $0.6 million for the same period last year. As of May 1, 2017, Farmer Mac transferred its entire 65% ownership interest in AgVisory back to the limited liability company in exchange for $5,000. Farmer Mac recognized a loss of approximately $0.1 million upon the transfer. Other income during the three and six months ended June 30, 2017 included the recognition of zero losses previously deferred in accumulated other comprehensive income related to fair value changes of certain available-for-sale securities contributed to Farmer Mac II LLC in 2010 and other miscellaneous items, compared to the recognition of $0.1 million and $0.3 million, respectively, of previously deferred losses for the same periods in 2016.

Compensation and Employee Benefits. Compensation and employee benefits were $6.7 million and $13.0 million, for the three and six months ended June 30, 2017, respectively, compared to $5.6 million and $11.4 million, respectively, for the same periods in 2016. The year-over-year increase in compensation and employee benefits for both the three and six months ended June 30, 2017 compared to the same periods last year was due primarily to an increase in staffing and related employee health insurance costs and benefits and higher payouts of variable incentive compensation resulting from actual performance exceeding certain performance target amounts.

General and Administrative Expenses. General and administrative expenses, including legal, audit, and consulting fees, were $3.9 million and $7.7 million, for the three and six months ended June 30, 2017, respectively, compared to $3.8 million and $7.3 million for the same periods in 2016, respectively. The increase in general and administrative expenses for both the three and six months ended June 30, 2017 compared to the same periods last year was due primarily to higher expenses related to continued technology and business infrastructure investments and expenses related to business development efforts.

Regulatory Fees. Regulatory fees, which consist of the fees paid to the Farm Credit Administration ("FCA"), an independent agency in the executive branch of the United States government that regulates Farmer Mac, were $0.6 million and $1.3 million for the three and six months ended June 30, 2017, respectively, compared to $0.6 million and $1.2 million for the same periods in 2016, respectively. FCA advised Farmer Mac that its estimated fees for the federal fiscal year ending September 30, 2017 would increase by approximately $50,000 to $2.5 million ($0.625 million per federal fiscal quarter) compared to the prior federal fiscal year. After the end of a federal government fiscal year, FCA may revise its prior year estimated assessments to reflect actual costs incurred, and has issued both additional assessments and refunds in the past.

Income Tax Expense. Income tax expense totaled $11.1 million and $21.9 million for the three and six months ended June 30, 2017, respectively, compared to income tax expense of $8.4 million and $15.7 million for the same periods in 2016, respectively. The increase in income tax expense in the first half of 2017 compared to the same period last year, was due to higher pre-tax income. Income tax expense for the three and six months ended June 30, 2017 reflected $0.2 million and $0.8 million, respectively, of tax benefits associated with stock compensation activity that was subject to ASU 2016-09 accounting guidance, "*Improvements to Employee Share-Based Payment Accounting,*" adopted in first quarter 2017. The adoption of this guidance was also the primary reason why Farmer Mac's effective tax rate was lower than the statutory rate in the first half of 2017. More information about the adoption of ASU 2016-09 and the effect on Farmer Mac's financial position, results of operations, and cash flows is included in Note 1(d) to the consolidated financial statements.

Business Volume. During second quarter 2017, Farmer Mac added $1.9 billion of new business volume, compared to $1.3 billion in second quarter 2016. Specifically, Farmer Mac:

- purchased $1.3 billion of AgVantage securities;
- purchased $312.2 million of newly originated Farm & Ranch loans;
- purchased $115.8 million of USDA Securities;
- added $55.9 million of Farm & Ranch loans under LTSPCs;
- issued $53.5 million of Farmer Mac Guaranteed USDA Securities; and
- purchased $25.0 million of Rural Utilities loans.

Farmer Mac's outstanding business volume was $18.3 billion as of June 30, 2017, an increase of $414.3 million from March 31, 2017. The increase in Farmer Mac's outstanding business volume was driven by broad-based portfolio growth across most of Farmer Mac's products and lines of business, including Farm & Ranch loans, AgVantage securities, USDA Securities, and Rural Utilities loans.

In April 2017, Farmer Mac purchased and retained $1.0 billion of AgVantage securities issued by MetLife. MetLife used the proceeds from Farmer Mac's purchase of $1.0 billion in AgVantage securities to refinance an AgVantage security of the same amount that matured in April 2017. Previously, Farmer Mac held $30.0 million of the $1.0 billion AgVantage security that matured in April 2017 on-balance sheet and earned a spread between the interest income earned on that portion of the security and the related funding costs. The remaining $970.0 million of the $1.0 billion AgVantage security that matured in April 2017 had previously been sold to third parties and reported as off-balance sheet business volume in the Institutional Credit line of business on which Farmer Mac earned a guarantee fee of approximately 0.15 percent on an annual basis. For the newly purchased $1.0 billion in AgVantage securities, which are now held entirely on-balance sheet, Farmer Mac will earn weighted average net effective spread income of approximately 0.42 percent on an annual basis. The newly purchased AgVantage securities are comprised of three maturities – $500.0 million of a one-year security, which is callable in six months, $250.0 million of a two-year security, and $250.0 million of a three-year security.

The new business volume in AgVantage securities for second quarter 2017 also included purchases of $250.0 million from Rabo Agrifinance, Inc. ("Rabo"). The AgVantage securities purchased from Rabo in second quarter 2017 included $150.0 million in AgVantage securities used to refinance AgVantage securities that matured in second quarter 2017 and $50.0 million in AgVantage securities that Rabo used to refinance an AgVantage security that matured in early July 2017. Farmer Mac also experienced net portfolio growth of $36.7 million in AgVantage securities for smaller institutional customers in second quarter 2017.

The following table sets forth purchases of non-delinquent eligible loans, new loans added under LTSPCs, and new guarantees during the periods indicated in the Farm & Ranch, USDA Guarantees, and Rural Utilities lines of business, as well as purchases of AgVantage securities in the Institutional Credit line of business:

Table 9

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

	For the Three Months Ended		For the Six Months Ended	
	June 30, 2017	June 30, 2016	June 30, 2017	June 30, 2016
	(in thousands)			
Farm & Ranch:				
Loans	$ 312,217	$ 241,093	$ 626,354	$ 439,641
LTSPCs	55,899	58,156	169,160	126,173
USDA Guarantees:				
USDA Securities	115,755	110,631	208,310	205,951
Farmer Mac Guaranteed USDA Securities	53,506	23,114	92,052	26,762
Rural Utilities:				
Loans	25,000	10,000	52,341	19,691
LTSPCs	—	421,404	—	421,404
Institutional Credit:				
AgVantage Securities	1,296,757	396,245	1,858,164	1,323,464
Total purchases, guarantees, LTSPCs, and AgVantage Securities	$ 1,859,134	$ 1,260,643	$ 3,006,381	$ 2,563,086

New business volume for loans purchased within the Farm & Ranch line of business for the first half of 2017 was substantially greater than the same period in 2016. This was primarily due to an increase in borrower demand for long-term real estate financing, as farmers used equity in farmland assets to increase sources of operating capital, and an increase in the average size of loans purchased, including several large loans with large institutional borrowers. New business volume for loans added under LTSPCs within the Farm & Ranch line of business for the first half of 2017 compared to the same period in 2016 reflected an increase in demand among Farm Credit System institutions for the LTSPC product and an increase in average size of loans added under LTSPCs. The increase in new business volume in the USDA Guarantees line of business for the first half of 2017 compared to the same period in 2016 reflected an increase in lender usage of USDA guaranteed loan programs due to available federal funding for those programs. Loan purchase volume in the Rural Utilities line of business remained low due to limited demand for credit associated with slow economic growth and greater energy efficiency in recent years, as well as an ongoing preference by CFC, Farmer Mac's only current rural utilities cooperative counterparty, to retain loans on its balance sheet. Changes in AgVantage securities volume are primarily driven by the generally larger transaction sizes for that product and the fluctuating funding and liquidity needs of Farmer Mac's customer network and scheduled maturity amounts. The volume of new AgVantage securities was higher for the first half of 2017 compared to the same period in 2016 primarily due to the scheduled maturities for those periods and related refinancing activity, as Farmer Mac refinanced $1.4 billion of maturing AgVantage securities during the first half of 2017 compared to $0.7 billion in the same period in 2016.

Based on market conditions, Farmer Mac either retains the loans it purchases or securitizes them and retains or sells Farmer Mac Guaranteed Securities backed by those loans. The weighted-average age of the Farm & Ranch non-delinquent eligible loans purchased and retained (excluding the purchases of defaulted loans) during both second quarter 2017 and 2016 was less than one year. Of those loans, 61 percent, had principal amortization periods longer than the maturity date, resulting in balloon payments at maturity, with a weighted-average remaining term to maturity of 13.1 years and 17.9 years, respectively.

During second quarter 2017 and 2016, Farmer Mac securitized some of the Farm & Ranch loans it had purchased and sold the resulting Farmer Mac Guaranteed Securities in the amounts of $44.9 million and $119.9 million, respectively. Farmer Mac consolidates these loans and presents them as "Loans held for investment in consolidated trusts, at amortized cost" on the consolidated balance sheets. For the six months ended June 30, 2017, $56.5 million of Farmer Mac Guaranteed Securities were sold to Zions First National Bank, which is a related party to Farmer Mac compared to $66.0 million and $149.5 million of sales for the three and six months ended June 30, 2016, respectively. Farmer Mac did not sell Farmer Mac Guaranteed Securities to Zions First National Bank during the three months ended June 30, 2017.

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

Table 10

	For the Three Months Ended		For the Six Months Ended	
	June 30, 2017	June 30, 2016	June 30, 2017	June 30, 2016
	(in thousands)			
Loans securitized and sold as Farm & Ranch Guaranteed Securities	$ 44,862	$ 119,868	$ 161,880	$ 255,781
Farmer Mac Guaranteed USDA Securities	53,506	19,014	92,052	22,662
AgVantage Securities	1,296,757	396,245	1,858,164	1,323,464
Total Farmer Mac Guaranteed Securities issuances	$ 1,395,125	$ 535,127	$ 2,112,096	$ 1,601,907

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

Table 11

Lines of Business - Outstanding Business Volume

	As of June 30, 2017	As of December 31, 2016
	(in thousands)	
On-balance sheet:		
Farm & Ranch:		
Loans	$ 2,641,850	$ 2,381,488
Loans held in trusts:		
Beneficial interests owned by third party investors	1,240,624	1,132,966
USDA Guarantees:		
USDA Securities	2,014,241	1,954,800
Farmer Mac Guaranteed USDA Securities	36,516	35,599
Rural Utilities:		
Loans	1,024,130	999,512
Institutional Credit		
AgVantage Securities[1]	7,398,204	6,004,472
Total on-balance sheet	$ 14,355,565	$ 12,508,837
Off-balance sheet:		
Farm & Ranch:		
LTSPCs	2,176,625	2,209,409
Guaranteed Securities	367,419	415,441
USDA Guarantees:		
Farmer Mac Guaranteed USDA Securities	186,256	103,976
Rural Utilities:		
LTSPCs[2]	859,779	878,598
Institutional Credit:		
AgVantage Securities[1]	13,214	983,214
AgVantage Revolving Line of Credit Facility[3]	300,000	300,000
Total off-balance sheet	$ 3,903,293	$ 4,890,638
Total	$ 18,258,858	$ 17,399,475

(1) In April 2017, Farmer Mac purchased and retained $1.0 billion in AgVantage securities from MetLife. MetLife used the proceeds from Farmer Mac's purchase of $1.0 billion in AgVantage securities to refinance an AgVantage security of the same amount that matured in April 2017. Previously, $970.0 million of the maturing $1.0 billion AgVantage security had been sold to third parties and reported as off-balance sheet business volume in the Institutional Credit line of business.

(2) As of both June 30, 2017 and December 31 2016, includes $20.0 million related to one-year loan purchase commitments on which Farmer Mac receives a nominal unused commitment fee.

(3) During the first half of 2017, $100.0 million of this facility was drawn and subsequently repaid. As of December 31, 2016, this facility had not been utilized. Farmer Mac receives a fixed fee based on the full dollar amount of the facility. If the counterparty draws on the facility, the amounts drawn will be in the form of AgVantage securities, and Farmer Mac will earn interest income on those securities.

