As filed with the Securities and Exchange Commission on February 25, 2020

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549
Form 10-K

(Mark One)

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

For the fiscal year ended December 31, 2019

or

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

For the transition period from _____ to _____.

Commission File Number 001-14951

FARMER MAC

FEDERAL AGRICULTURAL MORTGAGE CORPORATION

(Exact name of registrant as specified in its charter)

Federally chartered instrumentality of the United States	52-1578738
(State or other jurisdiction of incorporation or organization)	(I.R.S. employer identification number)
1999 K Street, N.W., 4th Floor, Washington, DC	20006
(Address of principal executive offices)	(Zip code)

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

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

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

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

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

Yes ☐ No ☒

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

Yes ☐ No ☒

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

Yes ☒ No ☐

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

Yes ☒ No ☐

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

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

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

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

Yes ☐ No ☒

The aggregate market value of the Class A voting common stock and Class C non-voting common stock held by non-affiliates of the registrant was $639,482,137 as of June 30, 2019 based upon the closing prices for the respective classes on June 30, 2019 reported by the New York Stock Exchange. For purposes of this information, the outstanding shares of Class A voting common stock and Class C non-voting common stock held by directors, executive officers, and significant stockholders of the registrant, as applicable, as of June 30, 2019 were deemed to be held by affiliates. The aggregate market value of the Class B voting common stock is not ascertainable due to the absence of publicly available quotations or prices for the Class B voting common stock as a result of the limited market for, and infrequency of trades in, Class B voting common stock and the fact that any such trades are privately negotiated transactions.

As of February 3, 2020, the registrant had outstanding 1,030,780 shares of Class A voting common stock, 500,301 shares of Class B voting common stock, and 9,180,969 shares of Class C non-voting common stock.

DOCUMENTS INCORPORATED BY REFERENCE

The definitive proxy statement relating to the registrant's 2020 Annual Meeting of Stockholders (portions of which are incorporated by reference into Part III of this Annual Report on Form 10-K)

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FORWARD-LOOKING STATEMENTS

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

Some statements made in this report, such as in the "Management's Discussion & Analysis of Financial Condition and Results of Operations" section, are "forward-looking statements" under the Private Securities Litigation Reform Act of 1995 about management's current expectations for Farmer Mac's future financial results, business prospects, and business developments. Forward-looking statements include, without limitation, any statement that may predict, forecast, indicate, or imply future results, performance, or achievements. These statements typically include terms such as "anticipates," "believes," "expects," "intends," "plans," "potential," "may," "could," "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 assumptions, estimates, and the evaluation of risks and uncertainties. Various factors or events, both known and unknown, could cause Farmer Mac's actual results to differ materially from the expectations as expressed or implied by the forward-looking statements, including the factors discussed under "Risk Factors" in Part I, Item 1A of this Annual Report on Form 10-K for the fiscal year ended December 31, 2019, and uncertainties about:

- the availability to Farmer Mac of debt and equity financing and, if available, the reasonableness of rates and terms;
- legislative or regulatory developments that could affect Farmer Mac, its sources of business, or the agricultural or rural utilities industries;
- fluctuations in the fair value of assets held by Farmer Mac and its subsidiaries;
- the level of lender interest in Farmer Mac's products and the secondary market provided by Farmer Mac;
- the general rate of growth in agricultural mortgage and rural utilities indebtedness;
- the effect of economic conditions and geopolitics on agricultural mortgage or rural utilities lending, borrower repayment capacity, or collateral values, including fluctuations in interest rates, changes in U.S. trade policies, fluctuations in export demand for U.S. agricultural products, and volatility in commodity prices;
- the degree to which Farmer Mac is exposed to interest rate risk resulting from fluctuations in Farmer Mac's borrowing costs relative to market indexes;
- developments in the financial markets, including possible investor, analyst, and rating agency reactions to events involving government-sponsored enterprises, including Farmer Mac;
- the effect of any changes in Farmer Mac's executive leadership; and
- other factors that could have a negative effect on agricultural mortgage lending or borrower repayment capacity, including the effects of weather and fluctuations in agricultural real estate values.

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

PART I

Item 1. Business

GENERAL

Farmer Mac is a stockholder-owned, federally chartered corporation that combines private capital and public sponsorship to serve a public purpose. Congress has charged Farmer Mac with the mission of providing a secondary market for a variety of loans made to borrowers in rural America. A secondary market is an economic arrangement in which the owners of financial assets, such as the originators of loans, may sell all or part of those assets or pay a fee to offset some or all of the inherent risks of holding the assets. Farmer Mac's secondary market activities include:

- purchasing eligible loans (including participations in eligible loans) directly from lenders;
- purchasing general obligation securities that are issued by lenders and guaranteed by Farmer Mac and that are secured by eligible loans, which Farmer Mac refers to as "AgVantage," a registered trademark of Farmer Mac;
- issuing securities guaranteed by Farmer Mac that represent interests in, or obligations secured by, pools of eligible loans (together with AgVantage, these securities are referred to as "Farmer Mac Guaranteed Securities"); and
- providing long-term standby purchase commitments ("LTSPCs") for eligible loans.

Farmer Mac Guaranteed Securities may be retained by the seller of the underlying loans, retained by Farmer Mac, or sold to third-party investors.

Farmer Mac was established under federal legislation first enacted in 1988 and amended most recently in 2018 – Title VIII of the Farm Credit Act of 1971 (12 U.S.C. §§ 2279aa et seq.), which is referred to as Farmer Mac's charter. Farmer Mac is a government-sponsored enterprise ("GSE") by virtue of the status conferred by its charter. The charter provides that Farmer Mac has the power to establish, acquire, and maintain affiliates under applicable state law to carry out any activities that Farmer Mac otherwise would perform directly. Farmer Mac established its two existing subsidiaries – Farmer Mac II LLC and Farmer Mac Mortgage Securities Corporation – under that power.

Farmer Mac is an institution of the Farm Credit System ("FCS"), which is composed of the banks, associations, and related entities, including Farmer Mac and its subsidiaries, regulated by the Farm Credit Administration ("FCA"), an independent agency in the executive branch of the United States government. Although Farmer Mac is an institution of the FCS, it is not liable for any debt or obligation of any other institution of the FCS. None of FCA, the FCS, or any other individual institution of the FCS is liable for any debt or obligation of Farmer Mac or its subsidiaries. The debts and obligations of Farmer Mac and its subsidiaries are not guaranteed by the full faith and credit of the United States.

Farmer Mac's two main sources of revenue are:

- interest income earned on assets held on balance sheet, net of related funding costs and interest payments and receipts on financial derivatives; and
- guarantee and commitment fees received for outstanding guaranteed securities and LTSPCs.

Farmer Mac funds its purchases of eligible loans and securities primarily by issuing debt obligations of various maturities in the public capital markets. Farmer Mac also uses the proceeds of debt issuance to fund liquidity investments that must comply with policies adopted by Farmer Mac's board of directors and with FCA regulations, which establish limitations on asset class, dollar amount, issuer concentration, and credit quality. Those regulations can be found at 12 C.F.R. §§ 652.1-652.45 ("Liquidity and Investment Regulations"). Farmer Mac's regular debt issuance supports its access to the capital markets, and Farmer Mac's liquidity investments provide an alternative source of funds should market conditions become unfavorable. As of December 31, 2019, Farmer Mac had $2.2 billion of discount notes and $16.9 billion of medium-term notes outstanding. For more information about Farmer Mac's eligible loans, securities, and liquidity investments, as well as its financial performance and sources of capital and liquidity, see "Management's Discussion and Analysis of Financial Condition and Results of Operations." For more information about Farmer Mac's debt issuance, see "Business—Financing—Debt Issuance."

Secondary Market

Farmer Mac's activities are intended to provide lenders with an efficient and competitive secondary market that enhances these lenders' ability to offer competitively-priced financing solutions to borrowers. This secondary market is designed to increase the availability of credit at competitive interest rates to America's rural communities and agricultural sectors, as well as to provide borrowers with the benefits of capital markets pricing and product innovation. The secondary market provided by Farmer Mac functions as a bridge between the national capital markets and the agricultural and rural credit markets by attracting new capital sources for financing rural America and agricultural borrowers.

Farmer Mac's purchases of loans and securities and its sale of guaranteed securities to investors increase lenders' liquidity and lending capacity and provide a stable source of funding for lenders that extend credit to the agricultural and rural credit markets. Farmer Mac's issuance of LTSPCs for loans held by lenders and its issuance of guaranteed securities to lenders in exchange for the related securitized loans could result in lower regulatory capital requirements and reduced borrower or commodity concentration exposure for many lenders, thereby expanding their lending capacity. Through providing efficient and competitive financing solutions, Farmer Mac has the potential to increase lending flexibility for rural credit markets, which may result in lower interest rates paid on loans made by lenders to rural and agricultural borrowers.

The current economic and regulatory environment presents Farmer Mac with opportunities to market a mix of products to lenders in need of capital, liquidity, portfolio diversification, and access to a wide variety of loan products, including those with long-term fixed rates. As part of its outreach strategy, Farmer Mac engages with current and prospective lenders to identify their specific needs, with an emphasis on individual lender meetings, lender road shows, and face-to-face contact at state and national banking conferences. Farmer Mac also provides wholesale funding for institutional investors in agricultural assets that qualify as eligible collateral under Farmer Mac's charter. For these potential issuers, Farmer Mac directs its outreach efforts through its business relationships within the agricultural community and through executive outreach to institutions whose profile presents opportunity to benefit from wholesale funding. Farmer Mac seeks to maximize the use of technology to support these business development efforts.

FARMER MAC'S LINES OF BUSINESS

Farmer Mac conducts its secondary market activities through four lines of business – Farm & Ranch, USDA Guarantees, Rural Utilities, and Institutional Credit. The loans (and participation interests in those loans) eligible for Farmer Mac's secondary market include:

- mortgage loans secured by first liens on agricultural real estate, including part-time farms and rural housing (comprising the assets eligible for the Farm & Ranch line of business);
- agricultural and rural development loans guaranteed by the United States Department of Agriculture ("USDA") (comprising the assets eligible for the USDA Guarantees line of business); and
- loans by lenders organized as cooperatives to finance electrification and telecommunications systems in rural areas (comprising the assets eligible for the Rural Utilities line of business).

Farmer Mac also guarantees and purchases general obligations of lenders that are secured by pools of these three types of eligible loans (comprising the assets eligible for the Institutional Credit line of business). As of December 31, 2019, the total outstanding business volume in all of Farmer Mac's lines of business was $21.1 billion.

The following table presents the outstanding balances under Farmer Mac's four lines of business (Farm & Ranch, USDA Guarantees, Rural Utilities, and Institutional Credit) as of December 31, 2019 and December 31, 2018:

Lines of Business - Outstanding Business Volume

	As of December 31, 2019	As of December 31, 2018
	(in thousands)	
On-balance sheet:		
Farm & Ranch:		
Loans	$ 3,675,640	$ 3,071,222
Loans held in trusts:		
Beneficial interests owned by third party investors	1,600,917	1,517,101
USDA Guarantees:		
USDA Securities	2,199,072	2,120,553
Farmer Mac Guaranteed USDA Securities	31,887	27,383
Rural Utilities:		
Loans	1,671,293	938,843
Institutional Credit:		
AgVantage securities	8,432,679	8,072,919
Total on-balance sheet	$ 17,611,488	$ 15,748,021
Off-balance sheet:		
Farm & Ranch:		
LTSPCs	$ 2,393,071	$ 2,509,787
Guaranteed Securities	107,322	135,862
USDA Guarantees:		
Farmer Mac Guaranteed USDA Securities	389,216	367,684
Rural Utilities:		
LTSPCs[(1)]	609,278	653,272
Institutional Credit:		
AgVantage securities	7,567	9,898
Revolving floating rate AgVantage facility[(2)]	—	300,000
Total off-balance sheet	$ 3,506,454	$ 3,976,503
Total	$ 21,117,942	$ 19,724,524

(1) Includes $20.0 million and $17.0 million related to one-year loan purchase commitments on which Farmer Mac receives a nominal unused commitment fee as of December 31, 2019 and 2018, respectively.

(2) During 2019, the facility was drawn on two separate occurrences for $100.0 million and $150.0 million and later repaid. During 2018, $100.0 million of this facility was drawn and later repaid. The facility was terminated during fourth quarter 2019.

Farm & Ranch

Under the Farm & Ranch line of business, Farmer Mac provides a secondary market for mortgage loans secured by first liens on agricultural real estate (including part-time farms and rural housing) by (1) purchasing and retaining eligible mortgage loans, (2) securitizing eligible mortgage loans and guaranteeing the timely payment of principal and interest on the resulting securities that represent interests in, or obligations secured by, pools of those loans, or (3) issuing LTSPCs for designated eligible mortgage loans, subject to the applicable LTSPC agreement. Farmer Mac applies credit underwriting standards and methodologies to help assess exposures to Farm & Ranch loans, which may include collateral valuation, financial metrics, and other appropriate borrower financial and credit information. Farmer Mac is compensated for these activities through net interest income on loans and securities held on balance sheet, guarantee fees earned on securities issued to third parties, and commitment fees earned on loans in LTSPCs.

Loan Eligibility

To be eligible for the Farm & Ranch line of business, a loan must:

- be secured by a fee simple mortgage or a long-term leasehold mortgage with status as a first lien on agricultural real estate (including part-time farms and rural housing) located within the United States;
- be an obligation of a citizen or national of the United States, an alien lawfully admitted for permanent residence in the United States, or a private corporation or partnership that is majority-owned by U.S. citizens, nationals, or legal resident aliens;
- be an obligation of a person, corporation, or partnership having training or farming experience that is sufficient to ensure a reasonable likelihood that the loan will be repaid according to its terms; and
- meet the credit underwriting, collateral valuation, documentation, and other specified standards for the Farm & Ranch line of business. See "—Underwriting and Collateral Standards" and "—Lenders" for a description of these standards.

Eligible agricultural real estate consists of one or more parcels of land, which may be improved by permanently affixed buildings or other structures, that:

- is used for the production of one or more agricultural commodities or products; and
- either consists of a minimum of five acres or generates minimum annual receipts of $5,000.

Pending a legislative change scheduled to become effective in June 2020, Farmer Mac's charter authorizes a maximum loan size (adjusted annually for inflation) for an eligible Farm & Ranch loan secured by more than 1,000 acres of agricultural real estate. That maximum loan size was $13.2 million as of December 31, 2019. See "Management's Discussion and Analysis of Financial Condition and Results of Operations—Regulatory Matters" for more information about the pending legislative change that will apply the charter's maximum loan size to loans secured by more than 2,000 acres rather than loans secured by more than 1,000 acres.

The charter does not prescribe a maximum loan size or a total borrower exposure for an eligible Farm & Ranch loan secured by 1,000 acres or less of agricultural real estate, but Farmer Mac does limit the size of those loans. An internal policy approved by Farmer Mac's board of directors limits the cumulative direct credit exposure to any one borrower or group of related borrowers on these loans to 10% of Farmer Mac's Tier 1 capital ($81.5 million as of December 31, 2019). Direct credit exposure to borrowers occurs for loan purchases, LTSPCs, and Farmer Mac Guaranteed Securities that represent interests in, or obligations secured by, pools of eligible Farm & Ranch loans and are not AgVantage securities ("Farm & Ranch Guaranteed Securities").

<u>Guarantees and Commitments.</u> Farmer Mac offers two credit enhancement alternatives to direct loan purchases through the Farm & Ranch line of business that allow approved lenders the ability to retain the

cash flow benefits of their loans and increase their liquidity and lending capacity: (1) LTSPCs and (2) Farm & Ranch Guaranteed Securities. In Farm & Ranch Guaranteed Securities and LTSPC transactions, the lender effectively transfers the credit risk on their eligible loans because, through Farmer Mac's guarantee or commitment to purchase, Farmer Mac assumes the ultimate credit risk of borrower defaults on the underlying loans. Payments made on the underlying loans or participation interests and liquidation of the related collateral (in the event of default under the terms of those assets) are intended to protect Farmer Mac against losses.

An LTSPC permits the lender to retain loans in its portfolio until such time, if ever, as the lender elects to deliver some or all of the loans covered by the LTSPC to Farmer Mac for purchase. Loans subject to an LTSPC must meet Farmer Mac's standards for eligible loans at the commencement of the LTSPC when Farmer Mac assumes the credit risk on the loans. As consideration for its assumption of the credit risk on loans covered by an LTSPC, Farmer Mac receives commitment fees payable monthly in arrears. Some LTSPCs contain risk sharing arrangements for pools of loans that provide for the counterparty to absorb up to a specified amount (typically between one and five percent of the original principal balance of the loan pool) of any losses incurred on the loans in the pool. At a lender's request, Farmer Mac purchases loans subject to an LTSPC at:

- par if the loans become delinquent for either 90 days or 120 days (depending on the agreement) or are in material non-monetary default, with accrued and unpaid interest on the defaulted loans payable out of any future loan payments or liquidation proceeds; or
- fair value or in exchange for Farm & Ranch Guaranteed Securities (if the loans are not delinquent), in accordance with the applicable agreement.

In Farm & Ranch Guaranteed Securities transactions, Farmer Mac guarantees securities representing interests in eligible Farm & Ranch loans or participation interests in those loans held by a trust or other entity. Farmer Mac guarantees the timely payment of interest and principal on these securities, which are either retained by Farmer Mac or sold to third parties. For those securities sold to third parties, the eligible loans or participation interests are often acquired by Farmer Mac from lenders in exchange for the Farm & Ranch Guaranteed Securities backed by those assets. As consideration for its assumption of the credit risk on the assets underlying the Farm & Ranch Guaranteed Securities, Farmer Mac receives guarantee fees based on the outstanding principal balance of the related securities.

Farmer Mac is obligated under its guarantee on the securities to make timely payments to investors of principal (including balloon payments) and interest based on the scheduled payments on the underlying loans, regardless of whether Farmer Mac or the related trust has actually received those scheduled payments. Farmer Mac's guarantee fees typically are collected out of installment payments made on the underlying loans until those loans have been repaid, purchased out of the trust, or otherwise liquidated (generally as a result of default). The aggregate amount of guarantee fees received on Farm & Ranch Guaranteed Securities depends on the amount of those securities outstanding and on the applicable guarantee fee rate, which Farmer Mac's charter caps at 50 basis points (0.50%) per year. The amount of Farm & Ranch Guaranteed Securities outstanding is influenced by the repayment rates on the underlying loans and by the rate at which Farmer Mac issues new Farm & Ranch Guaranteed Securities. In general, when the level of interest rates declines significantly below the interest rates on loans underlying Farm & Ranch Guaranteed Securities, the rate of prepayments is likely to increase. Conversely, when interest rates rise above the interest rates on the loans underlying Farm & Ranch Guaranteed Securities, the rate of prepayments is likely to decrease. In addition to changes in interest rates, the timing of principal payments on Farm & Ranch Guaranteed Securities also is influenced by a variety of economic, demographic, and other considerations.