The following table summarizes by maturity date the scheduled principal amortization of loans held, loans underlying off-balance sheet Farmer Mac Guaranteed Securities (excluding AgVantage securities) and LTSPCs, USDA Securities, and Farmer Mac Guaranteed USDA Securities as of June 30, 2017:

Table 12

Schedule of Principal Amortization as of June 30, 2017

	Loans Held	Loans Underlying Off-Balance Sheet Farmer Mac Guaranteed Securities and LTSPCs	USDA Securities and Farmer Mac Guaranteed USDA Securities	Total
		(in thousands)		
2017	$ 99,773	$ 133,032	$ 43,095	$ 275,900
2018	210,011	692,952	102,317	1,005,280
2019	213,380	213,882	100,030	527,292
2020	204,001	203,454	101,998	509,453
2021	272,550	215,357	104,052	591,959
Thereafter	3,906,889	1,945,146	1,785,521	7,637,556
Total	$ 4,906,604	$ 3,403,823	$ 2,237,013	$ 10,547,440

Of the $18.3 billion outstanding principal balance of volume included in Farmer Mac's four lines of business as of June 30, 2017, $7.7 billion were AgVantage securities included in the Institutional Credit line of business. Unlike business volume in the form of purchased loans, USDA Securities, and loans underlying LTSPCs and non-AgVantage Farmer Mac Guaranteed Securities, most AgVantage securities do not require periodic payments of principal based on amortization schedules and instead have fixed maturity dates when the secured general obligation is due. The following table summarizes by maturity date the outstanding principal amount of both on- and off-balance sheet AgVantage securities as of June 30, 2017:

Table 13

AgVantage Balances by Year of Maturity

	As of June 30, 2017
	(in thousands)
2017	$ 264,331
2018[(1)]	2,213,732
2019	1,105,921
2020	1,112,071
2021	1,063,740
Thereafter[(2)]	1,951,623
Total	$ 7,711,418

(1) Includes the expiration of the $300.0 million revolving floating rate AgVantage facility.
(2) Includes various maturities ranging from 2022 to 2047.

The weighted-average remaining maturity of the outstanding AgVantage securities shown in the table above was 4.3 years as of June 30, 2017.

As part of fulfilling its guarantee obligations for Farm & Ranch Guaranteed Securities and commitments to purchase eligible loans underlying LTSPCs, Farmer Mac purchases defaulted loans, all of which are at least 90 days delinquent or in material non-monetary default at the time of purchase, out of the loan pools underlying those securities and LTSPCs, and records the purchased loans as such on its balance sheet. The purchase price for a defaulted loan purchased out of a pool of loans backing Farm & Ranch Guaranteed Securities is the then-current outstanding principal balance of the loan plus accrued and unpaid interest. The purchase price for a defaulted loan purchased under an LTSPC is the then-current outstanding principal balance of the loan, with accrued and unpaid interest on the defaulted loan payable out of any future loan payments or liquidation proceeds as received. The purchase price of a defaulted loan is not an indicator of the expected loss on that loan; many other factors affect expected loss, if any, on any loan so purchased. The delinquent loans purchased out of securitized pools during second quarter 2017 had a weighted-average age of 8 years. Farmer Mac did not purchase any delinquent loans out of securitized pools or LTSPCs during second quarter 2016. See "Management's Discussion and Analysis of Financial Condition and Results of Operations—Risk Management—Credit Risk – Loans and Guarantees."

The following table presents Farmer Mac's purchases of defaulted loans underlying Farm & Ranch Guaranteed Securities and LTSPCs for the periods indicated:

Table 14

	For the Three Months Ended		For the Six Months Ended	
	June 30, 2017	June 30, 2016	June 30, 2017	June 30, 2016
	(in thousands)			
Defaulted loans purchased underlying Farm & Ranch Guaranteed Securities owned by third party investors	$ 104	$ —	$ 104	$ 1,267
Defaulted loans purchased underlying LTSPCs	—	—	311	148
Total loan purchases	$ 104	$ —	$ 415	$ 1,415

Outlook

Farmer Mac continues to provide a stable source of liquidity, capital, and risk management tools as the secondary market that helps meet the financing needs of rural America. While the pace of Farmer Mac's growth will depend on the capital and liquidity needs of the participants in the rural financing business, Farmer Mac foresees opportunities for continued growth. More specifically, Farmer Mac believes that its Farm & Ranch, USDA Guarantees, and Institutional Credit lines of business all have opportunities for growth, driven by several key factors:

- As agricultural and rural utilities lenders face increased equity capital requirements under regulatory frameworks or rating agency requirements, or seek to reduce exposure due to lending limits or concentration limits, Farmer Mac can provide relief for those institutions through loan purchases, guarantees, or LTSPCs.
- While lending opportunities in the rural utilities industry remain moderate, growth opportunities within Farmer Mac's Institutional Credit line of business exist because it provides a competitive source of debt funding for the rural utilities cooperative lender that uses Farmer Mac's programs.
- As a result of targeted marketing and product development efforts, Farmer Mac's lender network and Institutional Credit customer base continues to expand, which may generate additional demand for Farmer Mac's products from new sources.

- Consolidation, expansion, and vertical integration occurring across virtually all sectors of the agricultural industry and similar consolidation trends occurring in agricultural banking, coupled with Farmer Mac's new and expanded business relationships with larger regional and national lenders, has led to an increase in Farmer Mac's loan purchase volume and the average transaction size within Farmer Mac's Farm & Ranch line of business.

Farmer Mac believes that these growth opportunities will be important in replacing income earned on the loans and other assets as they mature, pay down, or are reinvested at potentially lower spreads.

Agricultural Industry. The agricultural industry includes many diverse sectors that respond in different ways to changes in economic conditions. Those individual sectors often are affected differently, sometimes positively and sometimes negatively, by prevailing domestic and global economic factors and regional weather conditions. This results in cycles where one or more sectors may be under stress at the same time that others are not. The profitability of agricultural sectors is also affected by commodity inventories and their associated market prices, which can vary largely as a result of global production trends, weather patterns, access to water supply, and harvest conditions that may affect both domestic and global supplies. The strength of the U.S. dollar relative to other worldwide currencies, combined with a slowdown in global economic growth or changes in trade policies, could also continue to adversely affect the demand for certain U.S. agricultural exports, which may result in producers receiving lower commodity prices.

Net farm income, as reported by the USDA, has decreased annually since reaching a cyclical peak in 2013. Farmland values have weakened in some regions, primarily in the Midwest, in response to declining prices for certain commodities and lower farm income levels. During this same period, the 90-day delinquencies and credit losses in Farmer Mac's portfolio have remained low compared to its historical averages. However, some indications of stress have emerged, as the volume of Farmer Mac's substandard assets have sequentially increased since second quarter 2016 and 90-day delinquencies have generally increased since third quarter 2016. Both of these measures have increased compared to the historically favorable levels observed in recent years. To date, the increases in these two measures have not yet translated into rising credit losses.

Farmer Mac believes that any 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 believes that its portfolio remains sufficiently diversified, both geographically and by commodity, and that its portfolio has been underwritten to high credit quality standards. Accordingly, Farmer Mac believes that its portfolio is well-positioned to endure reasonably foreseeable volatility in farmland values and commodity prices. Farmer Mac also continues to closely monitor sector profitability, economic conditions, and agricultural land value and geographic trends to tailor underwriting practices to changing conditions. For more information about the loan balances, loan-to-value ratios, 90-day delinquencies, and substandard asset rate for the Farm & Ranch loans in Farmer Mac's portfolio as of June 30, 2017, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Risk Management—Credit Risk – Loans and Guarantees."

Farmer Mac continues to monitor the establishment and evolution of legislation and regulations, as well as the status of various international trade agreements and partnerships, that could affect farmers, ranchers, rural lenders, and rural America in general. As the new Trump administration and the U.S. Congress begin their review of existing regulations and the promotion of new legislative or regulatory proposals and policies, Farmer Mac will monitor the effects that any changes in legislation or regulation could have on Farmer Mac or its customers.

Farmer Mac's marketing efforts directed towards the Farm & Ranch line of business focus on lenders that have demonstrated a commitment to agricultural lending based on their lending history. Farmer Mac directs its outreach efforts to these lenders through direct personal contact, which is facilitated through Farmer Mac's frequent participation in state and national banking conferences, its alliances with the American Bankers Association and the Independent Community Bankers of America, and its business relationships with members of the Farm Credit System. In the Farm & Ranch line of business, Farmer Mac is experiencing stronger demand for its loan products. Demand for Farmer Mac's secondary market tools could also increase as rural lenders adapt to new and changing regulations, which may require lenders to obtain more liquidity and capital to continue their lending practices.

Farmer Mac also directs marketing efforts towards the agricultural industry by trying to identify and develop relationships with potential issuers of AgVantage securities, including insurance company agricultural lenders, agricultural finance companies, and bank and non-bank agricultural lenders such as agricultural mortgage funds, who can pledge loans as collateral to obtain financing as part of Farmer Mac's Institutional Credit line of business. As part of these efforts, Farmer Mac has increased its focus on wholesale financing for institutional investors in agricultural assets that qualify as eligible collateral under Farmer Mac's charter. Farmer Mac has tailored a version of its AgVantage product to this type of issuer, which is referred to as the Farm Equity AgVantage product. Farmer Mac also offers other AgVantage products tailored to fund investors in agricultural mortgages. Farmer Mac directs its outreach efforts to these potential issuers through its business relationships within the agricultural community and through executive outreach to institutions whose profile presents opportunity to benefit from wholesale financing. As institutional investment in agricultural assets continues to grow, Farmer Mac believes that it is in a unique position to help increase access to capital for these types of counterparties and thereby provide a new source of capital to benefit rural America. Farmer Mac designed the Farm Equity AgVantage product to provide an efficient, low-cost source of financing tailored to meet the needs of institutional investors that can be adapted to many different types of organizational structures and for both public and private institutional investors. Farmer Mac believes there is opportunity to expand this type of business as both the trend toward institutional investment in agricultural assets and awareness of the Farm Equity AgVantage and other AgVantage product offerings continue to grow. For more information about the Farm Equity AgVantage product, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Risk Management—Credit Risk – Institutional" in this report.

Rural Utilities Industry. Demand for capital within the rural utilities industry currently remains moderate, which has resulted in an ongoing high level of competition between rural utilities cooperative lenders that could suppress loan growth opportunities for those lenders, including lenders that participate in Farmer Mac's Rural Utilities line of business. Although competitive pressures remain within the rural utilities lending industry, Farmer Mac sees opportunities for growth in this area within Farmer Mac's Institutional Credit line of business because the wholesale funding rates that Farmer Mac provides may be highly competitive compared to other available sources of debt funding for rural utilities cooperative lenders.

Balance Sheet Review

Assets. Farmer Mac's total assets as of June 30, 2017 were $17.3 billion, compared to $15.6 billion as of December 31, 2016. The increase in total assets was primarily attributable to an increase in total Farmer Mac Guaranteed Securities and total loans, net of allowance.

As of June 30, 2017, Farmer Mac had $0.3 billion of cash and cash equivalents and $2.4 billion of investment securities compared to $0.3 billion of cash and cash equivalents and $2.5 billion of investment securities. As of June 30, 2017, Farmer Mac had $7.4 billion of Farmer Mac Guaranteed Securities, $4.9 billion of loans, net of allowance, and $2.1 billion of USDA Securities. This compares to $6.0 billion of Farmer Mac Guaranteed Securities, $4.5 billion of loans, net of allowance, and $2.0 billion of USDA Securities as of December 31, 2016.

Liabilities. Farmer Mac's total liabilities were $16.6 billion as of June 30, 2017, compared to $15.0 billion as of December 31, 2016. The increase in total liabilities was primarily attributable to an increase in total notes payable.

Equity. As of June 30, 2017, Farmer Mac had total equity of $680.9 million, which is comprised entirely of stockholders' equity. As of December 31, 2016, Farmer Mac had total equity of $643.6 million, comprised of stockholders' equity of $643.4 million and non-controlling interest of $0.2 million. As of May 1, 2017, Farmer Mac transferred its entire 65% ownership interest in AgVisory back to the limited liability company as a company redemption in exchange for $5,000. Farmer Mac recognized a loss of approximately $0.1 million, after-tax, upon the transfer. The increase in total equity during the first six months of 2017 was a result of an increase in retained earnings and accumulated other comprehensive income. The increase in accumulated other comprehensive income was due to increases in fair value on certain floating-rate AgVantage Securities.

Off-Balance Sheet Arrangements

Farmer Mac offers approved lenders two credit enhancement alternatives to increase their liquidity or lending capacity while retaining the cash flow benefits of their loans: (1) Farmer Mac Guaranteed Securities, which are available through each of the Farm & Ranch, USDA Guarantees, Rural Utilities, and Institutional Credit lines of business; and (2) LTSPCs, which are available through the Farm & Ranch and Rural Utilities lines of business. For securitization trusts in which Farmer Mac is the primary beneficiary, the trust assets and liabilities are included on Farmer Mac's consolidated balance sheet. For the remainder of these transactions, and in the event of de-consolidation, both of these alternatives result in the creation of off-balance sheet obligations for Farmer Mac. See Note 6 to the consolidated financial statements for more information about consolidation and Farmer Mac's off-balance sheet business activities.

Risk Management

Credit Risk – Loans and Guarantees. Farmer Mac is exposed to credit risk resulting from the inability of borrowers to repay their loans in conjunction with a deficiency in the value of the collateral relative to the outstanding balance of the loan and the costs of liquidation. Farmer Mac is exposed to credit risk on:

- loans held;
- loans underlying Farmer Mac Guaranteed Securities; and
- loans underlying LTSPCs.

Farmer Mac generally assumes 100 percent of the credit risk on loans held and loans underlying LTSPCs in the Farm & Ranch and Rural Utilities lines of business and loans underlying Farm & Ranch Guaranteed Securities. Farmer Mac has direct credit exposure to the loans in non-AgVantage transactions but only indirect credit exposure to loans that secure AgVantage transactions because AgVantage securities represent a general obligation of an issuer that is, in turn, secured by eligible loans. Non-AgVantage transactions like loan purchases, LTSPCs, and "pass-through" guaranteed securities that represent beneficial interests in the underlying loans do not include a general obligation of a counterparty as a separate source of repayment. For the reasons described in more detail below, Farmer Mac excludes its assets in the USDA Guarantees line of business, the loans in the Rural Utilities line of business, and AgVantage securities in the Institutional Credit line of business from the loan-level credit risk metrics it discloses.

Farmer Mac's direct credit exposure to Farm & Ranch loans held and loans underlying Farm & Ranch Guaranteed Securities and LTSPCs as of June 30, 2017 was $6.4 billion across 48 states. Farmer Mac has established underwriting, collateral valuation, and documentation standards for agricultural real estate mortgage loans and believes that these standards mitigate the risk of loss from borrower defaults and provide guidance about the management, administration, and conduct of underwriting and appraisals to all participating and potential lenders. These standards were developed based on industry practices for agricultural real estate mortgage loans and are designed to assess the creditworthiness of the borrower, as well as the value of the collateral securing the loan. Farmer Mac evaluates and adjusts these standards on an ongoing basis based on current and anticipated market conditions. For more information about Farmer Mac's underwriting and collateral valuation standards for Farm & Ranch loans, see "Business—Farmer Mac's Lines of Business—Farm & Ranch—Underwriting and Collateral Valuation (Appraisal) Standards" in Farmer Mac's Annual Report on Form 10-K for the fiscal year ended December 31, 2016 filed with the SEC on March 9, 2017.

Farmer Mac's direct credit exposure to Rural Utilities loans held and loans underlying LTSPCs as of June 30, 2017 was $1.9 billion across 39 states, of which $1.5 billion were loans to electric distribution cooperatives and $0.4 billion were loans to generation and transmission ("G&T") cooperatives. Farmer Mac has developed different underwriting standards for rural utilities loans that depend on whether direct or indirect credit exposure is assumed on a loan and whether the borrower is an electric distribution cooperative or a G&T cooperative. See "Business—Farmer Mac's Lines of Business—Rural Utilities—Underwriting" in Farmer Mac's Annual Report on Form 10-K for the fiscal year ended December 31, 2016 filed with the SEC on March 9, 2017. As of June 30, 2017, there were no delinquencies in Farmer Mac's portfolio of Rural Utilities loans, and Farmer Mac has not experienced any credit losses on Rural Utilities loans since Congress authorized Farmer Mac's Rural Utilities line of business in 2008. Based on this performance, Farmer Mac excludes the loans in the Rural Utilities line of business from the credit risk metrics it discloses.

Farmer Mac has indirect credit exposure to the Farm & Ranch loans and Rural Utilities loans that secure AgVantage securities included in the Institutional Credit line of business. Farmer Mac's AgVantage securities are general obligations of institutions approved by Farmer Mac and are secured by current loans in an amount at least equal to the outstanding principal amount of the related security. Accordingly, Farmer Mac excludes the loans that secure AgVantage securities from the credit risk metrics it discloses because Farmer Mac has only indirect credit risk on those loans and because of the other characteristics of AgVantage securities that mitigate credit risk. Those characteristics include a general obligation of an issuing institution approved by Farmer Mac, the required collateralization level for the securities, the requirement for delinquent loans to be removed from the pool of pledged loans and replaced with current eligible loans, and in some cases, the requirement for the counterparty to comply with specified financial covenants for the life of the related AgVantage security. As of June 30, 2017, Farmer Mac had not experienced any credit losses on any AgVantage securities and does not expect to incur any such losses in the future. See "Management's Discussion and Analysis of Financial Condition and Results of Operations —Risk Management—Credit Risk – Institutional" for more information about Farmer Mac's credit risk on AgVantage securities.

The credit exposure of Farmer Mac and Farmer Mac II LLC on USDA Securities, including those underlying Farmer Mac Guaranteed USDA Securities, is covered by the full faith and credit of the United States. Therefore, Farmer Mac believes that Farmer Mac and Farmer Mac II LLC have little or no credit risk exposure in the USDA Guarantees line of business because of the USDA guarantee. As of June 30, 2017, neither Farmer Mac nor Farmer Mac II LLC had experienced any credit losses on any business under the USDA Guarantees line of business, and neither expects to incur any such losses in the future.

Loans in the Farm & Ranch line of business are all secured by first liens on agricultural real estate. Accordingly, Farmer Mac's exposure on a loan is limited to the difference between (1) the total of the accrued interest, advances, and the principal balance of a loan and (2) the value of the property less the cost to sell. Measurement of that excess or shortfall is the best predictor and determinant of loss, compared to other measures that evaluate the efficiency of a particular farm operator. For example, debt service ratios depend upon farm operator efficiency and leverage, which can vary widely within a geographic region, commodity type, or an operator's business and farming skills. Thus, Farmer Mac considers a loan's original loan-to-value ratio as one of many factors in evaluating loss severity. This ratio is calculated by dividing the loan principal balance at the time of guarantee, purchase, or commitment by the appraised value at the date of loan origination or, when available, updated appraised value at the time of guarantee, purchase, or commitment. Other factors Farmer Mac considers include, but are not limited to, other underwriting standards, commodity and farming forecasts, and regional economic and agricultural conditions.

Loan-to-value ratios depend upon the market value of a property, as determined in accordance with Farmer Mac's collateral valuation standards. As of June 30, 2017 and December 31, 2016, the average unpaid loan balance for loans outstanding in the Farm & Ranch line of business was $634,000 and $611,000, respectively. The original loan-to-value ratio is based on the original appraised value that has not been indexed to provide a current market value or reflect amortization of loans. As of second quarter 2017, Farmer Mac revised its calculation of the original loan-to-value ratio of a loan to combine for any cross-collateralized loans: (1) the original loan principal balance amounts in the numerator and (2) the original appraised property values in the denominator. In previous periods, the ratio was calculated on a loan-by-loan basis without considering the effects of any cross-collateralization. Prior period ratios of original loan-to-value have been recalculated to conform to this revised calculation. The weighted-average original loan-to-value ratio for Farm & Ranch loans purchased during second quarter 2017 was

44 percent, compared to 45 percent for loans purchased during second quarter 2016. The weighted-average original loan-to-value ratio for all Farm & Ranch loans held and all loans underlying off-balance sheet Farm & Ranch Guaranteed Securities and LTSPCs was approximately 51 percent as of both June 30, 2017 and December 31, 2016. The weighted-average original loan-to-value ratio for all 90-day delinquencies was 50 percent and 55 percent, respectively, as of June 30, 2017 and December 31, 2016.

The weighted-average current loan-to-value ratio, which is the loan-to-value ratio based on original appraised value but which reflects loan amortization since purchase, for Farm & Ranch loans held and loans underlying off-balance sheet Farm & Ranch Guaranteed Securities and LTSPCs was approximately 44 percent as of both June 30, 2017 and December 31, 2016.

Farmer Mac maintains an allowance for loan losses to cover estimated probable losses on loans held and a reserve for losses to cover estimated probable losses on loans underlying LTSPCs and off-balance sheet Farm & Ranch Guaranteed Securities. The methodology that Farmer Mac uses to determine the level of its allowance for losses is described in Note 2(j) to the consolidated financial statements included in Farmer Mac's Annual Report on Form 10-K for the fiscal year ended December 31, 2016 filed with the SEC on March 9, 2017. Management believes that this methodology produces a reasonable estimate of probable losses, as of the balance sheet date, for all loans held and loans underlying off-balance sheet Farm & Ranch Guaranteed Securities and LTSPCs.

The following table summarizes the changes in the components of Farmer Mac's total allowance for losses for the three and six months ended June 30, 2017 and 2016:

Table 15

	As of June 30, 2017			As of June 30, 2016		
	Allowance for Loan Losses	Reserve for Losses	Total Allowance for Losses	Allowance for Loan Losses	Reserve for Losses	Total Allowance for Losses
	(in thousands)					
For the Three Months Ended:						
Beginning Balance	$ 5,811	$ 1,827	$ 7,638	$ 4,529	$ 2,097	$ 6,626
Provision for/(release of) losses	327	139	466	364	94	458
Ending Balance	$ 6,138	$ 1,966	$ 8,104	$ 4,893	$ 2,191	$ 7,084
For the Six Months Ended:						
Beginning Balance	$ 5,415	$ 2,020	$ 7,435	$ 4,480	$ 2,083	$ 6,563
Provision for/(release of) losses	964	(54)	910	413	108	521
Charge-offs	(241)	—	(241)	—	—	—
Ending Balance	$ 6,138	$ 1,966	$ 8,104	$ 4,893	$ 2,191	$ 7,084

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." As of June 30, 2017, Farmer Mac's total allowance for losses totaled $8.1 million, or 0.13 percent of the outstanding principal balance of Farm & Ranch loans held for investment and loans underlying LTSPCs and off-balance sheet Farm & Ranch Guaranteed Securities, compared to $7.4 million, or 0.12 percent, as of December 31, 2016.

As of June 30, 2017, Farmer Mac individually evaluated $17.2 million of the $121.4 million of recorded investment in impaired assets for collateral shortfalls against updated appraised values, other updated collateral valuations, or discounted values. For the remaining $104.2 million of impaired assets for which updated valuations were not available, Farmer Mac evaluated them in the aggregate in consideration of their similar risk characteristics and historical statistics. Farmer Mac recorded specific allowances of $2.6 million for undercollateralized assets as of June 30, 2017. Farmer Mac's general allowances were $5.5 million as of June 30, 2017.

The charge-offs recorded during the first six months of 2017 were primarily related to two impaired crop loans, with one borrower, that were foreclosed and transitioned to REO during first quarter 2017. Farmer Mac had previously recorded a specific allowance of $0.2 million on these impaired crop loans as of December 31, 2016. In second quarter 2017, Farmer Mac sold the related properties for $5.4 million and recognized a $0.8 million gain on the sale of the REO.