Underwriting and Collateral Standards

As required by Farmer Mac's charter, Farmer Mac has established underwriting, security appraisal, and repayment standards for eligible loans that consider the nature, risk profile, and other differences between different categories of eligible loans. The charter prescribes that the following minimum standards must be applied to agricultural real estate mortgage loans in the Farm & Ranch line of business:

- provide that no loan with a loan-to-value ratio ("LTV") more than 80% may be eligible;
- require each borrower to demonstrate sufficient cash flow to adequately service the loan;
- require sufficient documentation standards;
- protect the integrity of the appraisal process for any loan; and
- confirm that the borrower is or will be actively engaged in agricultural production.

In addition to these minimum standards, eligible loans in Farmer Mac's Farm & Ranch line of business are also typically required to meet more specific underwriting criteria established by Farmer Mac or demonstrate compensating strength in one or more other underwriting criteria. Farmer Mac relies on the combined expertise of experienced internal agricultural credit underwriters and loan servicers, along with external agricultural loan servicing and collateral valuation contractors, to perform the necessary underwriting, servicing, and collateral valuation functions on Farm & Ranch loans.

Lenders

Lenders that participate in the Farm & Ranch line of business meet criteria that Farmer Mac establishes for its loan-selling counterparties and which typically include the requirement to:

- own a requisite amount of Farmer Mac common stock according to a schedule prescribed for the size and type of institution;
- have, in the judgment of Farmer Mac, the ability and experience to make or purchase and sell loans eligible for Farmer Mac's Farm & Ranch line of business and service those loans in accordance with Farmer Mac's requirements either through the lender's own staff or through contractors and originators;
- maintain a minimum adjusted net worth; and
- enter into a Seller/Servicer Agreement, which requires compliance with the terms of Farmer Mac's Seller/Servicer Guide, including providing representations and warranties about the eligibility of the loans and accuracy of loan data provided to Farmer Mac.

Loan Servicing

Farmer Mac generally does not directly service the loans in the Farm & Ranch line of business, although in some cases Farmer Mac may assume direct servicing for defaulted loans. Farmer Mac contracts with other institutions to undertake most of the servicing responsibilities for its loans in accordance with Farmer Mac's specified servicing requirements or in accordance with the servicing standards established by the servicing institution if the institution's standards are acceptable to Farmer Mac. For these loans, the servicer may or may not be the same entity as the lender that sold the loans to Farmer Mac, however the originating lender often retains some servicing responsibility, particularly with direct borrower contact, which is referred to as "field servicing." Field servicers may enter into contracts with Farmer Mac's servicers that specify their field servicing responsibilities.

Loans under LTSPCs are serviced by the holders of those loans in accordance with those lenders' servicing procedures, which Farmer Mac reviews before entering into those transactions.

The substance of all servicing for loans in the Farm & Ranch line of business is performed in a manner consistent with Farmer Mac's servicing requirements, with some special servicing for loans purchased from LTSPCs to collateralize Farm & Ranch Guaranteed Securities, in order to accommodate the borrower rights regime unique to loans originated by FCS institutions.

USDA Guarantees

Farmer Mac's charter provides that:

- USDA-guaranteed portions of loans (which Farmer Mac refers to as "USDA Securities") guaranteed under the Consolidated Farm and Rural Development Act (7 U.S.C. § 1921 et seq.) are statutorily included in the definition of loans eligible for the secondary market programs provided by Farmer Mac;
- USDA Securities are exempted from the credit underwriting, collateral valuation, documentation, and other standards that other loans must meet to be eligible for the secondary market provided by Farmer Mac, and are exempted from any diversification and internal credit enhancement that may be required of pools of other eligible loans; and
- Farmer Mac is authorized to pool, issue, and guarantee timely interest and principal on securities backed by USDA Securities ("Farmer Mac Guaranteed USDA Securities").

Since January 2010, nearly all purchases of USDA Securities have been made by Farmer Mac II LLC, a subsidiary of Farmer Mac that operates substantially all of the business related to the USDA Guarantees line of business, although Farmer Mac II LLC does not guarantee any USDA Securities it holds or any Farmer Mac Guaranteed USDA Securities issued by Farmer Mac or Farmer Mac II LLC.

Lenders

Any lender authorized by the USDA to obtain a USDA guarantee on a loan may participate in Farmer Mac's USDA Guarantees line of business.

Loan Servicing

The lender on each USDA guaranteed loan is required by regulation to retain the unguaranteed portion of the guaranteed loan, to service the entire underlying guaranteed loan, including the USDA-guaranteed portion, and to remain mortgagee and/or secured party of record. The USDA-guaranteed portion and the unguaranteed portion of the loan are to be secured by the same collateral with equal lien priority. The USDA-guaranteed portion of a loan cannot be paid later than, or in any way be subordinated to, the related unguaranteed portion.

Rural Utilities

Farmer Mac's charter authorizes the purchase of, and guarantee of securities backed by, loans (including participation interests in loans) for electric (including renewable electric energy) or telephone facilities by lenders organized as cooperatives to borrowers that have received or are eligible to receive loans under the Rural Electrification Act of 1936 ("REA"). The REA is administered by the Rural Utilities Service ("RUS"), an agency of the USDA. Farmer Mac's Rural Utilities line of business encompasses purchases of eligible Rural Utilities loans and guarantees of securities backed by those loans, as well as LTSPCs for pools of eligible Rural Utilities loans. To be eligible, Rural Utilities loans must meet Farmer Mac's credit underwriting and other specified standards. There currently are no guaranteed securities issued under the Rural Utilities line of business, although the Institutional Credit line of business includes some AgVantage securities that are secured by Rural Utilities loans. The vast majority of Farmer Mac's business to date under the Rural Utilities line of business has involved loans made to electric facilities (primarily electric distribution cooperatives and electric generation and transmission cooperatives). Farmer Mac purchased one solar renewable energy project finance loan during 2019, and it currently has no telecommunications loans.

Loan Eligibility

To be eligible for Farmer Mac's Rural Utilities line of business, a Rural Utilities loan (or a participation interest in a loan) must:

- be for an electric or telephone facility by a lender organized as a cooperative to a borrower that has received or is eligible to receive a loan under the REA;
- be performing and not more than 30 days delinquent; and
- meet Farmer Mac's underwriting standards described in more detail below.

Underwriting and Collateral Standards

Farmer Mac's charter does not specify minimum underwriting criteria for eligible Rural Utilities loans. To manage Farmer Mac's credit risk, to mitigate the risk of loss from borrower defaults, and to provide guidance for the management, administration, and conduct of underwriting to participants in the Rural Utilities line of business, Farmer Mac has adopted credit underwriting standards that vary by loan product and by loan type. These standards are based on industry practices for similar Rural Utilities loans and are designed to assess the creditworthiness of the borrower, as well as the risk to Farmer Mac. Farmer Mac reviews lenders' credit submissions and analyzes borrowers' audited financial statements and financial and operating reports to confirm that loans meet Farmer Mac's underwriting standards for Rural Utilities loans.

It is customary in loans to electric distribution cooperatives and electric generation and transmission cooperatives for the lender or lender group to take a security interest in substantially all of the borrower's assets. When Farmer Mac purchases a Rural Utilities loan with a pledge of all assets and a lender also has a lien on all assets, Farmer Mac verifies that a lien accommodation results in either a shared first lien or a first lien in favor of Farmer Mac. When debt indentures are used, Farmer Mac determines if available collateral is adequate to support the loan program and Farmer Mac's investment. Loans to renewable electric energy borrowers are typically secured by the borrower's project equipment, contracts, and land or leasehold interest, but Farmer Mac's enforcement rights may be subject to tax equity interests in the borrower's renewable energy project. Farmer Mac also purchases unsecured Rural Utilities loans (primarily electric generation and transmission loans) that meet Farmer Mac's underwriting standards for unsecured Rural Utilities loans.

Lenders and Loan Servicing

Farmer Mac's charter requires eligible Rural Utilities loans to be originated by a lender organized as a cooperative. Farmer Mac does not directly service the Rural Utilities loans held in its portfolio, because they are serviced by a designee of Farmer Mac.

Institutional Credit

Under the Institutional Credit line of business, Farmer Mac guarantees and purchases general obligations of lenders and other financial institutions (including financial funds) that are secured by pools of the types of loans eligible for purchase under Farmer Mac's Farm & Ranch, USDA Guarantees, or Rural Utilities lines of business (AgVantage). Typically, Farmer Mac retains these AgVantage securities in its portfolio. Farmer Mac's guarantee and purchase of AgVantage securities comprise the Institutional Credit line of business.

Farmer Mac has direct credit exposure to the general credit of the issuers of AgVantage securities and assumes the ultimate credit risk of an issuer default on the AgVantage securities. Before approving an institution as an issuer in an AgVantage transaction, Farmer Mac assesses the issuer's creditworthiness as well as the credit quality and performance of the issuer's loan portfolio. Farmer Mac continues to monitor the counterparty risk assessment on an ongoing basis after the AgVantage security is issued. In addition to being a general obligation of the issuer, all AgVantage securities must be secured by eligible loans or eligible securities guaranteed by Farmer Mac in an amount at least equal to the outstanding principal amount of the issuer's AgVantage securities. As a result, Farmer Mac has indirect credit exposure to the loans or guaranteed securities that are pledged to secure the AgVantage securities, which comprise collateral for Farmer Mac in the event of a default by the issuer.

Loans pledged under AgVantage securities are serviced by the issuers of the securities (or their affiliated servicing institutions) in accordance with these institutions' servicing procedures. Farmer Mac reviews these servicing procedures before purchasing AgVantage securities from the issuer. In AgVantage transactions, the issuer 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 replace the delinquent loan with another eligible loan that is current in payment to maintain the minimum required collateralization level.

For AgVantage securities secured by loans eligible for Farmer Mac's Farm & Ranch line of business, Farmer Mac currently requires the general obligation to be over-collateralized, either by more eligible loans or any of the following types of assets:

- cash;
- securities issued by the U.S. Treasury or guaranteed by an agency or instrumentality of the United States;
- other highly-rated securities; or
- other instruments approved by Farmer Mac.

The required collateralization level for the AgVantage securities secured by Farm & Ranch loans currently ranges from 103% to 125%. The required collateralization level is determined based on credit factors related to the issuer, is established when the AgVantage facility is entered into with the counterparty, and does not change during the life of the AgVantage securities issued under the facility unless mutually agreed by Farmer Mac and the counterparty.

For AgVantage securities that are secured by Farm & Ranch loans, Farmer Mac requires that the loans meet the minimum standards set forth in the charter for those types of loans with a maximum limit of $75.0 million in cumulative exposure to any one borrower or related borrowers from a single AgVantage issuer.

Farmer Mac has tailored a version of its AgVantage product to focus on institutional investors in agricultural assets that qualify as collateral for the types of loans eligible for the Farm & Ranch line of business. Farmer Mac refers to this product variation as the Farm Equity AgVantage product. This product has similar requirements for AgVantage securities secured by Farm & Ranch loans described above, but Farmer Mac also requires that Farm Equity AgVantage transactions maintain a higher collateralization level through lower loan-to-value ratio thresholds and contain specified financial covenants for the life of the related AgVantage security.

AgVantage securities secured by loans eligible for Farmer Mac's Rural Utilities line of business require:

- the counterparty issuing the general obligation to have a credit rating from an NRSRO that is at least investment grade, or be of comparable creditworthiness as determined through Farmer Mac's analysis; and
- the collateralization (consisting of current, performing loans) to be maintained at the contractually prescribed level, in an amount at least equal to the outstanding principal amount of the security.

Although Farmer Mac has only indirect credit exposure on the Rural Utilities loans pledged to secure AgVantage securities, the same underwriting standards that apply to loans made to electric cooperatives on which Farmer Mac assumes direct credit exposure also apply to loans made to electric cooperatives that secure the general obligation of the lender in AgVantage transactions. Farmer Mac's charter does not prescribe a maximum loan size or a total borrower exposure for an eligible Rural Utilities loan, but Farmer Mac's current limit for AgVantage transactions is $75.0 million for cumulative loan exposure to any one borrower or related borrowers (with the amount of any direct exposure to a borrower not counting towards the $75.0 million limit). Farmer Mac also permits up to 20% of Rural Utilities loans pledged to secure AgVantage securities to be unsecured or secured by less than all of the borrower's assets.

COMPETITION

Farmer Mac is the only Congressionally-chartered corporation established to provide a secondary market for agricultural mortgage loans, Rural Utilities loans, and USDA Securities. But Farmer Mac does face indirect competition from many sources. These sources include other financial institutions and other types of financial entities that purchase, retain, securitize, or provide financing for the types of assets eligible for Farmer Mac's secondary market activities, including commercial and investment banks, insurance companies, other FCS institutions, financial funds, and certain government programs. Farmer Mac also competes indirectly with originators of eligible loans who would prefer to retain the loans they originate rather than sell them into the secondary market. Farmer Mac is able to compete to acquire eligible loans due to the variety of products it offers and its ability to offer competitive funding structures and pricing to its customers. This enables Farmer Mac to provide flexible financing options and products designed to meet the varied needs of lending institutions related to capital requirements, liquidity, credit risk, and management of sector and geographic concentrations and borrower exposure limits. However, the relative competitiveness of Farmer Mac's loan rates is affected by the overall supply of capital available to the agricultural and rural utilities sectors, the ability of other lending institutions to compete with Farmer Mac by price averaging through offering multiple loan and fee based products, or by accepting a lower return on equity given market dynamics. Farmer Mac's ability to develop business with lending institutions is also affected by changes in the levels of available capital and liquidity of those institutions, the existence of alternative sources of funding and credit enhancement for those institutions, the rate of growth in the market for eligible loans, and demand for Farmer Mac's products.

Farmer Mac's competitive position is also affected by the willingness of originators to offer eligible loans for sale in the secondary market, as well as the types and variety of products offered by Farmer Mac's competitors to meet the needs of Farmer Mac's customer base. Farmer Mac's limits on borrower exposure and loan size, as well as the types of loans that are eligible for Farmer Mac's lines of business, also affect Farmer Mac's competitive position. Farmer Mac's ability to obtain competitive funding in the debt markets is essential to its ability to maintain its relative position with its customers. As a result, competition for debt investors with other debt-issuing institutions, such as the FCS, Federal Home Loan Banks, Fannie Mae, Freddie Mac, and highly-rated financial institutions, can affect the price and volume at which Farmer Mac issues debt and therefore its ability to offer savings to customers in the form of competitive products.

CAPITAL AND CORPORATE GOVERNANCE

Farmer Mac's charter prescribes the company's basic capital and corporate governance structure. The charter authorizes Farmer Mac to issue two classes of voting common stock, each of which elects one-third of Farmer Mac's 15-person board of directors. The charter also authorizes Farmer Mac to issue non-voting common stock. The classes of Farmer Mac's outstanding common stock and their relationship to Farmer Mac's board of directors are described below.

- Class A voting common stock. The charter restricts ownership of Farmer Mac's Class A voting common stock to banks, insurance companies, and other financial institutions or similar entities that are not institutions of the FCS. The charter also provides that five members of Farmer Mac's 15-member board of directors are elected by a plurality of the votes of the Class A stockholders each year. The charter limits the amount of Class A voting common stock that any one holder may own to no more than 33% of the outstanding shares of Class A voting common stock. Farmer Mac is not aware of any regulation applicable to non-FCS financial institutions that requires a minimum investment in Farmer Mac's Class A voting common stock or that prescribes a maximum investment amount lower than the 33% limit set forth in the charter. Farmer Mac's Class A voting common stock is listed on the New York Stock Exchange under the symbol AGM.A.

- Class B voting common stock. The charter restricts ownership of Farmer Mac's Class B voting common stock to FCS institutions and also provides that five members of Farmer Mac's 15-member board of directors are elected by a plurality of the votes of the Class B stockholders each year. The charter contains no restrictions on the maximum number or percentage of outstanding shares of Class B voting common stock that any one holder may own, and Farmer Mac is not aware of any regulation applicable to FCS institutions that requires a minimum investment in its Class B voting common stock or that prescribes a maximum amount. Farmer Mac's Class B voting common stock, which has a limited market and trades infrequently, is not listed or quoted on any exchange or other quotation system, and Farmer Mac is not aware of any publicly available quotations or prices for this class of common stock.

- Class C non-voting common stock. The charter does not impose any ownership restrictions on Farmer Mac's Class C non-voting common stock, and shares of this class are freely transferable. Holders of the Class C common stock do not vote on the election of directors or any other matter. Farmer Mac's Class C non-voting common stock is listed on the New York Stock Exchange under the symbol AGM.

- Presidential director appointments. The remaining five members of Farmer Mac's board of directors are individuals who meet the qualifications specified in the charter and are appointed by the President of the United States with the advice and consent of the United States Senate (one of whom is designated as the chair of the board of directors). These appointed directors serve at the pleasure of the President of the United States.

The dividend and liquidation rights of all three classes of Farmer Mac's common stock are the same. Dividends may be paid on Farmer Mac's common stock only when, as, and if declared by Farmer Mac's board of directors in its sole discretion, subject to compliance with applicable capital requirements and the payment of dividends on any outstanding preferred stock issued by Farmer Mac. Upon liquidation, dissolution, or winding up of the business of Farmer Mac, after payment and provision for payment of outstanding debt of Farmer Mac, the holders of shares of Farmer Mac's currently outstanding 5.875% Non-Cumulative Preferred Stock, Series A ("Series A Preferred Stock"), 6.000% Fixed-to-Floating Rate Non-Cumulative Preferred Stock, Series C ("Series C Preferred Stock"), 5.700% Non-Cumulative Preferred Stock, Series D ("Series D Preferred Stock"), and any other preferred stock then outstanding, would be paid at par value out of assets available for distribution, plus all declared and unpaid dividends, before the holders of shares of common stock received any payment. See also "Market for Registrant's Common Equity, Related Stockholder Matters, and Issuer Purchases of Equity Securities" for more information about Farmer Mac's common stock, and "Business—Financing—Equity Issuance" for more information about Farmer Mac's common stock and preferred stock.

Unlike some other GSEs such as other FCS institutions and the Federal Home Loan Banks, Farmer Mac is not structured as a cooperative owned exclusively by member institutions and established to provide services exclusively to its members. Rather, Farmer Mac, as a publicly-traded corporation, has a broader base of stockholders, including those who do not directly participate in the secondary market provided by Farmer Mac. Farmer Mac therefore seeks to fulfill its mission of serving the financing needs of rural America in a way that is consistent with providing a return on the investment of its stockholders.

Farmer Mac generally requires financial institutions to own a requisite amount of Farmer Mac common stock, based on the size and type of institution, to participate in the Farm & Ranch line of business. As a result of this requirement, coupled with the ability of holders of Class A and Class B voting common stock to elect two-thirds of Farmer Mac's board of directors, Farmer Mac regularly conducts business with "related parties," including institutions affiliated with members of Farmer Mac's board of directors and institutions that own large amounts of Farmer Mac's voting common stock. Farmer Mac has adopted a Code of Business Conduct and Ethics and related corporate policies that govern any conflicts of interest that may arise in these transactions. Farmer Mac also requires that any transactions with related parties be conducted in the ordinary course of business, with terms and conditions comparable to those available to any other counterparty not related to Farmer Mac. For more information about related party transactions, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Results of Operations—Related Party Transactions" and Note 3 to the consolidated financial statements.

Capital

Farmer Mac's charter establishes three capital standards for Farmer Mac – minimum capital, critical capital, and risk-based capital. Farmer Mac must comply with the higher of the minimum capital requirement and the risk-based capital requirement. Also, in accordance with the applicable FCA regulation on capital planning, Farmer Mac's board of directors oversees a policy that requires Farmer Mac to maintain a sufficient level of Tier 1 capital and restricts dividends and bonus payments if Farmer Mac's Tier 1 capital falls below specified thresholds. For a discussion of Farmer Mac's capital requirements and its actual capital levels, as well as FCA's role in the establishment and monitoring of those requirements and levels, see "Business—Government Regulation of Farmer Mac—Capital Standards," "Management's Discussion and Analysis of Financial Condition and Results of Operations—Balance Sheet Review—Equity," and "Management's Discussion and Analysis of Financial Condition and Results of Operations—Liquidity and Capital Resources—Capital Requirements."

Regulatory Oversight

Farmer Mac's charter assigns to FCA, acting through the separate Office of Secondary Market Oversight ("OSMO") within FCA, the responsibility for the examination of Farmer Mac and the general supervision of the safe and sound performance of the powers, functions, and duties vested in Farmer Mac by the charter. The charter also authorizes FCA, acting through OSMO, to apply its general enforcement powers to Farmer Mac. Farmer Mac's charter requires an annual examination of the financial transactions of Farmer Mac and authorizes FCA to assess Farmer Mac for the cost of FCA's regulatory activities, including the cost of any examination. Farmer Mac is also required to file quarterly reports of condition with OSMO. As a publicly-traded corporation, Farmer Mac also must comply with the periodic reporting requirements of the SEC. For a more detailed discussion of Farmer Mac's regulatory and governmental relationships, see "Business—Government Regulation of Farmer Mac."

EMPLOYEES AND PROPERTY

As of December 31, 2019, Farmer Mac employed 103 people, located primarily at its office at 1999 K Street, N.W., 4th Floor, Washington, D.C. 20006. Farmer Mac also maintains offices at: (1) 9169 Northpark Drive, Johnston, Iowa 50322; and (2) 5200 N. Palm Avenue, Suite 306, Fresno, California 93704. Farmer Mac's main telephone number is (202) 872-7700.

AVAILABLE INFORMATION

Farmer Mac makes available free of charge, through the "Investors" section of its internet website at www.farmermac.com, copies of materials it files with, or furnishes to, the SEC, including its Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, proxy statements, and any amendments to those filings, as soon as reasonably practicable after electronically filing those materials with, or furnishing those materials to, the SEC. All references to www.farmermac.com in this report are inactive textual references only. The information contained on Farmer Mac's website is not incorporated by reference into this report.

FUNDING OF GUARANTEE AND LTSPC OBLIGATIONS

The main sources of funding for the payment of Farmer Mac's obligations under its guarantees and LTSPCs are the fees Farmer Mac receives for its guarantees and commitments, net effective spread, proceeds of debt issuances, loan repayments, and maturities of AgVantage securities. Farmer Mac has traditionally satisfied its obligations under LTSPCs and its guarantees by purchasing defaulted loans out of the LTSPCs or from related securitization trusts under the terms of the respective agreements governing the LTSPC or guaranteed securities. Farmer Mac typically recovers a significant portion of the value of defaulted loans purchased either through borrower payments, loan payoffs, payments by third parties, or foreclosure and sale of the property securing the loans. Net credit losses/(gains) arising from Farmer Mac's guarantees and commitments include charge-offs/(recoveries) against its allowance for losses, gains and losses on the sale of real estate owned ("REO"), which consists of real estate acquired through foreclosure, and fair value adjustments of REOs held.

Farmer Mac's charter requires Farmer Mac to maintain in its accounts a portion of the guarantee fees it receives from its guarantee activities as a reserve against losses. As of December 31, 2019, this reserve against losses arising from Farmer Mac's guarantee activities was $90.9 million. Farmer Mac calculates the amount of this statutorily required reserve against losses arising from its guarantee activities based on the credit risk component of guarantee fees received on all securities it guarantees, including AgVantage securities. This amount does not represent either anticipated credit losses or estimated probable credit losses and does not directly relate to either the allowance for loan losses or the reserve for losses in Farmer Mac's consolidated balance sheets. Rather, this is the amount of capital that must be exhausted before Farmer Mac may issue obligations to the U.S. Treasury against the $1.5 billion that Farmer Mac is statutorily authorized to borrow from the U.S. Treasury to fulfill its guarantee obligations. That borrowing authority is not intended to be a routine funding source and has never been used. For a more detailed discussion of Farmer Mac's borrowing authority from the U.S. Treasury, see "Business—Farmer Mac's Authority to Borrow from the U.S. Treasury."

Farmer Mac's total outstanding guarantees and LTSPCs exceed the total of: (1) the amount held as an allowance for losses, (2) the amount maintained as a reserve against losses arising from guarantee activities, and (3) the amount Farmer Mac may borrow from the U.S. Treasury. However, Farmer Mac does not expect its future payment obligations under its guarantees and LTSPCs to exceed amounts available to satisfy those obligations, including access to the underlying collateral in the event of default. For information about Farmer Mac's allowance for losses, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Risk Management—Credit Risk – Loans and Guarantees" and Note 2(g) and Note 8 to the consolidated financial statements.

FINANCING

Debt Issuance

Farmer Mac's charter authorizes Farmer Mac to issue debt obligations to purchase eligible loans and securities, USDA Securities, and to maintain reasonable amounts of liquid investments to maintain an adequate liquidity buffer. Farmer Mac funds its purchases of eligible program assets and liquidity investment assets primarily by issuing debt obligations of various maturities in the public capital markets. Farmer Mac also issues debt obligations to obtain funds to finance its obligations under guarantees and LTSPCs. Farmer Mac's debt obligations include discount notes and medium-term notes, including callable notes, all of which are unsecured general obligations of Farmer Mac. Discount notes have original maturities of 1 year or less. Medium-term notes generally have maturities of 6 months to 15.0 years.

The interest and principal on Farmer Mac's debt obligations are not guaranteed by, and do not constitute debts or obligations of, FCA, the United States, or any agency or instrumentality of the United States other than Farmer Mac. Farmer Mac is an institution of the FCS but is not liable for any debt or obligation of any other institution of the FCS. Likewise, neither the FCS nor any other individual institution of the FCS is liable for any debt or obligation of Farmer Mac. Income to the purchaser of a Farmer Mac discount note or medium-term note is not exempt under federal law from federal, state, or local taxation. Farmer Mac's discount notes and medium-term notes are not currently rated by an NRSRO.

Farmer Mac invests the proceeds of its debt issuances in eligible program asset purchases, Farmer Mac Guaranteed Securities, and liquidity investment assets in accordance with policies established by its board of directors that comply with FCA's Liquidity and Investment Regulations, which establish limitations on asset class, dollar amount, issuer concentration, and credit quality. Farmer Mac's regular debt issuance supports its access to the capital markets, and Farmer Mac's liquidity investment assets provide an alternative source of funds should market conditions be unfavorable.

For more information about the Liquidity and Investment Regulations, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Liquidity and Capital Resources." For more information about Farmer Mac's outstanding investments and indebtedness, see Note 4 and Note 7 to the consolidated financial statements.

Equity Issuance

Farmer Mac's charter authorizes Farmer Mac to issue voting common stock, non-voting common stock, and non-voting preferred stock. Farmer Mac may obtain additional capital from future issuances of common stock and preferred stock.

Common Stock

Only banks, other financial entities, insurance companies, and institutions of the FCS may hold voting common stock. No holder of Class A voting common stock may directly or indirectly be a beneficial owner of more than 33% of the outstanding shares of Class A voting common stock. There are no restrictions on the maximum number or percentage of outstanding shares of Class B voting common stock that may be held by an eligible stockholder. No ownership restrictions apply to Class C non-voting common stock, and those securities are freely transferable.

The dividend rights of all three classes of Farmer Mac's common stock are the same, and dividends may be paid on common stock only when, as, and if declared by Farmer Mac's board of directors in its sole discretion, subject to compliance with applicable capital requirements and the payment of dividends on outstanding preferred stock. Upon liquidation, dissolution, or winding up of the business of Farmer Mac, after payment and provision for payment of outstanding debt of Farmer Mac, the holders of shares of preferred stock would be paid at par value out of assets available for distribution, plus all declared and unpaid dividends, before the holders of shares of common stock received any payment.

As of December 31, 2019, the following shares of Farmer Mac common stock were outstanding:

- 1,030,780 shares of Class A voting common stock;
- 500,301 shares of Class B voting common stock; and
- 9,180,744 shares of Class C non-voting common stock.

Farmer Mac's board of directors approved a share repurchase program on March 14, 2019 authorizing Farmer Mac to repurchase up to $10.0 million of its outstanding Class C non-voting common stock. Farmer Mac did not repurchase any shares during 2019 under this program. The program expires at the end of March 2021.

The following table presents the dividends declared on Farmer Mac's common stock during and after 2019:

Date Dividend Declared	Per Share Amount	For Holders Of Record As Of	Date Paid
February 19, 2019	$0.70	March 15, 2019	March 29, 2019
May 17, 2019	$0.70	June 14, 2019	June 28, 2019
August 7, 2019	$0.70	September 16, 2019	September 30, 2019
November 14, 2019	$0.70	December 16, 2019	December 31, 2019
February 24, 2020	$0.80	March 16, 2020	*

* The dividend declared on February 24, 2020 is scheduled to be paid on March 31, 2020.

Farmer Mac's ability to declare and pay common stock dividends could be restricted if it were to fail to comply with applicable capital requirements. See Note 9 to the consolidated financial statements and "Business—Government Regulation of Farmer Mac—Capital Standards."

Preferred Stock

No ownership restrictions apply to any preferred stock issued by Farmer Mac, and those securities are freely transferable. As of December 31, 2019, the following shares of Farmer Mac preferred stock were outstanding:

- 2,400,000 shares of Series A Preferred Stock, all of which were issued on January 17, 2013;
- 3,000,000 shares of Series C Preferred Stock, all of which were issued on June 20, 2014; and
- 4,000,000 shares of Series D Preferred Stock, all of which were issued on May 13, 2019.

On June 12, 2019, Farmer Mac used part of the net proceeds from the sale of the Series D Preferred Stock to redeem and repurchase all $75.0 million aggregate outstanding of Farmer Mac's 6.875% Non-Cumulative Preferred Stock, Series B ("Series B Preferred Stock"), plus any declared and unpaid dividends through and including the redemption date. As a result of the retirement of the Series B Preferred Stock, Farmer Mac recognized $2.0 million of deferred issuance costs, which is presented as "Loss on retirement of preferred stock" on the consolidated statements of operations.

The Series A Preferred Stock, Series C Preferred Stock, and Series D Preferred Stock (collectively referred to as the "Outstanding Preferred Stock") each has a par value of $25.00 per share and an initial liquidation preference of $25.00 per share. Since each of their respective issuances, Farmer Mac has not issued any additional shares of any series of Outstanding Preferred Stock. Each series of Outstanding Preferred Stock ranks senior to Farmer Mac's outstanding Class A voting common stock, Class B voting common stock, Class C non-voting common stock, and any other common stock of Farmer Mac issues in the future.

The Series A Preferred Stock and the Series D Preferred Stock pay an annual dividend rate fixed at 5.875% and 5.700%, respectively, for the life of the securities. The Series C Preferred Stock pays an annual dividend rate of 6.000% from the date of issuance to and including the quarterly payment date on July 17, 2024 and thereafter at a floating rate equal to three-month LIBOR plus 3.260%. Dividends on all series of Outstanding Preferred Stock are non-cumulative, so if the board of directors has not declared a dividend before the applicable dividend payment date for any dividend period, the dividend will not be paid or accumulate, and Farmer Mac will not be obligated to pay dividends for that dividend period, whether or not dividends on any series of Outstanding Preferred Stock are declared for any future dividend period. Farmer Mac may pay dividends on the Outstanding Preferred Stock without paying dividends on any class or series of stock Farmer Mac may issue in the future that ranks junior to the Outstanding Preferred Stock.

The Series A Preferred Stock, Series C Preferred Stock, and Series D Preferred Stock rank equally with each other and will rank equally with any other class or series of stock Farmer Mac may issue in the future of equal priority as to dividends and upon liquidation. Farmer Mac has the right, but not the obligation, to redeem some or all of the issued and outstanding shares of Series A Preferred Stock on and any time after January 17, 2018, the Series C Preferred Stock on and any time after July 18, 2024, and the Series D Preferred Stock on and after July 17, 2024 on any scheduled dividend payment date, all at a price equal to the then-applicable liquidation preference. The Outstanding Preferred Stock is considered Tier 1 capital for Farmer Mac. For more information on Farmer Mac's capital requirements, see "Business—Government Regulation of Farmer Mac—Capital Standards."

The following table presents the dividends declared and paid on Series A Preferred Stock during and after 2019:

Date Dividend Declared	Per Share Amount	For Period Beginning	For Period Ending	Date Paid
February 19, 2019	$0.3672	January 18, 2019	April 17, 2019	April 17, 2019
May 17, 2019	$0.3672	April 18, 2019	July 17, 2019	July 17, 2019
August 7, 2019	$0.3672	July 18, 2019	October 17, 2019	October 17, 2019
November 14, 2019	$0.3672	October 18, 2019	January 17, 2020	January 17, 2020
February 24, 2020	$0.3672	January 18, 2020	April 17, 2020	*

* The dividend declared on February 24, 2020 is scheduled to be paid on April 17, 2020.

The following table presents the dividends declared and paid on Series B Preferred Stock during 2019:

Date Dividend Declared	Per Share Amount	For Period Beginning	For Period Ending	Date Paid
February 19, 2019	$0.4297	January 18, 2019	April 17, 2019	April 17, 2019
May 17, 2019	$0.2626	April 18, 2019	June 12, 2019	June 12, 2019

The following table presents the dividends declared and paid on Series C Preferred Stock during and after 2019:

Date Dividend Declared	Per Share Amount	For Period Beginning	For Period Ending	Date Paid
February 19, 2019	$0.3750	January 18, 2019	April 17, 2019	April 17, 2019
May 17, 2019	$0.3750	April 18, 2019	July 17, 2019	July 17, 2019
August 7, 2019	$0.3750	July 18, 2019	October 17, 2019	October 17, 2019
November 14, 2019	$0.3750	October 18, 2019	January 17, 2020	January 17, 2020
February 24, 2020	$0.3750	January 18, 2020	April 17, 2020	*

* The dividend declared on February 24, 2020 is scheduled to be paid on April 17, 2020.

The following table presents the dividends declared and paid on Series D Preferred Stock during and after 2019:

Date Dividend Declared	Per Share Amount	For Period Beginning	For Period Ending	Date Paid
May 17, 2019	$0.25330	May 14, 2019	July 17, 2019	July 17, 2019
August 7, 2019	$0.35625	July 18, 2019	October 17, 2019	October 17, 2019
November 14, 2019	$0.35625	October 18, 2019	January 17, 2020	January 17, 2020
February 24, 2020	$0.35625	January 18, 2020	April 17, 2020	*

* The dividend declared on February 24, 2020 is scheduled to be paid on April 17, 2020.

FARMER MAC'S AUTHORITY TO BORROW FROM THE U.S. TREASURY

Farmer Mac is authorized to borrow up to $1.5 billion from the U.S. Treasury through the issuance of debt obligations to the U.S. Treasury. Any funds borrowed from the U.S. Treasury may be used solely for the purpose of fulfilling Farmer Mac's guarantee obligations. Farmer Mac's charter provides that the U.S. Treasury is required to purchase Farmer Mac's debt obligations up to the authorized limit if Farmer Mac certifies that:

- a portion of the guarantee fees assessed by Farmer Mac has been set aside as a reserve against losses arising out of Farmer Mac's guarantee activities in an amount determined by Farmer Mac's board of directors to be necessary and such reserve has been exhausted (that amount was $90.9 million as of December 31, 2019); and
- the proceeds of such obligations are needed to fulfill Farmer Mac's guarantee obligations.

Any debt obligations issued by Farmer Mac under this authority would bear interest at a rate determined by the U.S. Treasury, taking into consideration the average rate on outstanding marketable obligations of the United States as of the last day of the last calendar month ending before the date of the purchase of the obligations from Farmer Mac. Farmer Mac would be required to repurchase any of its debt obligations held by the U.S. Treasury within a "reasonable time." As of December 31, 2019, Farmer Mac had not used this borrowing authority and does not expect to use this borrowing authority in the future.

The United States government does not guarantee payments due on securities guaranteed by Farmer Mac, funds invested in the equity or debt securities of Farmer Mac, any dividend payments on shares of Farmer Mac stock, or the profitability of Farmer Mac.