Farmer Mac's 90-day delinquency measure includes loans 90 days or more past due, as well as loans in foreclosure and non-performing loans where the borrower is in bankruptcy. As of June 30, 2017, Farmer Mac's 90-day delinquencies were $41.9 million (0.65 percent of the Farm & Ranch portfolio), compared to $21.0 million (0.34 percent of the Farm & Ranch portfolio) as of December 31, 2016 and $22.1 million (0.38 percent of the Farm & Ranch portfolio) as of June 30, 2016. Those 90-day delinquencies were comprised of 42 delinquent loans as of June 30, 2017, compared with 38 delinquent loans as of December 31, 2016 and 40 delinquent loans as of June 30, 2016. More than half of the net increase in Farmer Mac's 90-day delinquencies as a percentage of its Farm & Ranch portfolio from year-end resulted from the delinquency of a single borrower on two permanent planting loans to which Farmer Mac had $15.4 million of exposure as of June 30, 2017. That delinquency was due to factors specific to the borrower and not related to macroeconomic factors in the agricultural economy. Farmer Mac believes that it remains adequately collateralized on these loans. Farmer Mac expects that over time its 90-day delinquency rate will eventually revert closer to, and possibly exceed, Farmer Mac's historical average due to macroeconomic factors and the cyclical nature of the agricultural economy. Farmer Mac's average 90-day delinquency rate for the Farm & Ranch line of business over the last fifteen years is approximately one percent. The highest 90-day delinquency rate observed during that period occurred in 2009 at approximately two percent, which coincided with increased delinquencies in loans within Farmer Mac's then-held ethanol portfolio that Farmer Mac no longer holds.

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

Table 16

	Farm & Ranch Line of Business	90-Day Delinquencies	Percentage
	(dollars in thousands)		
As of:			
June 30, 2017	$ 6,426,518	$ 41,901	0.65%
March 31, 2017	6,240,467	50,807	0.81%
December 31, 2016	6,139,304	21,038	0.34%
September 30, 2016	6,004,728	18,377	0.31%
June 30, 2016	5,830,533	22,093	0.38%
March 31, 2016	5,713,789	34,680	0.61%
December 31, 2015	5,725,299	32,136	0.56%
September 30, 2015	5,504,030	36,669	0.67%
June 30, 2015	5,485,570	31,852	0.58%

When analyzing the overall risk profile of its lines of business, Farmer Mac takes into account more than the Farm & Ranch loan delinquency percentages provided above. The lines of business also include AgVantage securities and Rural Utilities loans held and underlying LTSPCs, neither of which have any delinquencies, and USDA Securities, which are backed by the full faith and credit of the United States. Across all of Farmer Mac's lines of business, 90-day delinquencies represented 0.23 percent of total outstanding business volume as of June 30, 2017, compared to 0.12 percent as of December 31, 2016 and 0.13 percent as of June 30, 2016.

The following table presents outstanding Farm & Ranch loans held and loans underlying LTSPCs and off-balance sheet Farm & Ranch Guaranteed Securities and 90-day delinquencies as of June 30, 2017 by year of origination, geographic region, commodity/collateral type, and original loan-to-value ratio:

Table 17

Farm & Ranch 90-Day Delinquencies as of June 30, 2017

	Distribution of Farm & Ranch Line of Business	Farm & Ranch Line of Business	90-Day Delinquencies[1]		Percentage
		(dollars in thousands)			
By year of origination:					
2007 and prior	13%	$ 819,736	$ 7,051		0.86%
2008	3%	181,151	459		0.25%
2009	2%	111,169	367		0.33%
2010	3%	187,729	2,349		1.25%
2011	4%	260,244	1,333		0.51%
2012	9%	606,724	—		—%
2013	14%	895,750	1,237		0.14%
2014	10%	675,262	19,291	(2)	2.86%
2015	13%	853,697	9,814	(3)	1.15%
2016	19%	1,206,795	—		—%
2017	10%	628,261	—		—%
Total	100%	$ 6,426,518	$ 41,901		0.65%
By geographic region[4]:					
Northwest	11%	$ 706,366	$ 2,300		0.33%
Southwest	30%	1,898,171	2,394		0.13%
Mid-North	34%	2,196,291	6,587		0.30%
Mid-South	13%	860,428	13,096		1.52%
Northeast	4%	259,254	1,525		0.59%
Southeast	8%	506,008	15,999		3.16%
Total	100%	$ 6,426,518	$ 41,901		0.65%
By commodity/collateral type:					
Crops	55%	$ 3,528,351	$ 18,878		0.54%
Permanent plantings	18%	1,149,560	18,569		1.62%
Livestock	20%	1,298,651	966		0.07%
Part-time farm	6%	382,744	3,488		0.91%
Ag. Storage and Processing	1%	53,999	—		—%
Other	—	13,213	—		—%
Total	100%	$ 6,426,518	$ 41,901		0.65%
By original loan-to-value ratio[5]:					
0.00% to 40.00%	20%	$ 1,250,561	$ 6,440		0.51%
40.01% to 50.00%	25%	1,607,806	8,893		0.55%
50.01% to 60.00%	34%	2,170,648	23,874		1.10%
60.01% to 70.00%	18%	1,149,539	2,261		0.20%
70.01% to 80.00%[6]	3%	220,932	433		0.20%
80.01% to 90.00%[6]	—%	27,032	—		—%
Total	100%	$ 6,426,518	$ 41,901		0.65%

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

(2) Includes $15.4 million of permanent planting loans with one borrower located in the Southeast who became 90-days delinquent during first quarter 2017. The original combined loan-to-value ratio of these two permanent planting loans was between 50.01% to 60.00%.

(3) Includes $9.8 million related to two crop loans located in the Mid-South that became 90-days delinquent as a result of a bankruptcy filed by one borrower. These two loans with the same borrower had separate underlying collateral with original loan-to-value ratios between 40.01% to 50.00% and 50.01% to 60.00%, respectively.

(4) 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).

(5) As of second quarter 2017, Farmer Mac revised its calculation of the original loan-to-value ratio of a loan to combine for any cross-collateralized loans: (i) the original loan principal balance amounts in the numerator and (ii) the original appraised property values in the denominator. In previous periods, the ratio was calculated on a loan-by-loan basis without considering the effects of any cross-collateralization. Prior period information has been reclassified to conform to the current period calculation and presentation.

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

Another indicator that Farmer Mac considers in analyzing the credit quality of its Farm & Ranch portfolio is the level of internally-rated "substandard" assets, both in dollars and as a percentage of the outstanding Farm & Ranch portfolio. Assets categorized as "substandard" have a well-defined weakness or weaknesses, and there is a distinct possibility that some loss will be sustained if deficiencies are not corrected. As of June 30, 2017, Farmer Mac's substandard assets were $192.1 million (3.0 percent of the Farm & Ranch portfolio), compared to $165.2 million (2.7 percent of the Farm & Ranch portfolio) as of December 31, 2016. Those substandard assets were comprised of 287 loans as of both June 30, 2017 and December 31, 2016. The $26.9 million increase from year-end 2016 was primarily driven by credit downgrades in loans underlying LTSPCs. Farmer Mac expects that over time its substandard asset rate will eventually revert closer to, and possibly exceed, Farmer Mac's historical average due to macroeconomic factors and the cyclical nature of the agricultural economy. Farmer Mac's average substandard assets as a percentage of its Farm & Ranch portfolio over the last 15 years is approximately 4 percent. The highest substandard asset rate observed during that period occurred in 2010 at approximately 8 percent, which coincided with an increase in substandard loans within Farmer Mac's then-held ethanol portfolio that Farmer Mac no longer holds. If Farmer Mac's substandard asset rate continues to increase 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 any 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. See Note 5 to the consolidated financial statements for more information regarding credit quality indicators related to Farm & Ranch loans held and loans underlying LTSPCs and off-balance sheet Farm & Ranch Guaranteed Securities.

The following table presents Farmer Mac's cumulative net credit losses relative to the cumulative original balance for all Farm & Ranch loans purchased and loans underlying LTSPCs and off-balance sheet Farm & Ranch Guaranteed Securities as of June 30, 2017 by year of origination, geographic region, and commodity/collateral type. The purpose of this information is to present information regarding losses relative to original Farm & Ranch purchases, guarantees, and commitments.

Table 18

Farm & Ranch Credit Losses Relative to Cumulative
Original Loans, Guarantees, and LTSPCs as of June 30, 2017

	Cumulative Original Loans, Guarantees and LTSPCs	Cumulative Net Credit Losses/ (Recoveries)	Cumulative Loss Rate
	(dollars in thousands)		
By year of origination:			
2007 and prior	$ 13,312,145	$ 26,043	0.20 %
2008	813,908	3,400	0.42 %
2009	548,060	1,508	0.28 %
2010	651,514	5	— %
2011	762,881	3,661	0.48 %
2012	1,127,622	—	— %
2013	1,391,433	—	— %
2014	928,138	—	— %
2015	1,024,541	(540)	(0.05)%
2016	1,307,027	—	— %
2017	636,017	—	— %
Total	$ 22,503,286	$ 34,077	0.15 %
By geographic region[1]:			
Northwest	$ 3,016,842	$ 11,221	0.37 %
Southwest	7,735,447	9,132	0.12 %
Mid-North	5,773,204	12,830	0.22 %
Mid-South	2,688,451	(211)	(0.01)%
Northeast	1,341,323	169	0.01 %
Southeast	1,948,019	936	0.05 %
Total	$ 22,503,286	$ 34,077	0.15 %
By commodity/collateral type:			
Crops	$ 10,381,650	$ 3,853	0.04 %
Permanent plantings	4,578,154	9,332	0.20 %
Livestock	5,462,950	3,877	0.07 %
Part-time farm	1,272,277	1,342	0.11 %
Ag. Storage and Processing	653,450	15,673	2.40 %
Other	154,805	—	— %
Total	$ 22,503,286	$ 34,077	0.15 %

(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. Within most commodity groups, certain geographic areas allow greater economies of scale or proximity to markets than others and, consequently, may result in more successful operations within the commodity group. Certain geographic areas also offer better growing conditions and market access than others and, consequently, may result in more versatile and more successful operators within a given commodity group. Farmer Mac's board of directors has established policies regarding geographic and commodity concentration to maintain adequate diversification and measure concentration risk.

In Farmer Mac's experience, the degree to which the collateral for a commodity group is single-use or highly improved is a more significant determinant of the probability of ultimate losses on a given loan than diversity of geographic location within a commodity group. Commodity groups that tend to be single-use or highly improved include permanent plantings (for example, nut crops), agricultural storage and processing facilities (for example, canola plants and grain processing facilities), and certain livestock facilities (for example, dairy facilities). The versatility of a borrower's operation (and in the case of persisting adverse economic conditions, the borrower's ability to switch commodity groups) will more likely result in profitability for the borrower and, consequently, a lower risk of decreased value for the underlying collateral. Producers of agricultural commodities that require highly improved property are generally less able to adapt their operations when faced with adverse economic conditions. In addition, in the event of a borrower's default, the prospective sale value of the collateral is more likely to decrease and the related loan may become undercollateralized. This analysis is consistent with corresponding commodity analyses, which indicate that Farmer Mac has experienced higher loss and collateral deficiency rates in permanent planting loans and agricultural storage and processing loans, for which the collateral is typically highly improved and specialized.

The following tables present concentrations of Farm & Ranch loans held and loans underlying LTSPCs and off-balance sheet Farm & Ranch Guaranteed Securities by commodity type within geographic region and cumulative credit losses by origination year and commodity type:

Table 19

	As of June 30, 2017						
	Farm & Ranch Concentrations by Commodity Type within Geographic Region						
	Crops	Permanent Plantings	Livestock	Part-time Farm	Ag. Storage and Processing	Other	Total
	(dollars in thousands)						
By geographic region[(1)]:							
Northwest	$ 341,631	$ 101,518	$ 212,888	$ 50,076	$ —	$ 253	$ 706,366
	5.3%	1.6%	3.3%	0.8%	—%	—%	11.0%
Southwest	513,017	872,286	424,805	66,477	12,574	9,012	1,898,171
	8.0%	13.6%	6.6%	1.0%	0.2%	0.1%	29.5%
Mid-North	1,871,015	17,135	187,887	96,901	19,884	3,469	2,196,291
	29.1%	0.3%	2.9%	1.5%	0.3%	0.1%	34.2%
Mid-South	517,145	20,546	268,737	47,238	6,590	172	860,428
	8.0%	0.3%	4.2%	0.8%	0.1%	—%	13.4%
Northeast	124,947	13,978	46,070	68,941	5,318	—	259,254
	1.9%	0.2%	0.7%	1.1%	0.1%	—%	4.0%
Southeast	160,596	124,097	158,264	53,111	9,633	307	506,008
	2.6%	1.9%	2.5%	0.8%	0.1%	—%	7.9%
Total	$ 3,528,351	$ 1,149,560	$1,298,651	$ 382,744	$ 53,999	$ 13,213	$6,426,518
	54.9%	17.9%	20.2%	6.0%	0.8%	0.2%	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 20

	As of June 30, 2017					
	Farm & Ranch Cumulative Credit Losses by Origination Year and Commodity Type					
	Crops	Permanent Plantings	Livestock	Part-time Farm	Ag. Storage and Processing	Total
	(in thousands)					
By year of origination:						
2007 and Prior	$ 1,669	$ 9,184	$ 3,803	$ 1,189	$ 10,198	$ 26,043
2008	2,626	—	—	153	621	3,400
2009	98	148	69	—	1,193	1,508
2010	—	—	5	—	—	5
2011	—	—	—	—	3,661	3,661
2012	—	—	—	—	—	—
2013	—	—	—	—	—	—
2014	—	—	—	—	—	—
2015	(540)	—	—	—	—	(540)
2016	—	—	—	—	—	—
2017	—	—	—	—	—	—
Total	$ 3,853	$ 9,332	$ 3,877	$ 1,342	$ 15,673	$ 34,077

Farmer Mac regularly conducts detailed, statistical stress tests of its portfolio for credit risk and compares those results to current and historical credit quality metrics and to the various statutory, regulatory, and Farmer Mac's board of directors' capital policy metrics. Farmer Mac's methodologies for pricing its guarantee and commitment fees, managing credit risk, and providing adequate allowances for losses consider all of the foregoing factors and information.