GOVERNMENT REGULATION OF FARMER MAC

General

Farmer Mac was created by federal statute in 1988 in the aftermath of the collapse of the agricultural credit delivery system. Farmer Mac's primary committees of jurisdiction in Congress – the Committee on Agriculture of the U.S. House of Representatives and the U.S. Senate Committee on Agriculture, Nutrition and Forestry – added requirements for Farmer Mac that had not been included in any of the other statutes establishing other GSEs. Unlike the other existing GSEs at the time, Farmer Mac was required to be regulated by an independent regulator, FCA, which has the authority to regulate Farmer Mac's safety and soundness. The statute creating Farmer Mac expressly requires that eligible Farm & Ranch loans meet minimum credit and appraisal standards that represent sound loans to profitable businesses. The enabling legislation also did not contain a specific federal securities law exemption as had been given to the housing GSEs, which had the effect of requiring Farmer Mac to comply with the periodic reporting requirements of the SEC, including filing annual and quarterly reports on the financial status of Farmer Mac and current reports when there are significant developments. Farmer Mac's charter also requires offerings of securities backed by eligible loans and guaranteed by Farmer Mac to be registered under the Securities Act of 1933 and related regulations (collectively, "Securities Act"), unless an exemption for an offering is available that is not based on Farmer Mac's status as an instrumentality of the United States.

Since Farmer Mac's creation, Congress has amended Farmer Mac's charter five times:

- in 1990 to create the USDA Guarantees line of business;
- in 1991 to clarify Farmer Mac's authority to purchase its guaranteed securities, establish OSMO as Farmer Mac's financial regulator, and set minimum regulatory capital requirements for Farmer Mac;
- in 1996 to remove certain barriers to and restrictions on Farmer Mac's operations to be more competitive (e.g., allowing Farmer Mac to buy loans directly from lenders and issue guaranteed securities representing 100% of the principal of the purchased loans and modifying capital requirements);
- in 2008 to authorize Farmer Mac to purchase, and guarantee securities backed by, loans or interests in loans by lenders organized as cooperatives to borrowers to finance electrification and telecommunications systems in rural areas; and
- in 2018 to expand the acreage exception to the Farm & Ranch loan amount limitation from 1,000 acres to 2,000 acres, subject to FCA's feasibility assessment (which was completed in June 2019), and to repeal obsolete provisions and make technical corrections.

Farmer Mac's authorities and regulatory structure were not revised by legislation adopted in 2008 to regulate other GSEs.

Office of Secondary Market Oversight (OSMO)

As an institution of the FCS, Farmer Mac (including its subsidiaries) is subject to the regulatory authority of FCA. Farmer Mac's charter assigns to FCA, acting through OSMO within FCA, the responsibility for the examination of Farmer Mac and the general supervision of the safe and sound performance of the powers, functions, and duties vested in Farmer Mac by its charter. The charter also authorizes FCA, acting through OSMO, to apply its general enforcement powers to Farmer Mac. Farmer Mac (including its subsidiaries) is the only entity regulated by OSMO, which was created as a separate office in recognition of the different role that Farmer Mac plays in providing a secondary market, as compared to the roles of other FCS institutions as primary lenders. The Director of OSMO is selected by and reports to the FCA board.

Farmer Mac's charter requires an annual examination of the financial transactions of Farmer Mac and authorizes FCA to assess Farmer Mac for the cost of its regulatory activities, including the cost of any examination. Each year, OSMO conducts an examination of Farmer Mac to evaluate its safety and soundness, compliance with applicable laws and regulations, and mission achievement. The examination includes a review of Farmer Mac's capital adequacy, asset quality, management performance, earnings, liquidity, and sensitivity to interest rate risk. OSMO may also conduct additional oversight and examination activities unrelated to its annual examination of Farmer Mac at any other time it determines necessary. Farmer Mac is also required to file quarterly reports of condition with FCA.

Capital Standards

<u>General Requirements</u>. Farmer Mac's charter establishes three capital standards for Farmer Mac:

- <u>Statutory minimum capital requirement</u>. Farmer Mac's minimum capital level is an amount of core capital (stockholders' equity less accumulated other comprehensive income) equal to the sum of 2.75% of Farmer Mac's aggregate on-balance sheet assets, as calculated for regulatory purposes, plus 0.75% of Farmer Mac's aggregate off-balance sheet obligations, specifically including:

    - the unpaid principal balance of outstanding loan-backed securities guaranteed by Farmer Mac;
    - instruments issued or guaranteed by Farmer Mac that are substantially equivalent to securities guaranteed by Farmer Mac, including LTSPCs; and
    - other off-balance sheet obligations of Farmer Mac.

- <u>Statutory critical capital requirement</u>. Farmer Mac's critical capital level is an amount of core capital equal to 50% of the total minimum capital requirement at that time.

- <u>Risk-based capital</u>. The charter directs FCA to establish a risk-based capital stress test for Farmer Mac, using specified stress-test parameters.

Farmer Mac must comply with the higher of the minimum capital requirement and the risk-based capital requirement.

The risk-based capital stress test promulgated by FCA is intended to determine the amount of regulatory capital (core capital plus the allowance for losses) that Farmer Mac would need to maintain positive capital during a ten-year period in which:

- annual losses occur at a rate of default and severity "reasonably related" to the rates of the highest sequential two years in a limited U.S. geographic area; and
- interest rates are shocked by the lesser of 600 basis points or 50% of the ten-year U.S. Treasury rate, and interest rates remain at such level for the remainder of the period.

The risk-based capital stress test then adds an additional 30% to the resulting capital requirement for management and operational risk. Farmer Mac's risk-based capital requirement as of December 31, 2019 was $122.1 million and Farmer Mac's regulatory capital of $828.1 million exceeded that amount by approximately $706.0 million. See "Management's Discussion and Analysis of Financial Condition and Results of Operations—Liquidity and Capital Resources—Capital Requirements" for a presentation of Farmer Mac's current regulatory capital position.

Enforcement Levels. Farmer Mac's charter directs FCA to classify Farmer Mac within one of four enforcement levels to determine compliance with the capital standards established by Farmer Mac's charter. As of December 31, 2019, Farmer Mac was classified as within level I – the highest compliance level.

Failure to comply with the applicable required capital level in the charter would result in Farmer Mac being classified as within level II (below the applicable risk-based capital level, but above the minimum capital level), level III (below the minimum capital level, but above the critical capital level) or level IV (below the critical capital level). If Farmer Mac were classified as within level II, III or IV, the charter requires the Director of OSMO to take specified mandatory supervisory measures and provides the Director with discretionary authority to take various optional supervisory measures depending on the level in which Farmer Mac is classified. The mandatory measures applicable to level II and level III include:

- requiring Farmer Mac to submit and comply with a capital restoration plan;
- prohibiting the payment of dividends if the payment would result in Farmer Mac being reclassified as within a lower level and requiring the pre-approval of any dividend payment even if the payment would not result in reclassification as within level IV; and
- reclassifying Farmer Mac as within one level lower if it does not submit a capital restoration plan that is approved by the Director, or the Director determines that Farmer Mac has failed to make, in good faith, reasonable efforts to comply with such a plan and fulfill the schedule for the plan approved by the Director.

If Farmer Mac were classified as within level III, then, in addition to the mandatory supervisory measures described above, the Director of OSMO could take any of the following discretionary supervisory measures:

- imposing limits on any increase in, or ordering the reduction of, any obligations of Farmer Mac, including off-balance sheet obligations;
- limiting or prohibiting asset growth or requiring the reduction of assets;
- requiring the acquisition of new capital in an amount sufficient to provide for reclassification as within a higher level;
- terminating, reducing, or modifying any activity the Director determines creates excessive risk to Farmer Mac; or
- appointing a conservator or a receiver for Farmer Mac.

Farmer Mac's charter does not specify any supervisory measures, either mandatory or discretionary, to be taken by the Director if Farmer Mac were classified as within level IV.

The Director of OSMO has the discretionary authority to reclassify Farmer Mac to a level that is one level below its then current level (for example, from level I to level II) if the Director determines that Farmer

Mac is engaging in any action not approved by the Director that could result in a rapid depletion of core capital or if the value of property subject to mortgages backing securities guaranteed by Farmer Mac has decreased significantly.

Capital Adequacy Requirements. Under FCA's rule on capital planning, Farmer Mac must develop and submit to OSMO for approval annually a plan for capital that considers the sources and uses of Farmer Mac's capital, addresses capital projections under stress scenarios, assesses Farmer Mac's overall capital adequacy, and incorporates a Farmer Mac board-approved policy on capital adequacy. In accordance with this regulation, Farmer Mac's board of directors oversees a policy that requires Farmer Mac to maintain an adequate level of "Tier 1" capital, consisting of retained earnings, paid-in-capital, common stock, qualifying preferred stock, and accumulated other comprehensive income allocable to "non-program" investments that are not included in the Farm & Ranch, USDA Guarantees, Rural Utilities, and Institutional Credit lines of business. Under this policy, Farmer Mac must maintain at all times a Tier 1 capital ratio of at least 7.0% of risk-weighted assets, calculated using an advanced internal ratings based asset risk weighting regime that is consistent with current Basel-based principles.

The policy also requires Farmer Mac to maintain a "capital conservation buffer" of additional Tier 1 capital of more than 2.5% of risk-weighted assets. If the capital conservation buffer drops to various levels at or below 2.5%, as shown in the table below, the policy requires Farmer Mac to restrict distributions of current quarter Tier 1-eligible dividends and any discretionary bonus payments to an amount not to exceed the corresponding payout percentage specified in the table below, which represents the percentage of the cumulative core earnings for the four quarters immediately preceding the distribution date:

Capital Conservation Buffer (percentage of risk-weighted assets)	Payout Percentage (percentage of four quarters' accumulated core earnings)
greater than 2.5%	No limitation
greater than 1.875% to and including 2.5%	60%
greater than 1.25% to and including 1.875%	40%
greater than 0.625% to and including 1.25%	20%
equal to or less than 0.625%	0% (no payout permitted)

These distribution restrictions would remain for so long as the Tier 1 capital conservation buffer remains at or below the minimum level of 2.5%, and Farmer Mac's board of directors may consider other factors, such as earnings presented in accordance with generally accepted accounting principles in the United States ("GAAP") and other regulatory requirements, in determining whether to restrict capital distributions, including dividends and bonus payments. As of December 31, 2019, Farmer Mac's Tier 1 capital ratio was 12.9%. The calculation of Farmer Mac's Tier 1 capital ratio does not include certain interest rate risk components of the risk weighting of assets, which reflects the fact that Farmer Mac pursues an approach to funding its assets with liabilities of similar duration and convexity characteristics and therefore does not bear material interest rate risk in its portfolio. See "Management's Discussion and Analysis of Financial Condition and Results of Operations—Liquidity and Capital Resources—Capital Requirements" for more information on Farmer Mac's Tier 1 capital ratio.

Item 1A. Risk Factors

Farmer Mac's business activities, financial performance, and results of operations are, by their nature, subject to risks and uncertainties, including those related to the agricultural industry, the rural utilities industry, access to the capital markets, the regulatory environment, and the level of prevailing interest rates and overall market conditions. The following risk factors should be considered in conjunction with "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Item 7 of this Annual Report on Form 10-K, including the risks and uncertainties described in the "Forward-Looking Statements" section. Because new risk factors likely will emerge from time to time, management can neither predict all potential risk factors nor assess the effects of those factors on Farmer Mac's business, operating results, and financial condition or how much any factor, or combination of factors, may affect Farmer Mac's actual results and financial condition. If any of the following risks materialize, Farmer Mac's business, financial condition, and/or results of operations could be materially and adversely affected. Farmer Mac undertakes no obligation to update or revise this risk factor discussion, except as required by applicable law.

Credit and Counterparty Risk

Factors outside of Farmer Mac's or borrowers' control may negatively affect borrowers' profitability and ability to repay their loans in Farmer Mac's portfolio, which could have a material adverse effect on Farmer Mac's financial condition, results of operations, liquidity, or capital levels.

External factors beyond Farmer Mac's or borrowers' control could negatively affect borrowers' profitability, such as protracted adverse weather; volatility in demand for agricultural products or electricity in rural areas; variability in borrowers' input costs; protracted regional, domestic, or global economic stress; legislative or regulatory actions affecting rural borrowers; U.S. trade policy affecting the demand for agricultural exports or the price of imports required for borrowers' operations; increased competition among producers due to oversupply or available alternatives; and adverse changes in interest rates and land values. Any of these factors could put downward pressure on the profitability of a farming or rural utilities operation, which could then inhibit the related borrower's repayment capacity on one or more loans that Farmer Mac may have from that borrower in its portfolio.

Farmer Mac assumes the ultimate credit risk of borrower defaults on its agricultural mortgage and rural utilities loan assets, and Farmer Mac's earnings, which come from net interest income, guarantee fees, and commitment fees on those assets, depend significantly on their performance. Widespread and sustained repayment shortfalls on loans in Farmer Mac's portfolio could result in losses, particularly if the available collateral is insufficient to cover Farmer Mac's exposure, and this could have a material adverse effect on Farmer Mac's financial condition, results of operations, liquidity, or capital levels.

Concentration in a particular commodity type, geographic region, or collateral type may expose Farmer Mac to credit risk that could materially and adversely affect its business, operating results, and financial condition.

Farmer Mac may be subject to credit risk due to concentration in or exposure to a particular commodity type, geographic region, or collateral type. Widespread weakening in the financial condition of borrowers within a particular geographic region, commodity type, or collateral type could negatively affect Farmer Mac's financial condition if Farmer Mac's policies on geographic and commodity concentration are not sufficient to successfully mitigate the risk of concentration in these areas. Farmer Mac's credit risk may also increase as a result of its exposure to loans that are adversely affected by a decline in the sale value of the underlying collateral, particularly if the collateral is single-use or highly improved, such as storage and processing facilities or permanent plantings. Single-use or highly improved collateral increases the risk of ultimate losses on a given loan because producers requiring single-use or highly improved collateral are less able to adapt their operations or switch commodity groups when faced with adverse conditions and are more likely to be undercollateralized in a default scenario. For example, Farmer Mac's cumulative net credit losses for loans to borrowers in the Agricultural Storage and Processing category comprise 47.0% of its cumulative net credit losses for all categories.

Concentrated exposure to a particular borrower or AgVantage counterparty may expose Farmer Mac to credit risk that could materially and adversely affect its business, operating results, and financial condition.

Farmer Mac may be subject to credit risk due to concentrated exposure to a particular borrower. Farmer Mac's Farm & Ranch portfolio consists of loans varying in size and by borrower, including large exposures ($25 million or more) to individual borrowers. The default of any one of these borrowers could negatively affect Farmer Mac's financial condition. Farmer Mac also has concentrated exposures to individual business counterparties on AgVantage securities, which are general obligations of institutional counterparties secured by eligible loans held by the issuing institution. Although AgVantage securities are collateralized by eligible loans in a principal amount equal to or greater than the principal amount of the securities outstanding, Farmer Mac could suffer losses if the market value of the loan collateral declines and the counterparty defaults. Taking possession of the loan collateral upon a default by the AgVantage counterparty could also result in higher current expected credit losses for Farmer Mac's loans held on balance sheet, as well as increased capital requirements. Most of Farmer Mac's AgVantage exposure is concentrated in a small number of issuers. As of December 31, 2019, $7.7 billion of the $8.4 billion of AgVantage securities outstanding had been issued by three counterparties. A default by any of these counterparties could have a significant adverse effect on Farmer Mac's business, operating results, and financial condition.

Farmer Mac Guaranteed Securities and LTSPCs expose Farmer Mac to significant contingent liabilities, and Farmer Mac's ability to fulfill its obligations under its guarantees and LTSPCs may be limited.

Farmer Mac's guarantee and purchase commitment obligations to third parties, including LTSPCs and securities guaranteed by Farmer Mac, are obligations of Farmer Mac only and are not backed by the full faith and credit of the United States, FCA, or any other agency or instrumentality of the United States other than Farmer Mac. As of December 31, 2019, Farmer Mac had $3.5 billion of contingent liabilities related to LTSPCs and securities issued to third parties and guaranteed by Farmer Mac, which represents Farmer Mac's exposure if all loans underlying these LTSPCs and guarantees defaulted and Farmer Mac recovered no value from the related collateral. If this were to occur, the funds available for payment on these guarantees and LTSPCs could be substantially less than the aggregate amount of the corresponding liabilities. As of December 31, 2019, Farmer Mac held cash, cash equivalents, and other investment securities with a fair value of $3.6 billion that could be used as a source of funds for payment on its obligations, including its guarantee and LTSPC obligations. Although Farmer Mac believes that it remains well-collateralized on the assets underlying its guarantee and LTSPC obligations to third parties and that the estimated probable losses for these obligations remain low relative to the amount available for payment of claims on these obligations, Farmer Mac's total contingent liabilities for these obligations could exceed the amount it may have available for payment of Farmer Mac's obligations, including claims on Farmer Mac's contingent obligations. See "Management's Discussion and Analysis—Risk Management—Credit Risk – Loans and Guarantees" for more information on Farmer Mac's management of credit risk.

Farmer Mac is exposed to counterparty credit risk on its investment securities that could materially and adversely affect its business, operating results, and financial condition.

Farmer Mac maintains an investment portfolio that can be drawn upon for liquidity needs. This portfolio consists of cash and cash equivalents, U.S. Treasury securities, investment securities guaranteed by U.S. Government agencies and GSEs, and asset-backed securities principally backed by U.S. Government-guaranteed student loans, including auction rate certificates. Farmer Mac regularly reviews concentration limits to ensure that its investments are appropriately diversified and comply with policies approved by Farmer Mac's board of directors and with applicable FCA regulations, but Farmer Mac is still exposed to credit risk from issuers of the investment securities it holds, particularly to issuers to whom Farmer Mac may have a higher concentration of exposure relative to the rest of Farmer Mac's investment portfolio. For example, as of December 31, 2019, Farmer Mac held at fair value $1.1 billion of investment securities guaranteed by GSEs. A default by multiple issuers of investment securities held by Farmer Mac or by a single issuer of investment securities in which Farmer Mac is more heavily concentrated could have an adverse effect on Farmer Mac's business, operating results, and financial condition.

Farmer Mac is exposed to counterparty risk on both its cleared and non-cleared swaps transactions that could materially and adversely affect its business, operating results, and financial condition.

Farmer Mac uses interest rate swap contracts and hedging arrangements to manage its interest rate risk. Farmer Mac clears a significant portion of its interest rate swaps through a swap clearinghouse and uses the services of a futures commission merchant to post and receive mark-to-market margin amounts. Farmer Mac also transacts non-cleared (bilateral) derivative contracts directly with swap counterparties and posts and receives collateral to secure the market value of those contracts. A failure of any of these counterparties could cause intra-day disruption for Farmer Mac's swap operations if the failure were to prompt a termination of all or part of Farmer Mac's swap positions or if Farmer Mac were unable to quickly access margin or collateral amounts. These conditions could be exacerbated in volatile market conditions, in which the market could move against Farmer Mac's position before Farmer Mac had time to reposition its swaps. Farmer Mac's derivative contracts executed before March 2017 have market value thresholds ranging from $15 to $25 million that must be exceeded before collateral must be posted by Farmer Mac. Repositioning these swaps under current margin rules if the related counterparty were to fail could require Farmer Mac to post significant collateral within a short time frame. Any of these factors resulting from a failure of the swap clearinghouse, futures commission merchant, or any of Farmer Mac's bilateral swap counterparties could have a negative effect on Farmer Mac's operations and liquidity and could expose Farmer Mac to additional interest rate risk, which could materially and adversely affect its business, operating results, and financial condition. As of December 31, 2019, the aggregate notional balance of Farmer Mac's cleared swaps was $11.0 billion, and the aggregate notional balance of Farmer Mac's non-cleared swaps was $3.0 billion (including $0.4 billion notional amount of non-cleared swaps executed before March 2017).

Strategic/Business Risk

Farmer Mac's business, operating results, financial condition, and capital levels may be materially and adversely affected by external factors that may affect the demand for Farmer Mac's secondary market, the price or marketability of Farmer Mac's products, or Farmer Mac's ability to offer its products and services.

Farmer Mac's business, operating results, financial condition, and capital levels may be materially and adversely affected by external factors that may affect the price or marketability of Farmer Mac's products and services or Farmer Mac's ability to offer its products and services, including, but not limited to:

- disruptions in the capital markets;
- competitive pressures in Farmer Mac's loan purchase and guarantee activities or in the issuance of its debt securities;
- changes in interest rates that may increase Farmer Mac's funding costs;
- market or customer perception of Farmer Mac's reputation;
- legislative or regulatory developments adversely affecting Farmer Mac's ability to offer new products, the ability or motivation of lenders to participate in Farmer Mac's lines of business, or the cost of related corporate activities;
- reduced demand for agricultural real estate loans or Rural Utilities loans due to regional, domestic, or global economic conditions; and
- expanded funding alternatives available to agricultural and rural utilities borrowers.

An inability to access the equity and debt capital markets could have a material adverse effect on Farmer Mac's business, operating results, financial condition, liquidity, and capital levels.

Farmer Mac's ability to operate its business, meet its obligations, generate asset volume growth, and fulfill its statutory mission depends on Farmer Mac's capacity to remain adequately capitalized through the issuance of equity and debt securities at favorable rates and terms in the U.S. financial markets. Farmer Mac's potential for growth and future net income depends in part on Farmer Mac's ability to access equity markets to raise efficient capital. The issuance of debt securities is Farmer Mac's primary source for repaying or refinancing existing debt, and one of the primary sources of Farmer Mac's revenue is the net interest income earned from the difference, or "spread," between the return received on assets held and the related borrowing costs. Farmer Mac's ability to access the debt and equity markets to raise capital, fund its assets, repay debt, and earn net interest income depends on market perception of Farmer Mac. If Farmer Mac were unable to access the U.S. financial markets to issue equity or debt securities at favorable rates and terms, Farmer Mac's business, operating results, or financial condition could be adversely affected.

The loss of business from key business counterparties or customers, including AgVantage counterparties, could adversely affect Farmer Mac's business and result in a decrease in its revenues and profits.

Farmer Mac's business and ability to generate revenues and profits largely depends on its ability to purchase eligible loans or place eligible loans under guarantees or LTSPCs and to purchase or guarantee AgVantage securities. Farmer Mac conducts a significant portion of its business with a small number of business counterparties. This could result in vulnerability as existing assets pay down or mature and the status and needs of Farmer Mac's business partners evolve. In 2019, ten institutions generated approximately 66% of loan purchase volume in the Farm & Ranch line of business. As of December 31, 2019, approximately 92% of the $8.4 billion outstanding principal amount of AgVantage securities under Farmer Mac's Institutional Credit line of business were issued by three institutions (of which $1.1 billion and $1.5 billion will be maturing in 2020 and 2021, respectively). As of December 31, 2019, transactions with two institutions represented nearly all of the business volume under Farmer Mac's Rural Utilities line of business. Farmer Mac's ability to maintain the current relationships with its business counterparties or customers and the business generated by those business counterparties or customers is significant to Farmer Mac's business. As a result, the loss of business from any one of Farmer Mac's key business counterparties could negatively affect Farmer Mac's revenues and profitability. Farmer Mac may not be able to replace the loss of business of a key business counterparty or customer with alternate sources of business due to limitations on the types of assets eligible for the secondary market provided by Farmer Mac under its charter, which could adversely affect Farmer Mac's business and result in a decrease in its revenues and profits.

Farmer Mac's efforts to balance fulfilling its Congressional mission with providing a return to its stockholders may result in business transactions that involve lower returns or higher risk, which could adversely affect its business, operating results, or financial condition.

Congress created Farmer Mac to provide for a secondary market for agricultural mortgage loans, Rural Utilities loans, and the guaranteed portions of USDA-guaranteed loans. In pursuing this mission, Farmer Mac's secondary market activities are designed to:

- increase the availability of credit to rural borrowers at stable interest rates;
- provide greater liquidity and lending capacity in extending credit to rural borrowers; and
- provide an arrangement for new lending by facilitating capital market investments in funding for rural borrowers, including funds at fixed rates of interest.

Farmer Mac's charter provides that its standards for Farm & Ranch loans shall not discriminate against small originators or small agricultural mortgage loans that are at least $50,000. The charter also requires Farmer Mac's board of directors to promote and encourage the inclusion of qualified loans for small farms and family farmers in the agricultural mortgage secondary market.

Although Farmer Mac strives to undertake its mission-related activities in a manner consistent with providing an accretive return to Farmer Mac's stockholders, it is possible that these activities may contribute to a lower return to stockholders than if Farmer Mac's sole purpose were to maximize stockholder value. If Farmer Mac were to undertake activities involving greater risk to satisfy its Congressional mission or that generate lower returns or limited in the activities it was allowed to undertake, Farmer Mac's business, operating results, or financial condition could be adversely affected.

A few stockholders who own large amounts of Farmer Mac voting common stock may seek to influence Farmer Mac's business, strategy, or board composition, and the interests of these stockholders may differ from the interests of Farmer Mac or other holders of Farmer Mac's common stock.

The ownership of Farmer Mac's two classes of voting common stock is concentrated in a small number of institutions. Approximately 44% of Farmer Mac's Class A voting common stock is held by three financial institutions, with 31% held by one institution. Approximately 97% of Farmer Mac's Class B voting common stock is held by five FCS institutions (two of which are related to each other through a parent-subsidiary relationship). The holders of Farmer Mac's Class A voting common stock and the holders of

Farmer Mac's Class B voting common stock each have the right to elect one-third of the membership of Farmer Mac's board of directors. Many of these holders are rural lenders that may compete directly with each other. As long as Farmer Mac's Class A and Class B voting common stock is highly concentrated in a small number of institutions, there is the potential that these institutions will seek to influence, and may be successful in influencing, Farmer Mac's business, strategy, or board composition in a way that may not be in the best interests of either Farmer Mac or other stockholders.

Changes in Farmer Mac's board of directors could adversely affect its business, operations, and strategy.

Farmer Mac's charter prescribes that its board of directors consist of fifteen members. Five members are elected annually by holders of Farmer Mac's Class A voting common stock, five members are elected annually by holders of Farmer Mac's Class B voting common stock, and five members are appointed by the President of the United States with the advice and consent of the United States Senate (one of whom is designated as the chair of the board of directors). Farmer Mac's Presidentially-appointed members serve at the pleasure of the President of the United States and therefore could be replaced at any time. If, as a result of annual elections or new Presidential appointments to the board, Farmer Mac were to experience a significant turnover in the membership of its board of directors within a short time and the new directors were not able to become proficient quickly in Farmer Mac's business, operations, and strategies, the effectiveness of Farmer Mac's board of directors in overseeing the business, affairs, strategies, and operations of Farmer Mac could be adversely affected. In 2019, four new individuals joined Farmer Mac's board of directors, two of whom were elected by holders of voting common stock in May 2019, one of whom was designated by the board in December 2019 to fill a vacancy created by the death of a former director, and one of whom was appointed by the President of the United States after confirmation by the U.S. Senate in December 2019 (which director was later designated as chair of the board in January 2020).

Operational Risk

The inadequacy or failure of Farmer Mac's operational systems, cybersecurity plan, internal controls or processes, or infrastructure, or those of third parties, could have a material adverse effect on Farmer Mac's business, liquidity, operating results, reputation, or financial condition.

Farmer Mac is exposed to operational risk due to the complex nature of its business operations and the processes and systems used to undertake its business activities and comply with regulatory requirements. Operational risk refers to the risk of loss to Farmer Mac or damage to its reputation resulting from:

- inadequate or failed internal processes, systems, cybersecurity plan, or infrastructure;
- Farmer Mac's inability to successfully implement enhancements to any of these or migrate to new systems or infrastructure;
- failed execution based on human error;
- inadequate or failed internal controls or processes that Farmer Mac has in place to detect or prevent fraud; or
- external events, including a disruption involving physical site access, cyber incidents, catastrophic events, natural disasters, terrorist activities, or disease pandemics.

Farmer Mac relies on business processes that largely depend on people, technology, and the use of complex systems and models to manage its business, process a high volume of daily transactions, and generate the records on which Farmer Mac's financial statements are based. Inadequacies or failures in

Farmer Mac's internal processes, personnel, systems, cybersecurity plan, or infrastructure could lead to a significant disruption in its business operations, financial and economic loss, errors in its financial statements, impairment of its liquidity, liability or service interruptions to its customers, increased regulatory or legislative scrutiny, or reputational damage.

The potential for operational risk exposure also exists as a result of Farmer Mac's interactions with, and reliance on, third parties. Farmer Mac's business relies on its ability to process, evaluate, and interpret significant amounts of information, much of which is provided by third parties. If the financial, accounting, data processing, backup, information technology, or other operating systems and infrastructure of third parties with whom Farmer Mac interacts or upon whom it relies fail to operate properly or are disrupted, then Farmer Mac's operations and its ability to conduct its business in the ordinary course may be adversely affected. Farmer Mac's ability to implement safeguards preventing disruption to third party systems or infrastructure is more limited than for its own systems or infrastructure.

Farmer Mac conducts many of its critical business operations and activities in its main office in Washington, D.C. This concentration of Farmer Mac's personnel, technology, and facilities increases Farmer Mac's risk of financial or other loss. Although Farmer Mac routinely reviews, updates, and tests its business continuity and disaster recovery plans, these plans may not be sufficient to mitigate all potential business continuity risks. Farmer Mac's recovery capabilities or those of third parties with whom it interacts or upon whom it relies could be overwhelmed by a disruption in infrastructure or a catastrophic event outside of its control. If Farmer Mac is not able to resume business operations or its employees are unable to communicate with each other in the event of a disruption, Farmer Mac may not be able to successfully implement its continuity and disaster recovery plans, which could have a material adverse effect on Farmer Mac's business, liquidity, operating results, reputation, or financial condition.

Any significant deficiency, failure, interruption, or breach in Farmer Mac's information systems, including the occurrence of successful cyber-attacks or a significant deficiency in Farmer Mac's cybersecurity plan, could result in a loss of business, damage to Farmer Mac's reputation, the disclosure or misuse of confidential or proprietary information, or increased costs or liability to Farmer Mac, which could adversely affect Farmer Mac's business, operating results, or financial condition.

Farmer Mac relies heavily on information systems, including from third parties, to conduct and manage its business operations. These information systems encompass an integrated set of hardware, software, infrastructure, and trained personnel organized to facilitate the planning, control, coordination, and decision-making processes occurring within Farmer Mac. As Farmer Mac's reliance on information systems has increased, so have the risks posed to its systems, including the effect of events that would threaten the confidentiality, integrity, or availability of Farmer Mac's information resources, known as cyber incidents. Like many other financial institutions, Farmer Mac faces regular attempts by third parties to gain unauthorized access to its information systems. Farmer Mac has experienced cyber incidents that have not had a material effect on its business, operating results, or financial condition, but it is not possible to predict the effect on Farmer Mac of any future cyber incidents.

Farmer Mac has undertaken preventive measures and devotes what Farmer Mac believes to be adequate resources to design, manage, monitor, deploy, and assess its information systems and cybersecurity program consistent with industry best practices. Specifically, Farmer Mac's cybersecurity program assesses Farmer Mac's cybersecurity risk profile and seeks to ensure there are sufficient measures and safeguards in place to mitigate the risks identified. However, Farmer Mac may not be able to prevent, address on a timely and adequate basis, or fully mitigate the negative effects associated with a successful cyber-attack on Farmer Mac's or its third-party information systems, which could adversely affect Farmer Mac's business, operating results, reputation, or financial condition. Because the methods used to launch cyber-attacks change often or, in some cases, are not recognized until launched, Farmer Mac also may be unable to implement effective preventative measures or proactively address these methods until they are discovered. A failure or interruption in any of Farmer Mac's information systems could cause a disruption or malfunction of its operations, which could adversely affect Farmer Mac's ability to conduct business with its customers, loan servicers, service providers, or other counterparties, result in financial loss, or damage Farmer Mac's reputation.

The secure transmission, processing, and storage of Farmer Mac's confidential, proprietary, and other information assets through Farmer Mac's or its third-party information systems is instrumental to Farmer Mac's operations. Any action that results in unauthorized access to Farmer Mac's information systems by third parties, including through viruses, malware, cyber-attacks, or other information system breaches, could disrupt Farmer Mac's operations, corrupt its data, or cause the misappropriation, unauthorized release, loss, or destruction of the confidential, proprietary, or other information assets of its customers, loan servicers, service providers, or other counterparties. Unauthorized access to Farmer Mac's information systems or sensitive information could cause Farmer Mac to experience prolonged operational interruption, damage to its reputation, material loss of business, legal liability, or increased costs from private data exposure, which could adversely affect Farmer Mac's business, operating results, reputation, or financial condition

Failure by Farmer Mac's third-party loan servicers, information systems providers, and other service providers to protect confidential information from unauthorized access and dissemination could result in liability for Farmer Mac or damage Farmer Mac's reputation, which could have a negative effect on Farmer Mac's business, operating results, or financial condition.

Farmer Mac relies on third parties, including loan servicers, information systems providers, software-as-a-service (SaaS) providers, cloud computing service providers, and other service providers, to perform various functions for Farmer Mac. In the course of these activities, these third parties collect and have access to a variety of confidential or proprietary information, including, among others, sensitive financial information, information presented to Farmer Mac's board of directors, information provided to Farmer Mac's regulators, information about the lenders that participate in Farmer Mac's lines of business, and personal financial information about the borrowers with loans in one of Farmer Mac's lines of business. Any unauthorized access to or cyber incidents affecting the information systems of one of these third parties, including through viruses, malware, cyber-attacks, or other information system breaches, could result in the misappropriation and inappropriate release of the confidential or proprietary information entrusted to Farmer Mac. Prior instances of unauthorized access to Farmer Mac's third parties' information systems have not resulted in the misappropriation or inappropriate release of the confidential or proprietary information entrusted to Farmer Mac, although it is not possible to predict the consequences of any future instances. Any employees or agents of Farmer Mac's third parties that have authorized access to confidential or proprietary information could also inadvertently or erroneously disseminate the information to unauthorized third parties. Any unauthorized access to or dissemination of confidential or proprietary information could result in liability for Farmer Mac or damage Farmer Mac's reputation, either of which could have a negative effect on Farmer Mac's business, operating results, or financial condition.

If Farmer Mac's management of risk associated with its loan assets and investment securities based on model assumptions and output is not effective, its business, operating results, financial condition, or capital levels could be materially adversely affected.

Farmer Mac continually develops and adapts profitability and risk management models to adequately address a wide range of possible market developments. Some of Farmer Mac's qualitative tools and metrics for managing risk are based on its use of observed historical market behavior. Farmer Mac applies statistical and other tools to these observations to quantify its risks. These tools and metrics may fail to predict future or unanticipated risk or may not be effective in mitigating its risk exposure in all economic market environments or against all types of risk, which could expose Farmer Mac to material unanticipated losses. The inability of Farmer Mac to effectively identify and manage the risks inherent in its business could have a material adverse effect on its business, operating results, financial condition, or capital levels.

Market Risk

Farmer Mac is exposed to interest rate risk that could materially and adversely affect its business, operating results, or financial condition.

Farmer Mac is subject to interest rate risk due to the timing differences in the cash flows of the assets it holds and the liabilities issued to fund those assets. Farmer Mac's primary strategy for managing interest rate risk is to fund asset purchases with liabilities that have similar duration and convexity characteristics so that they will perform similarly as interest rates change. However, the ability of borrowers to prepay their loans before the scheduled maturities increases the likelihood of asset and liability cash flow mismatches. In a changing interest rate environment, these cash flow mismatches affect Farmer Mac's earnings if assets repay sooner than expected and the resulting cash flows must be reinvested in lower-yielding investments, particularly if Farmer Mac's related funding costs cannot be correspondingly repaid. Conversely, if assets repay more slowly than anticipated and the associated debt issued to fund the assets must be reissued at a higher interest rate, Farmer Mac's earnings could be adversely affected.

Farmer Mac is also subject to repricing risk, which is the risk that Farmer Mac's funding cost relative to a benchmark index (for example, the London Interbank Offered Rate known as "LIBOR") will increase from the time the initial funding was issued and the time the liabilities are re-funded. This risk arises from maturity mismatches between assets and liabilities where assets with longer maturities must be re-funded. A significant increase in the difference between Farmer Mac's funding cost relative to the benchmark index, including LIBOR, could compress spread income on the assets Farmer Mac holds and seeks to re-fund with the higher cost funding. Widespread compression within a short timeframe could have an adverse effect on Farmer Mac's operating results or financial condition.

Changes in interest rates relative to Farmer Mac's management of interest rate risk through derivatives may cause volatility in financial results and capital levels and may adversely affect Farmer Mac's net income, liquidity position, or operating results.