Farmer Mac requires approved lenders to make representations and warranties regarding the conformity of eligible agricultural mortgage and rural utilities loans to Farmer Mac's standards, the accuracy of loan data provided to Farmer Mac, and other requirements related to the loans. Sellers are responsible to Farmer Mac for breaches of those representations and warranties, and 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 second quarter 2017, Farmer Mac did not require any seller to cure or repurchase a loan purchased by Farmer Mac for breach of a representation or warranty. During the previous three years ended June 30, 2017, Farmer Mac had required one seller to repurchase a total of two loans aggregating $0.8 million for breaches of representations and warranties made about those two loans, both of which repurchases occurred during first quarter 2016. In addition to relying on the representations and warranties of lenders, Farmer Mac also underwrites all of the agricultural real estate mortgage loans (other than rural housing and part-time farm mortgage loans) and rural utilities loans that it holds in its portfolio. For rural housing and part-time farm mortgage loans, Farmer Mac relies on representations and warranties from the seller that those loans conform to Farmer Mac's specified underwriting criteria without exception. For more information about Farmer Mac's loan eligibility requirements, see "Business—Farmer Mac's Lines of Business—Farm & Ranch—Loan Eligibility" and "Business—Farmer Mac's Lines of Business—Rural Utilities—Loan Eligibility" in Farmer Mac's Annual Report on Form 10-K for the fiscal year ended December 31, 2016 filed with the SEC on March 9, 2017.

Under contracts with Farmer Mac and in consideration for servicing fees, Farmer Mac-approved central servicers service loans in accordance with Farmer Mac's requirements. Central servicers are responsible to Farmer Mac for serious errors in the servicing of those loans. If a central 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, Farmer Mac has the right to terminate the servicing relationship for a particular loan or the entire portfolio serviced by the central servicer. In addition, Farmer Mac can proceed against the central servicer in arbitration or exercise any remedies available to it under law. During the previous three years ended June 30, 2017, Farmer Mac had not exercised any remedies or taken any formal action against any central servicers. For more information about Farmer Mac's servicing requirements, see "Business—Farmer Mac's Lines of Business—Farm & Ranch—Servicing" and "Business—Farmer Mac's Lines of Business—Rural Utilities—Servicing" in Farmer Mac's Annual Report on Form 10-K for the fiscal year ended December 31, 2016 filed with the SEC on March 9, 2017.

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

- 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 and transaction. The required collateralization level is established at the time the AgVantage facility is entered into with the counterparty and does not change during the life of the AgVantage securities issued under the facility. In AgVantage transactions, the corporate obligor is required to remove from the pool of pledged collateral any loan that becomes more than 30 days delinquent in the payment of principal or interest and to substitute an eligible loan that is current in payment to maintain the minimum required collateralization level. In the event of a default on the general obligation, Farmer Mac would have recourse to the pledged collateral and have rights to the ongoing borrower payments of principal and interest. For Farm Equity AgVantage counterparties, Farmer Mac also requires that the counterparty generally (1) maintain a higher collateralization level, through lower loan-to-value ratio thresholds and higher overcollateralization than required for traditional AgVantage securities and (2) comply with specified financial covenants for the life of the related Farm Equity AgVantage security to avoid default. For a more detailed description of AgVantage securities, see "Business—Farmer Mac's Lines of Business—Institutional Credit—AgVantage Securities" in Farmer Mac's Annual Report on Form 10-K for the year ended December 31, 2016 filed with the SEC on March 9, 2017.

The unpaid principal balance of outstanding on-balance sheet AgVantage securities secured by loans eligible for the Farm & Ranch line of business totaled $4.9 billion as of June 30, 2017 and $3.7 billion as of December 31, 2016. The unpaid principal balance of on-balance sheet AgVantage securities secured by loans eligible for the Rural Utilities line of business totaled $2.5 billion as of June 30, 2017 and $2.3 billion as of December 31, 2016. The unpaid principal balance of outstanding off-balance sheet AgVantage securities totaled $0.3 billion as of June 30, 2017 and $1.3 billion as of December 31, 2016. The decrease in the unpaid principal balance of outstanding off-balance sheet AgVantage securities from year-end 2016 was attributable to the refinancing of a $1.0 billion AgVantage security that matured in April 2017 into three new on-balance sheet AgVantage securities. Previously, $970.0 million of this $1.0 billion maturing AgVantage security was reported as off-balance sheet business volume because it was owned by third-party investors. For more information about this AgVantage transaction, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Business Volume."

The following table provides information about the issuers of AgVantage securities, as well as the required collateralization levels for those transactions as of June 30, 2017 and December 31, 2016:

Table 21

Counterparty	As of June 30, 2017 Balance	Credit Rating	Required Collateralization	As of December 31, 2016 Balance	Credit Rating	Required Collateralization
	(dollars in thousands)					
AgVantage:						
MetLife	$ 2,550,000	AA-	103%	$ 2,550,000	AA-	103%
CFC[(1)]	2,823,817	A	100%	2,594,402	A	100%
Rabo Agrifinance, Inc.	1,900,000	None	106%	1,800,000	None	106%
Other[(2)]	130,518	[(3)]	106% to 125%	86,373	[(3)]	106% to 125%
Farm Equity AgVantage[(4)]	307,083	None	110%	256,911	None	110%
Total outstanding	$ 7,711,418			$ 7,287,686		

(1) Includes $300.0 million related to a revolving floating rate AgVantage facility. Farmer Mac receives a fixed fee based on the full dollar amount of the facility.
(2) Consists of AgVantage securities issued by 6 different issuers as of both June 30, 2017 and December 31, 2016.
(3) Consists of AgVantage securities from 6 separate issuers without a credit rating as of both June 30, 2017 and December 31, 2016.
(4) Consists of AgVantage securities from 3 separate issuers as of both June 30, 2017 and December 31, 2016.

Farmer Mac manages institutional credit risk related to lenders and servicers by requiring those institutions to meet Farmer Mac's standards for creditworthiness. Farmer Mac monitors the financial condition of those institutions by evaluating financial statements and bank credit rating agency reports. For more information about Farmer Mac's lender eligibility requirements, see "Business—Farmer Mac's Lines of Business—Farm & Ranch—Approved Lenders" and "Business—Farmer Mac's Lines of Business—Rural Utilities—Approved Lenders" in Farmer Mac's Annual Report on Form 10-K for the year ended December 31, 2016 filed with the SEC on March 9, 2017.

Farmer Mac manages institutional credit risk related to its interest rate swap counterparties through collateralization provisions contained in each of its swap agreements that varies based on the market value of its swaps portfolio with each counterparty. Furthermore, rules jointly issued by various prudential regulators, including FCA, establish minimum requirements for the exchange of initial and variation margin between Farmer Mac and its swap dealer counterparties in non-cleared swaps transactions. Effective March 1, 2017, Farmer Mac was required to exchange variation margin with its swap dealer counterparties in non-cleared swaps transactions entered into following the effective date at a zero threshold level pursuant to these new rules. Farmer Mac transacts interest rate swaps with multiple counterparties to ensure a more even distribution of institutional credit risk related to its swap transactions. As a result of mandatory clearing rules for certain interest rate derivative transactions enacted under the Dodd-Frank Wall Street Reform and Consumer Protection Act (the "Dodd-Frank Act"), Farmer Mac uses the clearing process for cleared swap transactions as another mechanism for managing its derivative counterparty risk. Credit risk related to interest rate swap contracts is discussed in "Management's Discussion and Analysis of Financial Condition and Results of Operations—Risk Management—Interest Rate Risk" and Note 4 to the consolidated financial statements.

Credit Risk – Other Investments. As of June 30, 2017, Farmer Mac had $0.3 billion of cash and cash equivalents and $2.4 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 FCA regulations, which establish limitations on dollar amount, issuer concentration, and credit quality. Those regulations can be found at 12 C.F.R. §§ 652.1-652.45 (the "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 policies generally require each investment or issuer of an investment to be highly rated by a nationally recognized statistical rating organization ("NRSRO"). Investments in mortgage securities and asset-backed securities are required to have a rating in the highest NRSRO category. Corporate debt securities with maturities of no more than five years but more than three years are required to be rated in one of the two highest categories; corporate debt securities with maturities of three years or less are required to be rated in one of the three highest categories. Some investments do not require a rating, such as U.S. Treasury securities and other obligations fully insured by the United States government or a government agency or diversified investment funds regulated under the Investment Company Act of 1940. Investments in diversified investment funds are further limited to those funds that are holding only instruments approved for direct investment by Farmer Mac.

The Liquidity and Investment Regulations and Farmer Mac's policies also establish concentration limits, which are intended to limit exposure to any one counterparty. Although the Liquidity and Investment Regulations limit Farmer Mac's total credit exposure to any single issuer of securities and uncollateralized financial derivatives to 25 percent of Farmer Mac's regulatory capital (as of June 30, 2017, 25 percent of Farmer Mac's regulatory capital was $161.7 million), Farmer Mac's current policy limits this total credit exposure to 5 percent of its regulatory capital (as of June 30, 2017, 5 percent of Farmer Mac's regulatory capital was $32.3 million). These exposure limits do not apply to obligations of the United States or GSEs, though Farmer Mac is restricted by the Liquidity and Investment Regulations and its own policy from investing more than 100 percent of its regulatory capital in any one GSE.

On February 23, 2016, FCA published a proposed rule in the Federal Register to amend the Liquidity and Investment Regulations to comply with Section 939A of the Dodd-Frank Act by removing references and requirements relating to credit ratings and replacing them with other standards of creditworthiness, as well as to revise the eligibility criteria and exposure limits for certain types of investments. Farmer Mac submitted comments on this proposed rule to FCA on April 25, 2016 and expects a final rule to be issued during 2017. Farmer Mac expects that it will be able to successfully adapt to FCA's proposed amendments of the Liquidity and Investment Regulations.

Interest Rate Risk. Farmer Mac is subject to interest rate risk on all assets retained on its balance sheet because of possible timing differences in the cash flows of the assets and related liabilities. This risk is primarily related to loans held, Farmer Mac Guaranteed Securities (excluding AgVantage securities), and USDA Securities due to the ability of borrowers to prepay their loans before the scheduled maturities, thereby increasing the risk of asset and liability cash flow mismatches. Cash flow mismatches in a changing interest rate environment can reduce the earnings of Farmer Mac if assets repay 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, or if assets repay more slowly than expected and the associated debt must be replaced by higher-cost debt. As discussed below, Farmer Mac manages this interest rate risk by funding assets purchased with liabilities matching the duration and cash flow characteristics of the assets purchased.

Interest Rate Risk Management

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

- purchasing assets in the ordinary course of business;
- refinancing existing liabilities; or
- using financial derivatives to alter the characteristics of existing assets or liabilities.

Farmer Mac's primary strategy for managing interest rate risk is to fund asset purchases with liabilities that have similar duration and cash flow characteristics so that they will perform similarly as interest rates change. To match these characteristics, Farmer Mac issues discount notes and both callable and non-callable medium-term notes across a spectrum of maturities. Farmer Mac issues callable debt to offset the prepayment risk associated with some loans. By using a blend of liabilities that includes callable debt, the interest rate sensitivities of the liabilities tend to increase or decrease as interest rates change in a manner similar to changes in the interest rate sensitivities of the assets. Farmer Mac also uses financial derivatives to better match the durations of Farmer Mac's assets and liabilities, thereby reducing overall interest rate sensitivity.