Farmer Mac enters into financial derivatives transactions to hedge interest rate risks inherent in its business and carries its financial derivatives at fair value in its consolidated financial statements. Although Farmer Mac's financial derivatives provide economic hedges of interest rate risk, changes in the fair values of financial derivatives can cause volatility in net income and in capital, particularly if those financial derivatives are not designated in hedge accounting relationships or if there is any ineffectiveness in a hedge accounting relationship. As interest rates increase or decrease, the fair values of Farmer Mac's derivatives change based on the position Farmer Mac holds relative to the specific characteristics of the derivative. Farmer Mac's core capital available to meet its statutory minimum capital requirement can be affected by changes in the fair values of financial derivatives, as noted above. Adverse changes in the fair values of Farmer Mac's financial derivatives that are not designated in hedge accounting relationships and any hedge ineffectiveness that results in a loss would reduce the amount of core capital available to meet this requirement. In 2019 and 2018, Farmer Mac recorded gains of $10.1 million and $8.0 million, respectively, from changes in the fair values of its financial derivatives as a result of movements in interest rates during those years. In addition, Farmer Mac recorded losses of $7.9 million and gains of $4.9 million in 2019 and 2018, respectively, related to ineffectiveness in hedge accounting relationships.

Changes in interest rates have required, and in the future may require, Farmer Mac to post cash or investment securities to collateralize its derivative exposures due to corresponding changes in the fair market values of these derivatives. If changes in interest rates were to result in a significant decrease in the fair value of Farmer Mac's derivatives, Farmer Mac would be required to post cash, cash equivalents, or investment securities, possibly within a short period of time, to satisfy its obligations under its derivatives contracts. As of December 31, 2019, Farmer Mac posted $0.5 million of cash and $131.7 million of investment securities as collateral for its derivatives in net liability positions. If Farmer Mac is required to fully collateralize a significant portion of its derivatives in an adverse interest rate environment, it could have a material adverse effect on Farmer Mac's liquidity position or operating results.

The reform, replacement, or discontinuation of the LIBOR benchmark interest rate could adversely affect Farmer Mac's business, operating results, or financial condition.

In July 2017, the United Kingdom's Financial Conduct Authority, which regulates LIBOR, announced that it will no longer persuade or compel banks to submit rates for the calculation of LIBOR after 2021 and will support the LIBOR indexes through 2021 to allow for a transition to any alternative reference rates. This announcement indicates that the continuation of LIBOR in its current form will not be guaranteed after 2021, and it appears likely that LIBOR will be discontinued or modified by 2021. Farmer Mac is evaluating the potential effect on its business of the replacement of the LIBOR benchmark interest rate, including the possibility of replacement benchmark interest rates. As of December 31, 2019, Farmer Mac held $5.1 billion of floating rate assets in its lines of business and its investment portfolio, had issued $3.8 billion of floating rate debt, and had entered into $13.8 billion notional amount of interest rate swaps, each of which reset based on LIBOR. In addition, Farmer Mac's Series C Preferred Stock will be indexed to LIBOR after July 17, 2024. The market transition away from LIBOR and towards an alternative benchmark interest rate that may be developed is expected to be complicated and may require the development of term and credit adjustments to accommodate for differences between the benchmark interest rates. The introduction of an alternative reference rate may also introduce additional re-funding and repricing risk for Farmer Mac if an alternative benchmark interest rate index is being used along with LIBOR during a transition period. If LIBOR is discontinued and an alternative benchmark interest rate does not become widely used or accepted in place of LIBOR, then there may be uncertainty or differences in the calculation of the applicable interest rate or payment amounts depending on the terms of the governing instruments for Farmer Mac's assets and liabilities. This could result in different financial performance for previously booked transactions, require different hedging strategies, or require renegotiation of previously booked transactions, and may affect Farmer Mac's existing transaction data, products, systems, operations and pricing processes, which could adversely affect Farmer Mac's business, operating results, or financial condition.

Financial Risk

Incorrect estimates and assumptions by management in preparing financial statements could adversely affect Farmer Mac's business, operating results, reported assets and liabilities, financial condition, reputation, or capital levels.

Farmer Mac's accounting policies and methods are fundamental to how it records and reports its financial condition and results of operations. Some of these policies and methods require management to make estimates and assumptions in preparing Farmer Mac's consolidated financial statements. Incorrect estimates and assumptions by management in connection with preparing Farmer Mac's consolidated financial statements could adversely affect the reported amounts of assets and liabilities and the reported amounts of income and expenses. For example, as of December 31, 2019, Farmer Mac's assets and liabilities recorded at fair value included financial instruments valued at $7.2 billion whose fair values management estimated in the absence of readily observable fair values (in other words, level 3). These financial instruments measured with significant unobservable inputs represented 33% of total assets and 71% of financial instruments measured at fair value as of December 31, 2019. More information about fair value measurement is included in "Management's Discussion and Analysis—Critical Accounting Policies—Fair Value Measurement." If management makes incorrect assumptions or estimates that result in understating or overstating reported financial results, it could materially and adversely affect Farmer Mac's business, operating results, reported assets and liabilities, financial condition, reputation, or capital levels.

Changes in accounting standards or in applying accounting policies could adversely affect Farmer Mac's business, operating results, financial condition, or capital levels.

Farmer Mac is subject to the requirements of entities that set and interpret the accounting standards governing the preparation of Farmer Mac's consolidated financial statements. These entities, which include the Financial Accounting Standards Board ("FASB"), the SEC, and Farmer Mac's independent registered public accounting firm, may add new accounting standards or change their interpretations of how those standards should be applied. These changes may be difficult to predict and could affect how Farmer Mac records and reports its financial condition and results of operations. In some cases, Farmer Mac could be required to apply a new or revised standard retrospectively, potentially resulting in changes to previously reported financial results. For example, the FASB issued a new accounting standard in 2016, effective for Farmer Mac for fiscal years beginning after December 15, 2019, that requires entities to measure credit losses based on an "expected credit loss" approach rather than an "incurred loss" approach currently required under GAAP. The new approach requires entities to measure all expected credit losses for financial assets carried at amortized cost and debt securities classified as available-for-sale, based on historical experience, current conditions, and reasonable forecasts of collectability. This new accounting standard could cause increases and more volatility in Farmer Mac's provision for credit losses and could adversely affect Farmer Mac's business, operating results, financial condition, or capital levels. See Note 2(o) to the consolidated financial statements for more information about this new accounting standard.

Changes in the value or composition of Farmer Mac's investment securities could adversely affect Farmer Mac's business, operating results, financial condition, or capital levels.

Deterioration in financial or credit market conditions could reduce the fair value of Farmer Mac's investment securities, particularly those securities that are less liquid and more subject to market variability. Some securities owned by Farmer Mac, including auction-rate certificates, do not have well-established secondary trading markets, making it more difficult to estimate current fair values for those securities. This requires Farmer Mac to rely on market observations and internal models to estimate the fair values of its investment securities and to determine whether credit losses exist. However, available market data may not reflect the actual sale conditions Farmer Mac may face when selling its investment securities, particularly in adverse financial market conditions. Internal models require Farmer Mac to exercise judgment about estimates and assumptions used in the models. If Farmer Mac uses unreliable market data or incorrect estimates or assumptions in its internal models to estimate the fair value of its investment securities, those estimates could adversely affect results of operations during the reporting period. Also, if Farmer Mac decides to sell securities in its investment portfolio, the price ultimately realized will depend on the demand and liquidity in the market at the time of sale, which could be significantly less than Farmer Mac's estimates for fair value. Failure to accurately estimate the fair value of Farmer Mac's investment securities could adversely affect Farmer Mac's business, operating results, financial condition, or capital levels.

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

The trading price of Farmer Mac's Class C non-voting common stock ("Class C stock") has at times experienced substantial price volatility and may continue to be volatile. For example, from January 2019 to December 2019, the closing price of the Class C stock ranged from $62.55 per share to $87.65 per share. The trading price may fluctuate in response to various factors, including short sales, hedging, the presence or absence of a share repurchase program, stock market influences in general that are unrelated to Farmer Mac's operating performance, or sales of significant amounts of the stock by large holders. Farmer Mac typically grants equity awards each year that are based on the Class C stock, including grants that vest over time or upon the achievement of specified performance goals. Sales of stock acquired upon vesting or the exercise of equity awards by Farmer Mac's officers, directors, or employees, whether under an established trading plan or otherwise, could adversely affect the trading price of the Class C stock.

As to the potential effect of sales of significant amounts of the Class C stock by large holders, Farmer Mac is aware of a regulatory action that could result in significant sales by Zions Bancorporation, National Association (“Zions”), which held 840,000 shares of Class C stock (approximately 9% of the outstanding shares) as of December 31, 2019. In a letter granting conditional approval of a proposed merger involving Zions, the applicable federal regulator found that, although Zions had requested to maintain its ownership in Farmer Mac’s Class C stock after the merger, the continued ownership of Class C stock (held by Zions' holding company before the merger) would not be a permissible investment for the surviving national bank entity of the merger based on then-current precedent. Under the terms of the conditional approval letter, Zions must divest its ownership of the Class C stock by September 30, 2020 unless the regulator determines separately that it would be permissible for Zions to retain some or all of those shares or to divest on a different schedule. If such a separate determination is not made by the regulator and Zions sells all or a significant amount of its remaining Class C stock, those sales could adversely affect the trading price of Farmer Mac’s Class C stock. Zions sold approximately 7,000 shares of its Class C stock between February 3 and February 11, 2020, as reported in Zions’ filings with the SEC. The merger condition related to Zions’ ownership of Class C stock does not apply to Zions’ ownership of 322,100 shares of Farmer Mac’s Class A voting common stock (approximately 31.25% of the outstanding shares of that stock as of December 31, 2019). For more information about Zions’ transactions and relationships with Farmer Mac, see "Management's Discussion and Analysis of Financial Condition and Results of

Operations—Results of Operations—Related Party Transactions" and Note 3 to the consolidated financial statements.

All of these factors may be exacerbated during periods of low trading volume for Farmer Mac's Class C stock, which averaged approximately 40,000 shares daily during 2019, and may have a prolonged negative effect on its trading price or increase price volatility.

Regulatory and Compliance Risk

Farmer Mac and many of its business partners are subject to comprehensive government regulation, and changes to the laws and regulations to which Farmer Mac or its business partners are subject could adversely affect Farmer Mac's business, operating results, reputation, or financial condition.

Farmer Mac was established under a statutory charter that is subject to amendment by the U.S. Congress at any time and is regulated by various government agencies, including the FCA and the SEC. As a result, Farmer Mac is exposed to the risk of legal or regulatory penalties; material financial loss including fines, judgments, damages, and/or settlements; or loss of reputation if it fails to comply with applicable laws, regulations, rules, regulatory requests, self-regulatory organization standards, or codes of conduct applicable to its business activities. Future legislative or regulatory actions affecting Farmer Mac's statutory charter or its business activities, including increased regulatory supervision, and any required changes to Farmer Mac's business or operations resulting from such actions, could result in a financial loss for Farmer Mac or otherwise reduce its profitability, impose additional compliance and other costs on Farmer Mac, limit the products offered by Farmer Mac or its ability to pursue business opportunities in which it might otherwise consider engaging, curtail business activities in which it is currently engaged, affect the value of assets that Farmer Mac holds, or otherwise adversely affect Farmer Mac's business, results of operations, reputation, or financial condition.

The financial services industry, in which most of Farmer Mac's business counterparties and customers operate, is subject to significant legislation and regulations. Specifically, to the extent that current or future legislation, regulations, or supervisory activities affect the activities of banks, insurance companies, other rural lenders, derivatives counterparties, clearinghouses, securities dealers, or other regulated entities that constitute a large portion of Farmer Mac's business counterparties or customers, Farmer Mac could experience loss of business or business opportunities, increased compliance costs, disadvantageous business terms in its dealings with counterparties, and unfavorable changes to its business practices or activities. As a result, Farmer Mac's business, operating results, reputation, or financial condition could be adversely affected.

Farmer Mac is subject to capital requirements that are subject to change, and failure to meet those requirements could result in supervisory measures or the inability of Farmer Mac to declare dividends, or otherwise materially and adversely affect Farmer Mac's business, operating results, or financial condition.

Farmer Mac is required by statute and regulation to maintain certain capital levels. Any inability by Farmer Mac to meet these capital requirements could result in supervisory measures by FCA, adversely affect Farmer Mac's ability to declare dividends on its common and preferred stock, or otherwise materially and adversely affect Farmer Mac's business, operating results, or financial condition. Also, as required by an FCA regulation on capital planning, Farmer Mac has adopted a policy to maintain a sufficient level of Tier 1 capital and to restrict paying Tier 1-eligible dividends if Tier 1 capital falls below specified thresholds. For more information about Farmer Mac's capital requirements, including the Tier 1 capital requirement, see "Business—Government Regulation of Farmer Mac—Regulation—Capital Standards." Factors that could adversely affect the adequacy of Farmer Mac's capital levels in the future, and which may be beyond Farmer Mac's control, include:

- credit losses or other-than-temporary impairment charges;
- adverse changes in interest rates or credit spreads;
- the need to increase the level of the allowance for losses on loans;
- legislative or regulatory actions that increase Farmer Mac's capital requirements; and
- changes in GAAP.

Political Risk

Farmer Mac is a GSE that may be materially and adversely affected by legislative or political developments that may affect the ongoing operations or continued existence of GSEs.

Farmer Mac is a GSE that is governed by a statutory charter, which is subject to amendment by the U.S. Congress at any time, and regulated by government agencies, including the FCA and the SEC. Although Farmer Mac is not aware of any pending legislative proposals that would adversely affect the way Farmer Mac conducts its business or the status of Farmer Mac as a GSE, Farmer Mac's ability to effectively conduct its business is subject to risks and uncertainties related to legislative or political developments that may affect the status or operations of GSEs generally. Farmer Mac cannot predict whether or when legislative initiatives (including any relating to housing GSEs) may commence that, if successful, could negatively affect the status of Farmer Mac as a GSE or how Farmer Mac operates, and which could have a material and adverse effect on Farmer Mac's business, operating results, financial condition, or capital levels. See "Business—Government Regulation of Farmer Mac" for more information about the rules and regulations governing Farmer Mac's activities.

Human Capital Risk

Farmer Mac's ability to attract and retain motivated and qualified employees is critical to the success of its business, and significant or sustained disruption in the continuity of Farmer Mac's employees or executive leaders may materially adversely affect Farmer Mac's business performance, operations, financial condition, or reputation.

Farmer Mac relies on its employees' breadth and depth of knowledge of Farmer Mac and the industries in which it operates to run its business operations successfully. If Farmer Mac is unable to continue to retain and attract motivated and qualified employees or does not have adequate human capital to achieve its business objectives, Farmer Mac's business performance, operations, financial condition, or reputation could be materially adversely affected. A significant disruption in the continuity of Farmer Mac's employees or any significant executive leadership change could also result in a loss of productivity and affect Farmer Mac's ability to successfully execute business strategies by creating uncertainty or instability or requiring Farmer Mac to divert or expend more resources to replace personnel. For example, after the termination of employment of Farmer Mac's former President and Chief Executive Officer in December 2017, Farmer Mac expended significant resources and attention to identify his successor. Loss of key leadership personnel could also damage the public or market perception of Farmer Mac or result in the departure of other executives or key employees. Any of these factors could materially adversely affect Farmer Mac's business performance, operations, financial condition, or reputation.

Any of the risks described in this section could materially and adversely affect Farmer Mac's business, operating results, financial condition, reputation, capital levels, and future earnings. For more information about Farmer Mac's risk management, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Risk Management" in Item 7 of this Annual Report on Form 10-K.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

Farmer Mac maintains its principal office at 1999 K Street, N.W., 4th Floor, Washington, D.C. 20006, under a sublease that began on October 1, 2011 and ends on August 30, 2024. Farmer Mac also maintains two other office locations: (1) 9169 Northpark Drive, Johnston, Iowa 50322, under a lease that began on October 1, 2017 and ends on June 30, 2023; and (2) 5200 N. Palm Avenue, Suite 306, Fresno, California 93704, under a lease that began on January 1, 2017 and ends on February 28, 2021. Farmer Mac believes that its offices are suitable and adequate for its current and anticipated needs for the near future.

Item 3. Legal Proceedings

None.

Item 4. Mine Safety Disclosures

Not applicable.

PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters, and Issuer Purchases for Equity Securities

(a) Farmer Mac has three classes of common stock outstanding – Class A voting common stock, Class B voting common stock, and Class C non-voting common stock. Ownership of Class A voting common stock is restricted to banks, insurance companies, and other financial institutions or similar entities that are not institutions of the FCS. Ownership of Class B voting common stock is restricted to institutions of the FCS. There are no ownership restrictions on the Class C non-voting common stock. In the original public offering of the Class A and Class B voting common stock, Farmer Mac reserved the right to redeem at book value any shares of either class held by an ineligible holder.

Farmer Mac's Class A voting common stock and Class C non-voting common stock are listed on the New York Stock Exchange under the symbols AGM.A and AGM, respectively. The Class B voting common stock, which has a limited market and trades infrequently, is not listed or quoted on any exchange or other quotation system, and Farmer Mac is not aware of any publicly available quotations or prices for that class of common stock.

As of February 3, 2020, Farmer Mac had 909 registered owners of the Class A voting common stock, 77 registered owners of the Class B voting common stock, and 853 registered owners of the Class C non-voting common stock.

The dividend rights of all three classes of Farmer Mac's common stock are the same, and dividends may be paid on common stock only when, as, and if declared by Farmer Mac's board of directors in its sole discretion, subject to compliance with applicable capital requirements and payment of dividends on any outstanding preferred stock. On February 28, 2018, Farmer Mac's board of directors declared a quarterly dividend of $0.58 per share on Farmer Mac's common stock payable for first quarter 2018. That dividend was paid quarterly through fourth quarter 2018. On February 19, 2019, Farmer Mac's board of directors declared a dividend of $0.70 per share on Farmer Mac's common stock payable for first quarter 2019. That dividend was paid quarterly through fourth quarter 2019. On February 24, 2020, Farmer Mac's board of directors declared a dividend $0.80 per share on Farmer Mac's common stock payable for first quarter 2020. See "Business—Financing—Equity Issuance" for more information on Farmer Mac's common stock.