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

In certain cases, yield maintenance provisions and other prepayment penalties contained in agricultural real estate mortgage loans and rural utilities loans reduce, but do not eliminate, prepayment risk. Those provisions require borrowers to make an additional payment when they prepay their loans, thus compensating Farmer Mac for the shortened duration of the prepaid loan. As of June 30, 2017, approximately 2 percent of the total outstanding balance of loans in the Farm & Ranch line of business where Farmer Mac either owned the loan or the beneficial interest in the underlying loan had yield maintenance provisions or other forms of prepayment protection (together covering 5 percent of all loans with fixed interest rates). Of the Farm & Ranch loans purchased in second quarter 2017, 18 percent had yield maintenance or another form of prepayment protection. As of June 30, 2017, none of Farmer Mac's USDA Securities had yield maintenance provisions; however, 5 percent contained other prepayment penalties. Of the USDA Securities purchased in second quarter 2017, 9 percent contained various forms of prepayment penalties. As of June 30, 2017, 61 percent of the Rural Utilities loans owned by Farmer Mac had yield maintenance provisions. Of the Rural Utilities loans purchased in second quarter 2017, 100 percent contained prepayment penalties.

Farmer Mac's purchases of eligible loan assets expose Farmer Mac to interest rate risk arising primarily from uncertainty as to when the borrowers will repay the outstanding principal balance on the related loans. Generally, the values of Farmer Mac's eligible loan assets, and the debt issued to fund these assets, increase when interest rates decline, and their values decrease as interest rates rise. Furthermore, changes in interest rates may affect loan prepayment rates which may, in turn, affect durations and values of the loans. Declining interest rates generally increase prepayment rates, which shortens the duration of these assets, while rising interest rates tend to slow loan prepayments, thereby extending the duration of the loans.

Farmer Mac is also subject to interest rate risk on loans that Farmer Mac has committed to acquire (other than delinquent loans through LTSPCs) but has not yet purchased. When Farmer Mac commits to purchase those loans, it is exposed to interest rate risk between the time it commits to purchase the loans and the time it either:

- sells Farmer Mac Guaranteed Securities backed by the loans; or
- issues debt to retain the loans in its portfolio.

Farmer Mac manages the interest rate risk related to these loans, and any related Farmer Mac Guaranteed Securities or debt issuance, through the use of forward sale contracts on the debt securities 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 and certain Farmer Mac Guaranteed Securities. Issuing debt to fund the loans as investments does not fully eliminate interest rate risk due to the possible timing differences in the cash flows of the assets and related liabilities, as discussed above.

Farmer Mac's $0.3 billion of cash and cash equivalents mature within three months and are funded with discount notes having similar maturities. As of June 30, 2017, $2.3 billion of the $2.4 billion of investment securities (98 percent) were floating rate securities with rates that adjust within one year or fixed rate securities with original maturities between three months and one year. Those securities are funded with effectively floating rate debt that closely matches the rate adjustment dates of the associated investments. As of June 30, 2017, Farmer Mac had outstanding discount notes of $2.2 billion, medium-term notes that mature within one year of $5.6 billion, and medium-term notes that mature after one year of $7.3 billion.

Interest Rate Risk Metrics

Farmer Mac regularly stress tests its portfolio for interest rate risk and uses a variety of metrics to quantify and manage its interest rate risk. These metrics include sensitivity to interest rate movements of market value of equity ("MVE") and net interest income ("NII") as well as duration gap analysis. MVE represents management's estimate of the present value of all future cash flows from on- and off-balance sheet assets, liabilities, and financial derivatives, discounted at current interest rates and appropriate spreads. However, MVE is not indicative of the market value of Farmer Mac as a going concern because these market values are theoretical and do not reflect future business activities. MVE sensitivity analysis is used to measure the degree to which the market values of Farmer Mac's assets and liabilities change for a given change in interest rates. Because this analysis evaluates the impact of interest rate movements on the value of all future cash flows, this measure provides an evaluation of Farmer Mac's long-term interest rate risk.

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

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

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

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

The following schedule summarizes the results of Farmer Mac's MVE and NII sensitivity analysis as of June 30, 2017 and December 31, 2016 to an immediate and instantaneous uniform or "parallel" shift in the yield curve:

Table 22

	Percentage Change in MVE from Base Case	
Interest Rate Scenario	As of June 30, 2017	As of December 31, 2016
+100 basis points	(1.7)%	(2.5)%
-50 basis points	(1.7)%	(0.8)%

	Percentage Change in NII from Base Case	
Interest Rate Scenario	As of June 30, 2017	As of December 31, 2016
+100 basis points	3.0 %	3.0 %
-50 basis points	(2.5)%	(2.1)%

Farmer Mac's board of directors has established policies and procedures regarding MVE and NII sensitivity. These policies include the measurement of MVE and NII sensitivity to more severe decreasing interest rate scenarios that are consistent in magnitude with the increasing interest rate scenarios. However, given the current low interest rate environment, those rate scenarios produce negative interest rates, and, as a result, do not produce results that are meaningful. Consequently, Farmer Mac currently measures and reports MVE and NII sensitivity to a down 50 basis point interest rate shock.

As of June 30, 2017, Farmer Mac's effective duration gap was minus 0.6 months, compared to 0.1 months as of December 31, 2016. During the first half of 2017, short-term interest rates increased materially and the yield curve flattened. This rate movement reduced the duration of Farmer Mac's assets relative to its liabilities, thereby slightly widening Farmer Mac's duration gap. Despite this rate movement, Farmer Mac's overall interest rate sensitivity remained relatively stable and at relatively low levels during the first half of 2017.

Financial Derivatives Transactions

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

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

As of June 30, 2017, Farmer Mac had $8.2 billion combined notional amount of interest rate swaps, with terms ranging from less than one year to twenty-five years, of which $2.6 billion were pay-fixed interest rate swaps, $4.6 billion were receive-fixed interest rate swaps, and $1.0 billion were basis swaps.

Farmer Mac enters into interest rate swap contracts to synthetically adjust the characteristics of its debt to match more closely the cash flow and duration characteristics of its loans and other assets, thereby reducing interest rate risk and often times deriving an overall lower effective cost of borrowing than would otherwise be available to Farmer Mac in the conventional debt market. Specifically, interest rate swaps synthetically convert the variable cash flows related to the forecasted issuance of short-term debt into effectively fixed rate medium-term notes that match the anticipated duration and interest rate characteristics of the corresponding assets. Farmer Mac evaluates the overall cost of using the swap market as a funding alternative and uses interest rate swaps to manage specific interest rate risks for specific transactions. -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 a benchmark interest rate (e.g., LIBOR).

Farmer Mac has used callable interest rate swaps (in conjunction with the issuance of short-term debt) as an alternative to callable medium-term notes with equivalently structured maturities and call options. The call options on the swaps are designed to match the prepayment options on those assets without prepayment protection. The blended durations of the swaps are also designed to match the duration of the related assets over their estimated lives. If the assets prepay, the swaps can be called and the short-term debt repaid; if the assets do not prepay, the swaps remain outstanding and the short-term debt is rolled over, effectively providing fixed rate callable funding over the lives of the related assets. Thus, the economics of the assets are closely matched to the economics of the interest rate swap and funding combination.

As discussed in Note 4 to the consolidated financial statements, all financial derivatives are recorded on the balance sheet at fair value as derivative assets or as derivative liabilities. Changes in the fair values of financial derivatives are reported in "(Losses)/gains on financial derivatives and hedging activities" 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 also reported in "(Losses)/gains on financial derivatives and hedging activities" in the consolidated statements of operations. The accrual of the contractual amounts due on the financial derivative is included as an adjustment to the yield of the hedged item and is reported in net interest income. For financial derivatives designated in cash flow hedge accounting relationships, the effective portion of the derivative gain/loss is recorded in other comprehensive income. Amounts are disclosed as a reclassification out of other comprehensive income and affecting net interest income when the hedged transaction occurs and affects earnings. Any ineffective portion of designated hedge transactions is recognized immediately in "(Losses)/ gains on financial derivatives and hedging activities." All of Farmer Mac's financial derivatives transactions are conducted under standard collateralized agreements that limit Farmer Mac's potential credit exposure to any counterparty. As of June 30, 2017, Farmer Mac had $0.3 million uncollateralized net exposures to three counterparties. As of December 31, 2016, Farmer Mac had uncollateralized net exposures of $0.2 million to two counterparties.

Basis Risk

In addition to being exposed to the risk of asset and liability cash flow mismatches, Farmer Mac is exposed to the risk related to changes in its cost of funds relative to floating rate market indexes (such as LIBOR) on some of the floating rate assets it holds. This exposure is referred to as "basis risk." Some of Farmer Mac's floating rate assets reset on rate adjustment dates on the basis of a floating rate market index, whereas the related debt that Farmer Mac issued to fund those assets until their maturities may be refinanced on the basis of Farmer Mac's cost of funds at a particular time. Basis risk arises from the potential variability between the rates at which those floating rate assets reset and the rates at which Farmer Mac can issue debt to fund those assets. Farmer Mac can fund these floating rate assets in several ways, including:

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

Farmer Mac primarily uses the last two options identified in the list above to fund these floating rate assets because this funding strategy is usually the most effective way to provide an interest rate match, maintain a suitable liquidity profile, and lower Farmer Mac's cost of funds. 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 for the remaining life of the assets. However, if the rates on Farmer Mac's discount notes or medium-term notes deteriorate relative to LIBOR during the time between when these floating rate assets were first funded and when Farmer Mac refinances the associated debt, Farmer Mac is exposed to a commensurate reduction in its net effective spread on the associated assets. Conversely, if the rates on Farmer Mac's discount notes or medium-term notes improve relative to LIBOR during that time, Farmer Mac would benefit from a commensurate increase in its net effective spread on those assets.

Farmer Mac is also subject to basis risk on some of its fixed rate assets as a result of its use of pay-fixed interest rate swaps, combined with a series of discount note or medium-term note issuances, as an alternative source of effectively fixed rate funding. This risk arises because the rates at which Farmer Mac refinances its funding for some fixed rate assets through the issuance of discount notes or medium-term notes may vary from the agreed-upon rates based on the floating rate market index received by Farmer Mac on the associated swaps. In these cases, if the rates on Farmer Mac's discount notes or medium-term notes were to deteriorate relative to LIBOR, Farmer Mac would be exposed to a commensurate reduction in its net interest income and net effective spread. Conversely, if the rates on Farmer Mac's discount notes or medium-term notes were to improve relative to LIBOR, Farmer Mac would benefit from a commensurate increase in its net interest income and net effective spread.

To mitigate this basis risk, Farmer Mac seeks to issue debt of sufficient maturity to reduce the frequency of required refinancing of that debt over the life of the associated asset. As of June 30, 2017, Farmer Mac held $6.5 billion of floating-rate assets in its lines of business and its liquidity investment portfolio that reset on the basis of floating rate market indexes, primarily one-month and three-month LIBOR. As of the same date, Farmer Mac also had $2.6 billion of interest rate swaps outstanding where Farmer Mac pays a fixed rate of interest and receives a floating rate of interest.

Adjustments to Farmer Mac's funding strategies to take advantage of lower cost LIBOR-based funding opportunities, as well as a generally favorable LIBOR-based funding market, has enabled Farmer Mac to reduce its funding costs through the first half of 2017. LIBOR-based funding markets have recently returned to levels that are consistent with Farmer Mac's historical experience, and Farmer Mac believes that additional material improvements in the near-term are less likely.

Liquidity and Capital Resources

Farmer Mac regularly accesses the capital markets for funding, and Farmer Mac has maintained access to the capital markets at favorable rates throughout 2016 and the first six months of 2017. Assuming continued access to the capital markets, Farmer Mac believes it has sufficient liquidity and capital resources to support its operations for the next 12 months and for the foreseeable future. Farmer Mac also has a liquidity contingency plan to manage unanticipated disruptions in its access to the capital markets. That plan involves borrowing through repurchase agreement arrangements and the sale of liquid assets. Farmer Mac is required to 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 prescribed by those regulations, Farmer Mac maintained an average of 200 days of liquidity during second quarter 2017 and had 208 days of liquidity as of June 30, 2017.

Debt Issuance. Farmer Mac funds its purchases of eligible loan assets and investment assets and finances its operations primarily by issuing debt obligations of various maturities through a network of dealers in the public capital markets. Farmer Mac works to enhance its funding operations by undertaking extensive debt investor relations initiatives, including conducting non-deal roadshows with institutional investors, making periodic dealer sales force presentations, and speaking at fixed income investor conferences throughout the United States. Debt obligations issued by Farmer Mac include discount notes and fixed and floating rate medium-term notes, including callable notes.

Farmer Mac's board of directors has authorized the issuance of up to $18.0 billion of discount notes and medium-term notes (of which $15.1 billion was outstanding as of June 30, 2017), subject to periodic review of the adequacy of that level relative to Farmer Mac's borrowing requirements. Farmer Mac invests the proceeds of its debt issuances in purchases of loans, USDA Securities, Farmer Mac Guaranteed Securities, and investment assets in accordance with policies established by its board of directors and subject to regulations established by FCA.

Liquidity. The funding and liquidity needs of Farmer Mac's lines of business are driven by the purchase and retention of eligible loans, USDA Securities, and Farmer Mac Guaranteed Securities (including AgVantage securities); the maturities of Farmer Mac's discount notes and medium-term notes; and payment of principal and interest on Farmer Mac Guaranteed Securities. Farmer Mac's primary sources of funds to meet these needs are the proceeds of its debt issuances, fees for its guarantees and commitments, net effective spread, loan repayments, and maturities of AgVantage securities.

Farmer Mac maintains cash, cash equivalents (including U.S. Treasury securities and other short-term money market instruments), and other investment securities that can be drawn upon for liquidity needs. The following table presents these assets as of June 30, 2017 and December 31, 2016:

Table 23

	As of June 30, 2017	As of December 31, 2016
	(in thousands)	
Cash and cash equivalents	$ 319,993	$ 265,229
Investment securities:		
Guaranteed by U.S. Government and its agencies	1,361,093	1,423,850
Guaranteed by GSEs	956,561	1,044,261
Corporate debt securities	10,094	10,041
Asset-backed securities	36,057	37,699
Total	$ 2,683,798	$ 2,781,080

Capital Requirements. Farmer Mac is subject to the following capital requirements – minimum, critical, and risk-based. Farmer Mac is required to comply with the higher of the minimum capital requirement and the risk-based capital requirement. The minimum capital requirement is expressed as a percentage of on-balance sheet assets and off-balance sheet obligations. The critical capital requirement is equal to one-half of the minimum capital amount. Farmer Mac's statutory charter does not specify the required level of risk-based capital but directs FCA to establish a risk-based capital stress test for Farmer Mac, using specified stress test parameters. Certain enforcement powers are given to FCA depending on Farmer Mac's compliance with these capital standards. As of June 30, 2017, Farmer Mac was in compliance with its statutory capital requirements and was classified as within "level I" (the highest compliance level). See Note 7 to the consolidated financial statements for more information about Farmer Mac's capital position and see "Business—Government Regulation of Farmer Mac—Capital Standards" in Farmer Mac's Annual Report on Form 10-K for the fiscal year ended December 31, 2016 filed with the SEC on March 9, 2017 for more information on the capital requirements applicable to Farmer Mac.

In accordance with FCA's rule on capital planning, Farmer Mac's board of directors has adopted a policy for maintaining a sufficient level of "Tier 1" capital (consisting of retained earnings, paid-in-capital, common stock, and qualifying preferred stock). That policy imposes restrictions on Tier 1-eligible dividends and any discretionary bonus payments in the event that Tier 1 capital falls below specified thresholds. As of June 30, 2017, Farmer Mac's Tier 1 capital ratio was 13.0%, compared to 12.7% as of December 31, 2016. The marginal impact of capital growth outpaced the marginal impact of growth in risk weighted assets during the first six months of 2017. For more information about Farmer Mac's capital adequacy policy and FCA's rule on capital planning, see "Business—Government Regulation of Farmer Mac—Capital Standards" in Farmer Mac's Annual Report on Form 10-K for the fiscal year ended December 31, 2016 filed with the SEC on March 9, 2017. As of June 30, 2017, Farmer Mac was in compliance with its capital adequacy policy.

Regulatory Matters

The Dodd-Frank Act contains a variety of provisions designed to regulate financial markets. Certain provisions of the Dodd-Frank Act, including those regarding derivatives, corporate governance, and executive compensation, apply to Farmer Mac. Farmer Mac does not expect that any of the final rules that have been adopted under the Dodd-Frank Act or that may be adopted will have a material effect on Farmer Mac's business activities and operations or financial condition. Farmer Mac will continue to monitor all applicable developments in the implementation of the Dodd-Frank Act and expects to be able to adapt successfully to any new applicable legislative and regulatory requirements.

Other Matters

Common Stock Dividends. For first and second quarter 2017, Farmer Mac paid a quarterly dividend of $0.36 per share on all classes of its common stock. For each quarter in 2016, Farmer Mac paid a quarterly dividend of $0.26 per share on all classes of its common stock. Farmer Mac's ability to declare and pay dividends on common stock could be restricted if it fails to comply with applicable capital requirements. See "Business—Government Regulation of Farmer Mac—Capital Standards—Enforcement Levels" in Farmer Mac's Annual Report on Form 10-K for the fiscal year ended December 31, 2016 filed with the SEC on March 9, 2017 for more information on FCA's enforcement powers.

Preferred Stock Dividends. For first and second quarter 2017 and for each quarter of 2016, Farmer Mac paid the following quarterly dividends on its outstanding preferred stock:

- $0.3672 per share on its 5.875% Non-Cumulative Preferred Stock, Series A;
- $0.4297 per share on its 6.875% Non-Cumulative Preferred Stock, Series B; and
- $0.3750 per share on its 6.000% Fixed-to-Floating Rate Non-Cumulative Preferred Stock, Series C.

Supplemental Information

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

Table 24

New Business Volume

	Farm & Ranch		USDA Guarantees	Rural Utilities		Institutional Credit	
	Loans	LTSPCs	USDA Securities	Loans	LTSPCs	AgVantage	Total
				(in thousands)			
For the quarter ended:							
June 30, 2017	$ 312,217	$ 55,899	$ 169,261	$ 25,000	$ —	$ 1,296,757	$ 1,859,134
March 31, 2017	314,137	113,261	131,101	27,341	—	561,407	1,147,247
December 31, 2016	243,692	117,265	129,343	10,800	20,000	247,154	768,254
September 30, 2016	282,690	155,657	119,201	20,000	—	528,234	1,105,782
June 30, 2016	241,093	58,156	133,745	10,000	421,404	396,245	1,260,643
March 31, 2016	198,548	68,017	98,968	9,691	—	927,219	1,302,443
December 31, 2015	245,252	185,919	72,442	46,082	—	14,391	564,086
September 30, 2015	175,965	79,621	91,374	53,552	522,262	506,602	1,429,376
June 30, 2015	196,927	102,944	123,933	—	—	307,250	731,054
For the year ended:							
December 31, 2016	966,023	399,095	481,257	50,491	441,404	2,098,852	4,437,122
December 31, 2015	748,368	427,795	376,935	108,337	522,262	1,043,158	3,226,855

Table 25

Repayments of Assets by Line of Business

	Farm & Ranch			USDA Guarantees	Rural Utilities		Institutional Credit	
	Loans	Guaranteed Securities	LTSPCs	USDA Securities	Loans	LTSPCs	AgVantage	Total
				(in thousands)				
For the quarter ended:								
Scheduled	$ 21,687	$ 9,116	$ 41,821	$ 35,169	$ —	$ 9,885	$ 1,166,922	$ 1,284,600
Unscheduled	51,442	10,737	47,262	46,776	—	—	4,000	160,217
June 30, 2017	$ 73,129	$ 19,853	$ 89,083	$ 81,945	$ —	$ 9,885	$ 1,170,922	$ 1,444,817
Scheduled	$ 70,394	$ 16,184	$ 48,375	$ 36,322	$ 26,909	$ 8,934	$ 161,451	$ 368,569
Unscheduled	114,811	11,985	64,486	39,457	814	—	102,059	333,612
March 31, 2017	$ 185,205	$ 28,169	$112,861	$ 75,779	$ 27,723	$ 8,934	$ 263,510	$ 702,181
Scheduled	$ 20,566	$ 15,209	$ 21,546	$ 21,325	$ —	$ 15,929	$ 311,739	$ 406,314
Unscheduled	47,156	10,767	111,137	34,477	4,427	—	2,240	210,204
December 31, 2016	$ 67,722	$ 25,976	$132,683	$ 55,802	$ 4,427	$ 15,929	$ 313,979	$ 616,518
Scheduled	$ 47,221	$ 7,954	$ 39,192	$ 22,626	$ 26,522	$ 58,177	$ 559,895	$ 761,587
Unscheduled	85,583	17,108	67,094	36,099	2,108	—	5,000	212,992
September 30, 2016	$ 132,804	$ 25,062	$106,286	$ 58,725	$ 28,630	$ 58,177	$ 564,895	$ 974,579
Scheduled	$ 10,769	$ 9,876	$ 34,610	$ 34,434	$ 82	$ 7,424	$ 66,699	$ 163,894
Unscheduled	64,184	8,947	54,119	68,535	—	—	—	195,785
June 30, 2016	$ 74,953	$ 18,823	$ 88,729	$ 102,969	$ 82	$ 7,424	$ 66,699	$ 359,679
Scheduled	$ 42,555	$ 17,866	$ 42,619	$ 42,969	$ 25,966	$ 4,140	$ 589,847	$ 765,962
Unscheduled	91,510	10,883	72,642	44,694	—	—	—	219,729
March 31, 2016	$ 134,065	$ 28,749	$115,261	$ 87,663	$ 25,966	$ 4,140	$ 589,847	$ 985,691
Scheduled	$ 6,689	$ 16,884	$ 26,265	$ 18,981	$ 11,234	$ 4,165	$ 15,154	$ 99,372
Unscheduled	59,280	22,534	78,250	33,809	—	—	—	193,873
December 31, 2015	$ 65,969	$ 39,418	$104,515	$ 52,790	$ 11,234	$ 4,165	$ 15,154	$ 293,245
Scheduled	$ 37,524	$ 11,178	$ 45,943	$ 19,785	$ 25,662	$ 4,033	$ 609,524	$ 753,649
Unscheduled	70,242	11,164	61,075	35,394	—	—	—	177,875
September 30, 2015	$ 107,766	$ 22,342	$107,018	$ 55,179	$ 25,662	$ 4,033	$ 609,524	$ 931,524
Scheduled	$ 8,687	$ 11,126	$ 34,064	$ 31,064	$ 19	$ —	$ 9,245	$ 94,205
Unscheduled	48,659	11,299	47,714	45,357	13,910	—	—	166,939
June 30, 2015	$ 57,346	$ 22,425	$ 81,778	$ 76,421	$ 13,929	$ —	$ 9,245	$ 261,144
For the year ended:								
Scheduled	$ 121,111	$ 50,905	$137,967	$ 121,354	$ 52,570	$ 85,670	$ 1,528,180	$ 2,097,757
Unscheduled	288,433	47,705	304,992	183,805	6,535	—	7,240	838,710
December 31, 2016	$ 409,544	$ 98,610	$442,959	$ 305,159	$ 59,105	$ 85,670	$ 1,535,420	$ 2,936,467
Scheduled	$ 92,703	$ 60,351	$160,019	$ 103,218	$ 62,720	$ 8,198	$ 715,845	$ 1,203,054
Unscheduled	237,912	61,684	255,369	153,474	14,300	—	—	722,739
December 31, 2015	$ 330,615	$ 122,035	$415,388	$ 256,692	$ 77,020	$ 8,198	$ 715,845	$ 1,925,793