The quarterly dividend of $0.80 per share on all three classes of common stock for first quarter 2020 represents an increase of $0.10 per common share, or 14%, over the quarterly dividend payout in 2019 and reflects the board's goal to maintain Farmer Mac's common stock dividend payout target as a percentage of annual core earnings at 35%. In deciding to maintain Farmer Mac's common stock dividend and payout target, the board of directors considered Farmer Mac's strong capital position and the consistency of and outlook for earnings, balanced against the need for capital to fund the significant growth objectives identified in the company's strategic plan and to meet regulatory requirements and metrics established by the board of directors. These actions are also consistent with Farmer Mac's goal of providing a competitive return on its common stockholders' investments through the payment of cash dividends. Farmer Mac's payout ratio of core earnings is also in line with those of its financial institution peers within the S&P Financial Index and NASDAQ Bank Index, many of which have significantly increased their common stock dividends during the past two years.

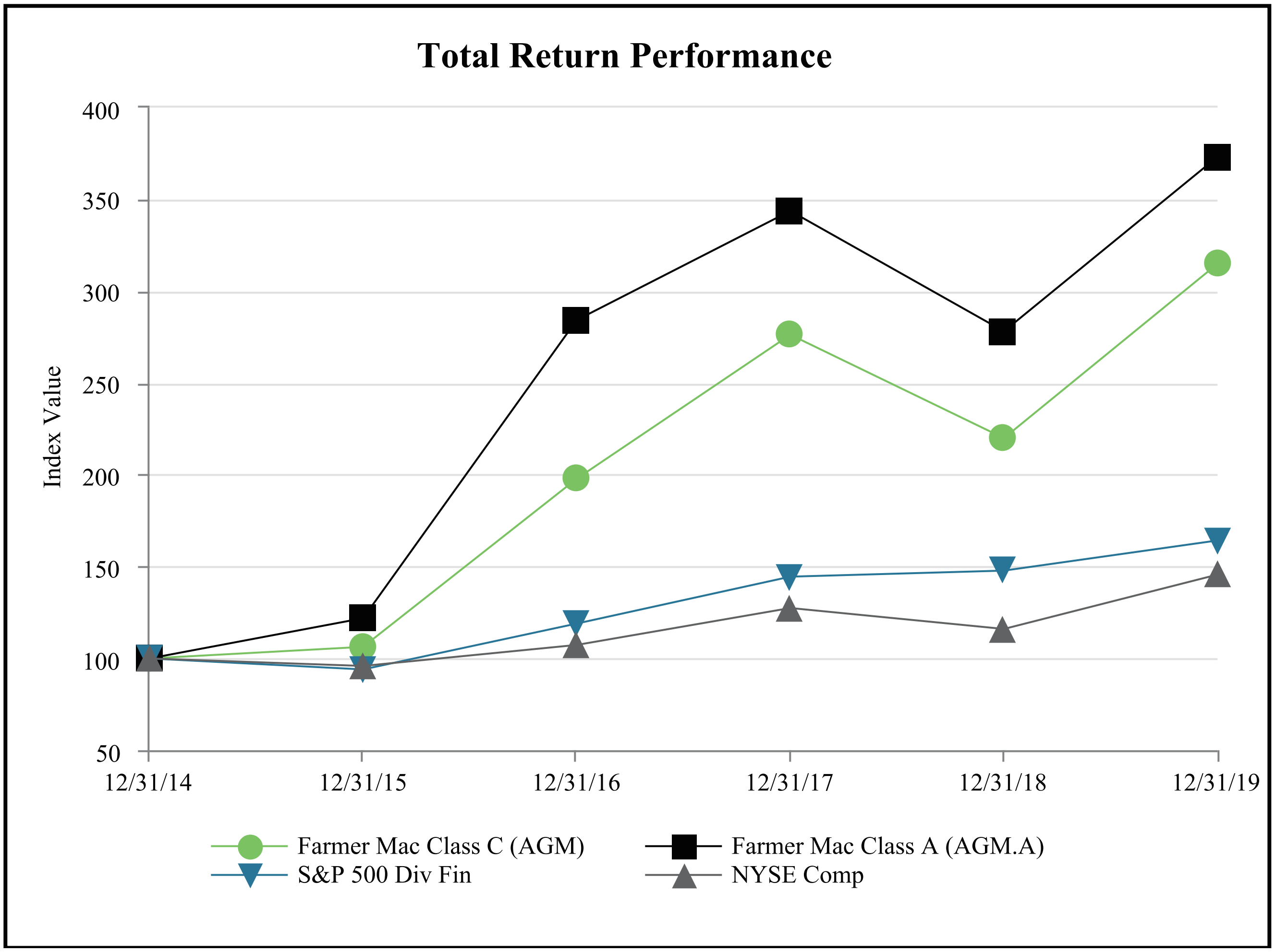
The declaration and payment of future dividends to holders of Farmer Mac's common stock are, however, at the discretion of Farmer Mac's board of directors and depend on many factors, including Farmer Mac's financial condition, actual results of operations and earnings, the capital needs of Farmer Mac's business, regulatory requirements, and other factors that Farmer Mac's board deems relevant. Farmer Mac's ability to pay dividends on its common stock is also subject to the payment of dividends on its outstanding preferred stock. Applicable FCA regulations also require Farmer Mac to provide FCA with 15 days' advance notice of certain capital distributions. Farmer Mac's ability to declare and pay dividends could be restricted if it were to fail to comply with applicable capital requirements. See Note 9 to the consolidated financial statements for more information about Farmer Mac's capital position and see "Business—Government Regulation of Farmer Mac—Regulation—Capital Standards" and "Management's Discussion and Analysis of Financial Condition and Results of Operations—Liquidity and Capital Resources—Capital Requirements" for more information on the capital requirements applicable to Farmer Mac.

Information about securities authorized for issuance under Farmer Mac's equity compensation plans appears under "Equity Compensation Plans" in Farmer Mac's definitive proxy statement to be filed on or about April 6, 2020. That portion of the definitive proxy statement is incorporated by reference into this Annual Report on Form 10-K.

Farmer Mac is a federally chartered instrumentality of the United States, and its common stock is exempt from registration under Section 3(a)(2) of the Securities Act. One type of transaction related to Farmer Mac's common stock occurred during fourth quarter 2019 that was not registered under the Securities Act and not otherwise reported on a Current Report on Form 8-K:

- On October 2, 2019, consistent with 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 232 shares of Class C non-voting common stock to the four directors who elected to receive such stock in lieu of a portion of their cash retainers. The number of shares issued to the directors was calculated based on a price of $81.66 per share, which was the closing price of the Class C non-voting common stock on September 30, 2019, the last business day of the third quarter, as reported by the New York Stock Exchange.

Performance Graph. The following graph compares the performance of Farmer Mac's Class A voting common stock and Class C non-voting common stock with the performance of the New York Stock Exchange Composite Index ("NYSE Comp") and the Standard & Poor's 500 Diversified Financials Index ("S&P 500 Div Fin") over the period from December 31, 2014 to December 31, 2019. The graph assumes that $100 was invested on December 31, 2014 in each of: Farmer Mac's Class A voting common stock; Farmer Mac's Class C non-voting common stock; the NYSE Composite Index; and the S&P 500 Diversified Financials Index. The graph also assumes that all dividends were reinvested into the same securities throughout the past five years. Farmer Mac obtained the information in the performance graph from S&P Global Market Intelligence.



This performance graph shall not be deemed to be "soliciting material" or to be "filed" with the SEC, and this performance graph shall not be incorporated by reference into any of Farmer Mac's filings under the Securities Act or the Securities Exchange Act of 1934 and related regulations, or any other document, whether made before or after the date of this report and despite any general incorporation language contained in a filing or document (except to the extent Farmer Mac specifically incorporates this section by reference into a filing or document).

(b) Not applicable.

(c) None.

Item 6. Selected Financial Data

The selected consolidated financial data presented below is summarized from Farmer Mac's consolidated balance sheet data as of December 31, 2019 and the five-year period then ended, as well as selected results of operations data for the five-year period then ended. This data should be reviewed in conjunction with the audited consolidated financial statements and related notes and with "Management's Discussion and Analysis of Financial Condition and Results of Operations" in this Annual Report on Form 10-K.

Summary of Financial Condition:	As of December 31, 2019	2018	2017	2016	2015
	(dollars in thousands)				
Cash and cash equivalents	$ 604,381	$ 425,256	$ 302,022	$ 265,229	$ 1,210,084
Investment securities	3,004,875	2,262,884	2,260,437	2,515,851	2,775,516
Farmer Mac Guaranteed Securities	8,590,476	8,071,115	7,598,188	6,002,916	5,426,621
USDA Securities	2,241,073	2,176,173	2,131,365	2,029,613	1,917,319
Loans, net	6,981,440	5,515,052	5,266,786	4,507,435	3,962,044
Total assets	21,709,374	18,694,328	17,792,274	15,606,020	15,540,354
Notes payable:					
Due within one year	10,019,082	7,757,050	8,089,826	8,440,123	9,111,461
Due after one year	9,079,566	8,486,647	7,432,790	5,222,977	4,967,036
Total liabilities	20,910,098	17,941,771	17,084,128	14,962,373	14,986,634
Stockholders' equity	799,276	752,557	708,146	643,425	553,517
Non-controlling interest(1)	—	—	—	222	203
Capital:					
Statutory minimum capital requirement	$ 618,768	$ 544,984	$ 520,271	$ 466,498	$ 462,070
Core capital	815,437	727,601	657,061	609,667	564,536
Capital in excess of minimum capital requirement	196,669	182,617	136,790	143,169	102,466
Selected Financial Ratios:					
Return on average assets(2)	0.46 %	0.52 %	0.43 %	0.41 %	0.32 %
Return on average common equity(3)	16.88 %	19.46 %	16.64 %	16.78 %	13.83 %
Average equity to assets(4)	3.84 %	4.00 %	4.05 %	3.84 %	3.69 %
Average total equity to assets(5)	3.84 %	4.00 %	4.05 %	3.84 %	4.48 %
Tier 1 capital ratio(6)	12.9 %	13.4 %	12.6 %	12.7 %	10.5 %

(1) This balance relates to AgVisory, Farmer Mac's former majority-owned subsidiary whose principal activity was 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.

(2) Calculated as net income attributable to common stockholders divided by the simple average of beginning and ending total assets.

(3) Calculated as net income attributable to common stockholders divided by the simple average of beginning and ending stockholders' equity, net of preferred stock, at redemption value and accumulated other comprehensive (loss)/income, net of tax.

(4) Calculated as the simple average of beginning and ending stockholders' equity divided by the simple average of beginning and ending total assets.

(5) Calculated as the simple average of beginning and ending stockholders' equity and non-controlling interest divided by the simple average of beginning and ending total assets.

(6) In 2016, Farmer Mac adjusted the calculation of its Tier 1 capital ratio to eliminate certain interest rate risk components of the risk weighting of assets to reflect the fact that Farmer Mac pursues an approach to funding its assets with liabilities of similar duration and convexity characteristics and therefore does not bear material interest rate risk in its portfolio. These interest rate risk components have not been eliminated in the calculation for the Tier 1 capital ratio for the year ended December 31, 2015. For more information about Farmer Mac's Tier 1 capital ratio, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Liquidity and Capital Resources—Capital Requirements."

Summary of Operations:	For the Year Ended December 31, 2019	2018	2017	2016	2015
	(in thousands, except per share amounts)				
Interest Income:					
Net interest income after provision for loan losses	$ 169,631	$ 174,198	$ 155,939	$ 139,209	$ 123,419
Non-interest income:					
Guarantee and commitment fees	13,666	13,976	14,114	14,868	14,077
Gains/(losses) on financial derivatives, hedging activities and trading assets	5,608	(3,606)	729	3,771	3,751
(Losses)/gains on asset sales and debt repurchases	(236)	—	89	(9)	9
(Losses)/gains on the sale of real estate owned	—	(7)	1,748	15	(1)
Other income	1,904	1,377	832	1,823	2,305
Non-interest income	20,942	11,740	17,512	20,468	20,141
Non-interest expense	51,922	49,916	42,765	40,320	35,482
Income before income taxes	138,651	136,022	130,686	119,357	108,078
Income tax expense	29,105	27,942	46,369	42,057	34,239
Net income	109,546	108,080	84,317	77,300	73,839
Less: Net loss/(income) attributable to non-controlling interest	—	—	165	34	(5,139)
Preferred stock dividends	(13,940)	(13,182)	(13,182)	(13,182)	(13,182)
Loss on retirement of preferred stock	(1,956)	—	—	—	(8,147)
Net income attributable to common stockholders	$ 93,650	$ 94,898	$ 71,300	$ 64,152	$ 47,371
Allowance for Losses Activity:					
Provision for losses	$ 3,501	$ 335	$ 1,758	$ 1,002	$ 208
Net charge-offs	67	17	327	130	3,772
Ending balance	12,618	9,184	8,866	7,435	6,563
Earnings Per Common Share and Dividends:					
Basic earnings per common share	$ 8.76	$ 8.91	$ 6.73	$ 6.12	$ 4.33
Diluted earnings per common share	8.69	8.83	6.60	5.97	4.19
Common stock dividends per common share	2.80	2.32	1.44	1.04	0.64

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

Financial information included in this report is consolidated to include the accounts of Farmer Mac and its two subsidiaries – Farmer Mac Mortgage Securities Corporation and Farmer Mac II LLC. The accounts of Contour Valuation Services, LLC (which began doing business as AgVisory during first quarter 2016) ("AgVisory"), Farmer Mac's former majority-owned subsidiary, are also included through June 30, 2017. Farmer Mac redeemed its ownership interest in AgVisory on May 1, 2017. This discussion and analysis of financial condition and results of operations should be read together with Farmer Mac's consolidated financial statements and the related notes to the consolidated financial statements for the fiscal years ended December 31, 2019, 2018, and 2017.

Overview

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

Net Income and Core Earnings

Our net income attributable to common stockholders for 2019 was $93.7 million, compared to $94.9 million for 2018 and $71.3 million for 2017.

The $1.2 million decrease in net income attributable to common stockholders for 2019 compared to 2018 was due to a $2.5 million after-tax increase in the provision for loan losses, a $1.6 million after-tax increase in operating expenses, a $1.0 million after-tax decrease in net interest income, and a $0.8 million increase in preferred stock dividends. These factors were partially offset by a $7.1 million after-tax increase in the fair value of undesignated financial derivatives due to fluctuations in long-term interest rates.

The $23.6 million increase in net income attributable to common stockholders for 2018 compared to 2017 was primarily due to: (1) an $18.4 million decrease in income tax expense due to the reduction in the federal corporate income tax rate resulting from the enactment of new federal tax legislation known as the Tax Cuts and Jobs Act; and (2) a $13.3 million after-tax increase in net interest income. This year-over-year increase was partially offset in part by: (1) an increase of $3.5 million in net after-tax losses on our financial derivatives; (2) an increase in general and administrative ("G&A") expenses of $3.0 million after-tax; and (3) an increase in compensation and employee benefits expenses of $2.6 million after-tax.

Core earnings and core earnings per share are non-GAAP measures that principally differ from net income attributable to common stockholders and earnings per common share, respectively, by excluding the effects of fair value fluctuations as well as the effects of specified infrequent or unusual transactions. Our core earnings for 2019 were $93.7 million, compared to $84.0 million in 2018 and $65.6 million in 2017.

The $9.7 million increase in core earnings was primarily due to a $13.8 million after-tax increase in net effective spread driven by higher business volume, partially offset by a $2.5 million after-tax increase in the provision for loan losses and a $1.6 million after-tax increase in operating expenses related to continued investments in technology and business infrastructure as well as increases in compensation and employee benefits expenses.

The $18.4 million increase in core earnings for 2018 compared to 2017 was primarily due to a $16.8 million decrease in income tax expense resulting from the lower federal corporate income tax rate and a $7.8 million after-tax increase in net effective spread resulting primarily from an increase in outstanding business volume. The increase to core earnings were partially offset by a $3.0 million after-tax increase in G&A expenses related to continued investments in Farmer Mac's technology and business infrastructure and a $2.6 million after-tax increase in compensation and employee benefits expenses.

For more information about net income attributable to common stockholders, the composition of core earnings, and a reconciliation of net income attributable to common stockholders to core earnings, see

"Management's Discussion and Analysis of Financial Condition and Results of Operations—Results of Operations." For more information about the non-GAAP measures Farmer Mac uses, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Use of Non-GAAP Measures."

Net Interest Income and Net Effective Spread

Net interest income was $173.1 million for 2019, compared to $174.4 million for 2018 and $157.6 million for 2017. The overall net interest yield was 0.87% for 2019, compared to 0.96% for 2018 and 0.94% for 2017.

The $1.3 million decrease in net interest income in 2019 compared to 2018 was due to a $12.8 million decrease in net fair value changes from fair value hedge accounting relationships and a $5.2 million increase in funding and liquidity costs. These factors were partially offset by $15.1 million in net new business volume across all lines of business and the composition of existing Institutional Credit business volume and $1.6 million in various interest income fluctuations primarily related to prepayment activity. The 9 basis point decrease was primarily attributable to a 6 basis point decrease in net fair value changes from fair value hedge accounting relationships and a 5 basis point increase in funding and liquidity costs, partially offset by a 1 basis point increase from business volume.

The $16.8 million increase in net interest income for 2018 compared to 2017 was primarily due to net growth in on-balance sheet AgVantage securities, Farm & Ranch loans, and USDA Securities, which contributed to a $10.1 million increase in net interest income. Another factor contributing to the increase were the fair value changes on financial derivatives and corresponding financial assets and liabilities in fair value hedge relationships, which contributed $4.9 million in net interest income during 2018. Lastly, there was an increase in the amount of cash basis interest income recognized on non-accrual Farm & Ranch loans, which contributed $1.5 million in net interest income during 2018. The year-over-year increase in net interest income was partially offset by the full amortization of the remaining $2.0 million in premium of an interest-only security held in Farmer Mac's investment portfolio (the "Interest-Only Amortization") because the issuer called the security upon full prepayment of the underlying mortgage loan that collateralized the security.

Farmer Mac uses net effective spread, a non-GAAP measure, as an alternative to net interest income because management believes it is a useful metric that reflects the economics of the net spread between all the assets owned by Farmer Mac and all related funding, including any associated derivatives, some of which may not be included in net interest income. Net effective spread was $168.6 million in 2019, compared to $151.2 million in 2018 and $141.3 million in 2017. In percentage terms, net effective spread was 0.91% for each of the years ended December 31, 2019, 2018, and 2017, respectively.