Table 26

Lines of Business - Outstanding Business Volume

	Farm & Ranch			USDA Guarantees	Rural Utilities		Institutional Credit	
	Loans	Guaranteed Securities	LTSPCs	USDA Securities	Loans	LTSPCs	AgVantage	Total
	(in thousands)							
As of:								
June 30, 2017	$3,882,474	$ 367,419	$2,176,625	$ 2,237,013	$ 1,024,130	$ 859,779	$ 7,711,418	$ 18,258,858
March 31, 2017	3,643,386	387,272	2,209,809	2,149,697	999,130	869,664	7,585,583	17,844,541
December 31, 2016	3,514,454	415,441	2,209,409	2,094,375	999,512	878,598	7,287,686	17,399,475
September 30, 2016	3,338,484	441,417	2,224,827	2,020,834	993,139	874,527	7,354,511	17,247,739
June 30, 2016	3,188,598	466,479	2,175,456	1,960,358	1,001,769	932,704	7,391,172	17,116,536
March 31, 2016	3,022,458	485,302	2,206,029	1,929,582	991,851	518,724	7,061,626	16,215,572
December 31, 2015	2,957,975	514,051	2,253,273	1,918,277	1,008,126	522,864	6,724,254	15,898,820
September 30, 2015	2,778,692	553,469	2,171,869	1,898,625	982,078	518,229	6,725,017	15,627,979
June 30, 2015	2,710,493	575,811	2,199,266	1,862,430	954,188	—	6,827,939	15,130,127

Table 27

On-Balance Sheet Outstanding Business Volume

	Fixed Rate	5- to 10-Year ARMs & Resets	1-Month to 3-Year ARMs	Total Held in Portfolio
	(in thousands)			
As of:				
June 30, 2017	$ 6,722,463	$ 2,406,120	$ 5,226,982	$ 14,355,565
March 31, 2017	5,373,283	2,330,819	5,255,146	12,959,248
December 31, 2016	5,346,011	2,274,535	4,888,291	12,508,837
September 30, 2016	5,278,332	2,212,946	4,869,765	12,361,043
June 30, 2016	5,201,386	2,157,342	4,867,336	12,226,064
March 31, 2016	4,942,566	2,296,767	4,468,045	11,707,378
December 31, 2015	4,923,163	2,271,960	4,118,366	11,313,489
September 30, 2015	4,889,894	2,147,916	4,049,361	11,087,171
June 30, 2015	5,136,559	2,118,999	4,102,075	11,357,633

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

Table 28

	Net Effective Spread by Line of Business											
	Farm & Ranch		USDA Guarantees		Rural Utilities		Institutional Credit		Corporate		Net Effective Spread	
	Dollars	Yield	Dollars	Yield	Dollars	Yield	Dollars	Yield	Dollars	Yield	Dollars	Yield
	(dollars in thousands)											
For the quarter ended:												
June 30, 2017[1]	$ 11,331	1.80%	$ 4,681	0.90%	$ 2,736	1.09%	$ 14,395	0.81%	$ 2,467	0.35%	$ 35,610	0.92%
March 31, 2017	10,684	1.80%	4,703	0.91%	2,639	1.06%	12,581	0.82%	2,259	0.32%	32,866	0.91%
December 31, 2016	10,349	1.78%	5,334	1.08%	2,623	1.05%	11,627	0.78%	1,995	0.26%	31,928	0.89%
September 30, 2016	10,703	1.90%	5,189	1.07%	2,643	1.05%	11,427	0.75%	2,237	0.24%	32,199	0.86%
June 30, 2016[1]	9,875	1.78%	4,588	0.96%	2,562	1.03%	11,407	0.77%	2,594	0.29%	31,026	0.84%
March 31, 2016	9,461	1.71%	4,308	0.91%	2,538	1.02%	11,090	0.80%	2,552	0.26%	29,949	0.82%
December 31, 2015	9,381	1.72%	4,518	0.96%	2,845	1.14%	10,899	0.80%	2,306	0.26%	29,949	0.85%
September 30, 2015	9,628	1.80%	4,630	0.99%	2,907	1.18%	11,271	0.81%	1,951	0.25%	30,387	0.88%
June 30, 2015	9,681	1.82%	4,466	0.98%	2,838	1.18%	10,860	0.78%	1,942	0.25%	29,787	0.88%

(1) Net effective spread is a non-GAAP measure. See Note 9 to the consolidated financial statements for a reconciliation of GAAP net interest income by line of business to net effective spread by line of business for the three months ended June 30, 2017 and 2016.

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

Table 29

Core Earnings by Quarter Ended	June 2017	March 2017	December 2016	September 2016	June 2016	March 2016	December 2015	September 2015	June 2015
					(in thousands)				
Revenues:									
Net effective spread	$ 35,610	$ 32,866	$ 31,928	$ 32,199	$ 31,026	$ 29,949	$ 29,949	$ 30,387	$ 29,787
Guarantee and commitment fees	4,942	5,317	5,158	4,533	4,810	4,669	4,730	4,328	4,085
Other	(197)	1,061	1,189	(32)	(125)	(517)	(284)	(93)	(24)
Total revenues	40,355	39,244	38,275	36,700	35,711	34,101	34,395	34,622	33,848
Credit related (income)/expense:									
Provision for/(release of) losses	466	444	512	(31)	458	63	(49)	(303)	1,256
REO operating expenses	23	—	—	—	—	39	44	48	—
(Gains)/losses on sale of REO	(757)	5	—	(15)	—	—	—	—	—
Total credit related (income)/ expense	(268)	449	512	(46)	458	102	(5)	(255)	1,256
Operating expenses:									
Compensation and employee benefits	6,682	6,317	5,949	5,438	5,611	5,774	5,385	5,236	5,733
General and administrative	3,921	3,800	4,352	3,474	3,757	3,526	3,238	3,676	3,374
Regulatory fees	625	625	625	613	612	613	613	600	600
Total operating expenses	11,228	10,742	10,926	9,525	9,980	9,913	9,236	9,512	9,707
Net earnings	29,395	28,053	26,837	27,221	25,273	24,086	25,164	25,365	22,885
Income tax expense[1]	10,297	9,166	9,581	9,497	8,956	8,444	8,855	8,924	8,091
Net (loss)/income attributable to non-controlling interest	(150)	(15)	28	(18)	(16)	(28)	(60)	(36)	(119)
Preferred stock dividends	3,296	3,295	3,296	3,295	3,296	3,295	3,296	3,295	3,296
Core earnings	$ 15,952	$ 15,607	$ 13,932	$ 14,447	$ 13,037	$ 12,375	$ 13,073	$ 13,182	$ 11,617
Reconciling items:									
Gains/(losses) on financial derivatives and hedging activities due to fair value changes	2,221	4,805	17,233	1,460	(2,076)	(2,989)	2,743	(6,906)	15,982
Unrealized (losses)/gains on trading assets	(2)	(82)	(474)	1,182	394	358	696	(8)	170
Amortization of premiums/discounts and deferred gains on assets consolidated at fair value	(117)	(127)	(40)	(157)	(371)	(281)	(263)	(117)	(125)
Net effects of settlements on agency forward contracts	261	32	1,024	464	466	(255)	(162)	(390)	197
Income tax effect related to reconciling items	(827)	(1,620)	(6,210)	(1,032)	556	1,109	(1,055)	2,598	(5,679)
Net income attributable to common stockholders	$ 17,488	$ 18,615	$ 25,465	$ 16,364	$ 12,006	$ 10,317	$ 15,032	$ 8,359	$ 22,162

(1) First quarter 2017 includes $0.7 million of tax benefits upon the vesting of restricted stock and the exercise of SARs associated with new accounting guidance for stock-based awards that became effective in first quarter 2017.

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 regarding 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, as amended (the “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 regarding required disclosure. Management, including Farmer Mac's Chief Executive Officer and Chief Financial Officer, has evaluated the effectiveness of the design and operation of Farmer Mac's disclosure controls and procedures (as defined under Rules 13a-15(e) and 15d-15(e) of the Exchange Act) as of June 30, 2017.

Farmer Mac carried out the evaluation of the effectiveness of its disclosure controls and procedures, required by paragraph (b) of Exchange Act Rules 13a-15 and 15d-15, under the supervision and with the participation of management, including the Chief Executive Officer and Chief Financial Officer. Based upon this evaluation, the Chief Executive Officer and Chief Financial Officer concluded that Farmer Mac's disclosure controls and procedures were effective as of June 30, 2017.

Changes in Internal Control Over Financial Reporting. There were no changes in Farmer Mac's internal control over financial reporting during the three months ended June 30, 2017 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

There were no material changes from the risk factors previously disclosed in Farmer Mac's Annual Report on Form 10-K for the year ended December 31, 2016 filed with the SEC on March 9, 2017.

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

(a) Farmer Mac is a federally chartered instrumentality of the United States and its debt and equity securities are exempt from registration pursuant to Section 3(a)(2) of the Securities Act of 1933.

During second quarter 2017, 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 301 shares of its Class C Non-Voting Common Stock on April 6, 2017 to the three directors who elected to receive stock in lieu of their cash retainers. Farmer Mac calculated the number of shares issued to the directors based on a price of $57.57 per share, which was the closing price of the Class C Non-Voting Common Stock on March 31, 2017, as reported by the New York Stock Exchange.

On April 3, 2017, Farmer Mac granted an aggregate of 12,950 shares of restricted Class C non-voting common stock under its 2008 Omnibus Incentive Plan at a grant price of $57.21 per share to twenty-three employees as incentive compensation. On May 2, 2017, Farmer Mac also granted 250 shares of restricted Class C non-voting common stock under its 2008 Omnibus Incentive Plan at a grant price of $57.11 per share to one employee. All of the shares of restricted stock granted to each employee will "cliff" vest on April 15, 2020 if the employee remains employed by Farmer Mac on that date.

(b) Not applicable.

(c) None.

Item 3. Defaults Upon Senior Securities

(a) None.

(b) None.

Item 4. Mine Safety Disclosures

Not applicable.

Item 5. Other Information

(a) None.

(b) None

Item 6. Exhibits and Financial Statement Schedules

(a) (1) Financial Statements.

Refer to Part I Item 1 above.

(2) Financial Statement Schedules.

All schedules are omitted since they are not applicable, not required, or the information required to be set forth therein is included in the consolidated financial statements or in notes thereto.

*	3.1	—	Title VIII of the Farm Credit Act of 1971, as most recently amended by the Food, Conservation and Energy Act of 2008 (Previously filed as Exhibit to Form 10-Q filed August 12, 2008).
*	3.2	—	Amended and Restated By-Laws of the Registrant (Previously filed as Exhibit X.X to Form 8-K filed August 9, 2017).
*	4.1	—	Specimen Certificate for Farmer Mac Class A Voting Common Stock (Previously filed as Exhibit 4.1 to Form 10-Q filed May 15, 2003).
*	4.2	—	Specimen Certificate for Farmer Mac Class B Voting Common Stock (Previously filed as Exhibit 4.2 to Form 10-Q filed May 15, 2003).
*	4.3	—	Specimen Certificate for Farmer Mac Class C Non-Voting Common Stock (Previously filed as Exhibit 4.3 to Form 10-Q filed May 15, 2003).
*	4.4	—	Specimen Certificate for 5.875% Non-Cumulative Preferred Stock, Series A (Previously filed as Exhibit 4.4.1 to Form 10-Q filed May 9, 2013).
*	4.4.1	—	Certificate of Designation of Terms and Conditions of 5.875% Non-Cumulative Preferred Stock, Series A (Previously filed as Exhibit 4.1 to Form 8-A filed January 17, 2013).
*	4.5	—	Specimen Certificate for 6.875% Non-Cumulative Preferred Stock, Series B (Previously filed as Exhibit 4.5 to Form 10-Q filed May 12, 2014).
*	4.5.1	—	Certificate of Designation of Terms and Conditions of 6.875% Non-Cumulative Preferred Stock, Series B (Previously filed as Exhibit 4.1 to Form 8-A filed March 25, 2014).
*	4.6	—	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).
*	4.6.1	—	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).
**	31.1	—	Certification of Registrant's principal executive officer relating to the Registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2017, pursuant to Rule 13a-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
**	31.2	—	Certification of Registrant's principal financial officer relating to the Registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2017, pursuant to Rule 13a-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
**	32	—	Certification of Registrant's principal executive officer and principal financial officer relating to the Registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2017, pursuant to 18 U.S.C. § 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.

* Incorporated by reference to the indicated prior filing.

** Filed with this report.

† 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/ Timothy L. Buzby	August 9, 2017
By: Timothy L. Buzby President and Chief Executive Officer (Principal Executive Officer)	Date
/s/ R. Dale Lynch	August 9, 2017
By: R. Dale Lynch Executive Vice President – Chief Financial Officer and Treasurer (Principal Financial Officer)	Date