The $17.4 million increase in net effective spread in dollars for 2019 compared to 2018 was due to a $14.2 million increase from net new business volume across all lines of business and the composition of existing Institutional Credit business volume, a $1.6 million increase in various interest income fluctuations primarily related to prepayment activity, and a $1.6 million decrease in non-GAAP funding costs. In percentage terms, net effective spread remained at 0.91% in both 2019 and 2018 primarily because the increase from the absence of the Interest-Only Amortization was offset by the decrease from narrower spreads on liquidity investment securities.

The $9.9 million increase in net effective spread in dollars for 2018 compared to 2017 was primarily due to: (1) growth in outstanding business volume, which increased net effective spread by approximately

$10.1 million; and (2) a $1.5 million increase in the amount of cash basis interest income received from non-accrual Farm & Ranch loans. This increase in net effective spread was partially offset by the Interest-Only Amortization described above. In percentage terms, net effective spread remained at 0.91% in both 2018 and 2017 primarily because the increase from cash basis interest income was offset by the decrease from the Interest-Only Amortization.

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

Our outstanding business volume was $21.1 billion as of December 31, 2019, a net increase of $1.4 billion from December 31, 2018, after taking into account all new business, maturities, and paydowns on existing assets. This net increase was across all four lines of business: $0.7 billion in Rural Utilities, $0.5 billion in Farm & Ranch, $0.1 billion in USDA Guarantees and $0.1 billion in the Institutional Credit line of business.

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

Capital

As of December 31, 2019, our core capital level was $815.4 million, which was $196.7 million above the minimum capital level required by our statutory charter. As of December 31, 2018, our core capital level was $727.6 million, which was $182.6 million above the minimum capital requirement. The increase in capital above the minimum capital level was due to the Board-authorized issuance of the Series D Preferred Stock in May 2019 and an increase in retained earnings, which were partially offset by more capital required to support growth in our outstanding business volume and the redemption of the Series B Preferred Stock in June 2019.

Credit Quality

As of December 31, 2019, Farmer Mac's allowance for losses was $12.6 million (0.16% of the Farm & Ranch portfolio), compared to $9.2 million (0.13% of the Farm & Ranch portfolio) as of December 31, 2018. The $3.4 million increase in the total allowance for losses in 2019 was primarily due to a specific reserve on a single specialized poultry loan, a decrease in overall credit quality, and net portfolio growth.

As of December 31, 2019, Farmer Mac's substandard assets were $310.0 million (4.0% of the Farm & Ranch portfolio), compared to $232.7 million (3.2% of the Farm & Ranch portfolio) as of December 31, 2018. The increase of $77.3 million in substandard assets during 2019 reflected an overall deterioration in the credit quality of the portfolio with more loans migrating into the substandard classification than migrating or paying off from the substandard classification. The percentage of substandard assets within the portfolio was at the historical average as of December 31, 2019. For an analysis of current loan-to-value ratios across substandard and other internally assigned risk ratings see Table 17 in "Management's Discussion and Analysis of Financial Condition and Results of Operations—Risk Management—Credit Risk - Loans and Guarantees."

As of December 31, 2019, Farmer Mac's 90-day delinquencies were $61.0 million (0.78% of the Farm & Ranch portfolio), compared to $26.9 million (0.37% of the Farm & Ranch portfolio) as of December 31, 2018. Across all of Farmer Mac's lines of business, 90-day delinquencies represented 0.29% of total outstanding business volume as of December 31, 2019, compared to 0.14% as of December 31, 2018.

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."

Critical Accounting Policies and Estimates

The preparation of Farmer Mac's consolidated financial statements in conformity with GAAP requires the use of estimates and assumptions that affect the amounts reported in the consolidated financial statements and related notes for the periods presented. Actual results could differ from those estimates. Farmer Mac views the allowance for losses and fair value measurement as critical accounting policies. Both policies require complex and subjective judgments and are important to the presentation of Farmer Mac's financial condition and results of operations.

Allowance for Losses

Farmer Mac maintains an allowance for losses to cover estimated probable losses incurred as of the balance sheet date on loans held for investment ("allowance for loan losses") and loans underlying off-balance sheet Farmer Mac Guaranteed Securities and LTSPCs ("reserve for losses") based on available information. For purposes of this accounting policy, the allowance for loan losses and the reserve for losses are described collectively as the "allowance for losses" because the estimation methodology is identical for loans that are held for investment and for loans underlying off-balance sheet Farmer Mac Guaranteed Securities and LTSPCs. Disaggregation by commodity type is performed, where appropriate, in analyzing the need for an allowance for losses.

The allowance for loan losses increases through periodic provisions for loan losses that are charged against net interest income. The reserve for losses increases through provisions for losses that are charged to non-interest expense. Both the allowance for loan losses and reserve for losses decrease by charge-offs for actual losses, net of recoveries. Charge-offs represent losses on the outstanding principal balance, any interest payments previously accrued or advanced, and expected costs of liquidation. Negative provisions, or releases of allowance for losses, occur when the estimate of probable losses as of the end of a period is lower than the estimate at the beginning of the period.

The total allowance for losses consists of a general allowance for losses and a specific allowance for individually identified impaired loans.

General Allowance for Losses

Farm & Ranch

Farmer Mac's methodology for determining its general allowance for losses incorporates Farmer Mac's automated loan classification system. That system scores loans based on criteria such as historical repayment performance, indicators of current financial condition, loan seasoning, loan size, and loan-to-value ratio. For purposes of the loss allowance methodology, the loans in Farmer Mac's portfolio of loans and loans underlying off-balance sheet Farm & Ranch Guaranteed Securities and LTSPCs have been scored and classified for each calendar quarter since first quarter 2000. The allowance methodology captures the migration of loan scores across concurrent and overlapping three-year time horizons and calculates loss rates separately within each loan classification for (1) loans held for investment and (2) loans underlying off-balance sheet Farm & Ranch Guaranteed Securities and LTSPCs. The calculated loss rates are applied to the current classification distribution of unimpaired loans in Farmer Mac's portfolio to estimate probable losses, based on the assumption that the historical credit losses and trends used to calculate loss rates will continue in the future. Management evaluates this assumption by considering many relevant factors, including:

- economic conditions;
- geographic and agricultural commodity/product concentrations in the portfolio;
- the credit profile of the portfolio;
- delinquency trends of the portfolio;
- historical charge-off and recovery activities of the portfolio; and
- other factors to capture current portfolio trends and characteristics that differ from historical experience.

Management believes that this methodology produces a reasonable estimate of probable losses, as of the balance sheet date, for all loans included in the Farm & Ranch line of business, including loans held for investment and loans underlying off-balance sheet Farm & Ranch Guaranteed Securities and LTSPCs.

Rural Utilities

Farmer Mac separately evaluates the Rural Utilities loans it holds for investment and loans underlying LTSPCs to estimate any probable losses inherent in those assets. Farmer Mac has not provided an allowance for losses for the portfolio segment related to the Rural Utilities line of business based on the performance of the loans and the quality of the collateral supporting rural utilities assets.

<u>Specific Allowance for Impaired Loans</u>

Farmer Mac individually analyzes certain loans in its portfolio for impairment. Farmer Mac's individually identified impaired loans generally include loans 90 days or more past due, in foreclosure, restructured, in bankruptcy, and certain performing loans that have previously been delinquent or are secured by real estate that produces agricultural commodities or products that have been identified as under stress.

For individually identified impaired loans with an updated appraisal, other updated collateral valuation, or management's estimate of discounted collateral value, this analysis compares the measurement of the fair value of the collateral to the total recorded investment in the loan. The total recorded investment in the loan includes principal, interest, and advances, net of any charge-offs. If an individually analyzed loan's collateral value does not equal or exceed its total recorded investment, Farmer Mac provides a specific allowance for loss in the amount of the difference between the recorded investment and fair value, less estimated costs to liquidate the collateral. Estimated selling costs are based on historical selling costs incurred by Farmer Mac or management's best estimate of selling costs for a particular property. For individually identified impaired loans without updated valuations, this analysis is performed in the aggregate considering similar risk characteristics of the loans and historical statistics. Farmer Mac considers appraisals that are more than two years old as of the reporting date not to be updated for purposes of individually analyzing loans.

Farmer Mac uses a risk-based approach in determining the need to obtain updated appraisals on impaired loans. For example, larger exposures associated with highly improved and specialized collateral will generally receive updated appraisals once the loans are identified as impaired. Also, updated appraisals are always obtained during the foreclosure process. Depending on the risk factors associated with the loan and underlying collateral, which can vary widely depending on the circumstances of the loan and collateral, this can occur early in the foreclosure process, while in other instances this may occur just before the transfer of title. As part of its routine credit review process, Farmer Mac often will exercise judgment in discounting an appraised value due to local real estate trends or the condition of the property (e.g., following an inspection by Farmer Mac or the servicer). A property's appraised value may also be discounted based on the market's reaction to Farmer Mac's asking price for the sale of the property.

More information about the allowance for losses is included in "Management's Discussion and Analysis of Financial Condition and Results of Operations—Risk Management—Credit Risk – Loans and Guarantees" and Note 2(g) to the consolidated financial statements.

Fair Value Measurement

A significant portion of Farmer Mac's assets consists of financial instruments that are measured at fair value in the consolidated balance sheets. For financial instruments that are complex in nature or for which observable inputs are not available, the measurement of fair value requires management to make significant judgments and assumptions. These judgments and assumptions, as well as changes in market conditions, may have a material effect on the consolidated balance sheets and statements of operations.

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date (also referred to as an exit price) and establishes a hierarchy for ranking fair value measurements. In determining fair value, Farmer Mac uses various valuation approaches, including market and income approaches. The fair value hierarchy requires an entity to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value. When available, the fair value of Farmer Mac's financial instruments is based on quoted market prices, valuation techniques that use observable market-based inputs, or unobservable inputs that are corroborated by market data. Pricing information obtained from third parties is internally validated for reasonableness before use in the consolidated financial statements.

When observable market prices are not readily available, Farmer Mac estimates fair value using techniques that rely on alternate market data or internally developed models using significant inputs that are generally less readily observable. Market data includes prices of financial instruments with similar maturities and characteristics, interest rate yield curves, measures of volatility, and prepayment rates. If market data needed to estimate fair value is not available, Farmer Mac estimates fair value using internally-developed models that employ a discounted cash flow approach. Even when market assumptions are not readily available, Farmer Mac's assumptions reflect those that market participants would likely use in pricing the asset or liability at the measurement date.

Farmer Mac's assets and liabilities presented at fair value in the consolidated balance sheets on a recurring basis include investment securities, Farmer Mac Guaranteed Securities, and financial derivatives. The changes in fair value from period to period are recorded either in the consolidated statements of comprehensive income as other comprehensive (loss)/income, net of tax or in the consolidated statements of operations as gains/(losses) on financial derivatives, net interest income, or gains/(losses) on trading assets.

The fair value hierarchy ranks the quality and reliability of the information used to determine fair values. The hierarchy gives highest priority to unadjusted quoted prices in active markets for identical assets or liabilities and the lowest priority to unobservable inputs. The hierarchy has the following three levels to classify fair value measurements:

Level 1	Unadjusted quoted prices in active markets that are accessible at the measurement date for identical, unrestricted assets or liabilities.
Level 2	Quoted prices in markets that are not active or financial instruments for which all significant inputs are observable, either directly or indirectly.
Level 3	Prices or valuations that require unobservable inputs that are significant to the fair value measurement.

As of December 31, 2019, Farmer Mac's assets and liabilities recorded at fair value included financial instruments valued at $7.2 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 33% of total assets and 71% of financial instruments measured at fair value as of December 31, 2019.

See Note 13 to the consolidated financial statements for more information about fair value measurement.

Use of Non-GAAP Measures

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

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

Core Earnings and Core Earnings Per Share

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

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

Net Effective Spread

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

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

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

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

For a reconciliation of net interest income and net interest yield to net effective spread, see Table 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 2019 was $93.7 million ($8.69 per diluted common share), compared to $94.9 million ($8.83 per diluted common share) for 2018, and $71.3 million ($6.60 per diluted common share) for 2017. Farmer Mac's non-GAAP core earnings for 2019 were $93.7 million ($8.70 per diluted common share), compared to $84.0 million ($7.82 per diluted common share) for 2018, and $65.6 million ($6.08 per diluted common share) for 2017. 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."

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

Table 1

Reconciliation of Net Income Attributable to Common Stockholders to Core Earnings

	For the Year Ended December 31,		
	2019	2018	2017
	(in thousands, except per share amounts)		
Net income attributable to common stockholders	$ 93,650	$ 94,898	$ 71,300
Less reconciling items:			
Gains on undesignated financial derivatives due to fair value changes (see Table 8)	10,077	7,959	10,218
(Losses)/gains on hedging activities due to fair value changes	(9,010)	4,449	(719)
Unrealized gains/(losses) on trading securities	326	81	(24)
Amortization of premiums/discounts and deferred gains on assets consolidated at fair value	(122)	(461)	(1,327)
Net effects of terminations or net settlements on financial derivatives	1,089	1,708	2,674
Issuance costs on the retirement of preferred stock	(1,956)	—	—
Re-measurement of net deferred tax asset due to enactment of new tax legislation	—	—	(1,365)
Income tax effect related to reconciling items	(496)	(2,885)	(3,788)
Sub-total	(92)	10,851	5,669
Core earnings	$ 93,742	$ 84,047	$ 65,631
Composition of Core Earnings:			
Revenues:			
Net effective spread[(1)]	$ 168,608	$ 151,195	$ 141,303
Guarantee and commitment fees[(2)]	21,335	20,733	20,350
Other[(3)]	1,775	520	935
Total revenues	191,718	172,448	162,588
Credit related expense (GAAP):			
Provision for losses	3,501	335	1,758
REO operating expenses	64	16	23
Losses/(gains) on sale of REO	—	7	(1,748)
Total credit related expense	3,565	358	33
Operating expenses (GAAP):			
Compensation and employee benefits	28,762	27,534	24,233
General and administrative	20,311	19,707	15,959
Regulatory fees	2,788	2,562	2,500
Total operating expenses	51,861	49,803	42,692
Net earnings	136,292	122,287	119,863
Income tax expense[(4)]	28,610	25,058	41,215
Net loss attributable to non-controlling interest (GAAP)	—	—	(165)
Preferred stock dividends (GAAP)	13,940	13,182	13,182
Core earnings	$ 93,742	$ 84,047	$ 65,631
Core earnings per share:			
Basic	$ 8.76	$ 7.89	$ 6.20
Diluted	8.70	7.82	6.08
Weighted-average shares:			
Basic	10,696	10,654	10,594
Diluted	10,778	10,746	10,803

(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 terminations or net settlements on financial derivatives, and reconciling adjustments to exclude fair value adjustments on financial derivatives and trading assets and the recognition of deferred gains over the estimated lives of certain Farmer Mac Guaranteed Securities and USDA Securities.

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

Table 2

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

	For the Year Ended December 31,		
	2019	2018	2017
	(in thousands, except per share amounts)		
GAAP - Basic EPS	$ 8.76	$ 8.91	$ 6.73
Less reconciling items:			
Gains on undesignated financial derivatives due to fair value changes (see Table 8)	0.94	0.75	0.97
(Losses)/gains on hedging activities due to fair value changes	(0.83)	0.41	(0.07)
Unrealized gains on trading securities	0.03	0.01	—
Amortization of premiums/discounts and deferred gains on assets consolidated at fair value	(0.01)	(0.04)	(0.13)
Net effects of terminations or net settlements on financial derivatives	0.10	0.16	0.25
Issuance costs on the retirement of preferred stock	(0.18)	—	—
Re-measurement of net deferred tax asset due to enactment of new tax legislation	—	—	(0.13)
Income tax effect related to reconciling items	(0.05)	(0.27)	(0.36)
Sub-total	—	1.02	0.53
Core Earnings - Basic EPS	$ 8.76	$ 7.89	$ 6.20
Shares used in per share calculation (GAAP and Core Earnings)	10,696	10,654	10,594

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

	For the Year Ended December 31,		
	2019	2018	2017
	(in thousands, except per share amounts)		
GAAP - Diluted EPS	$ 8.69	$ 8.83	$ 6.60
Less reconciling items:			
Gains on undesignated financial derivatives due to fair value changes (see Table 8)	0.93	0.74	0.94
(Losses)/gains on hedging activities due to fair value changes	(0.83)	0.41	(0.07)
Unrealized gains on trading securities	0.03	0.01	—
Amortization of premiums/discounts and deferred gains on assets consolidated at fair value	(0.01)	(0.04)	(0.12)
Net effects of terminations or net settlements on financial derivatives	0.10	0.16	0.25
Issuance costs on the retirement of preferred stock	(0.18)	—	—
Re-measurement of net deferred tax asset due to enactment of new tax legislation	—	—	(0.13)
Income tax effect related to reconciling items	(0.05)	(0.27)	(0.35)
Sub-total	(0.01)	1.01	0.52
Core Earnings - Diluted EPS	$ 8.70	$ 7.82	$ 6.08
Shares used in per share calculation (GAAP and Core Earnings)	10,778	10,746	10,803

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

1. (Losses)/gains on financial derivatives due to fair value changes are presented by two reconciling items in Table 1 above: (1) Gains/(losses) on undesignated financial derivatives due to fair value changes; and (2) (Losses)/gains on hedging activities due to fair value changes. The table below calculates the non-GAAP reconciling item for (losses)/gains on hedging activities due to fair value changes:

Table 3

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

	For the Year Ended December 31,		
	2019	2018	2017
		(in thousands)	
(Losses)/gains due to fair value changes (see Table 6.2)	$ (7,907)	$ 4,941	$ (719)
Initial cash payment (received) at inception of swap[1]	(1,103)	(492)	—
(Losses)/gains on hedging activities due to fair value changes	$ (9,010)	$ 4,449	$ (719)

[1] Relates to initial cash payments received at the inception of a swap designated in a fair value hedge. These initial cash payments were previously recognized in "(Losses)/gains on financial derivatives" in the Statement of Operations. Upon adoption of ASU 2017-12, *"Derivatives and Hedging (Topic 815): Targeted Improvements to Accounting for Hedging Activities*," for financial derivatives designated in fair value hedge relationships, the changes in the fair values of the derivative and the associated hedged item are recorded within net interest income. For purposes of core earnings, these initial cash payments are deferred and amortized as net yield adjustments over the term of the related debt.

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

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

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

- Forward contracts on the debt of other GSEs and futures contracts on U.S. Treasury securities. These contracts are used as a short-term economic hedge of the issuance of debt. For GAAP purposes, realized gains or losses on settlements of these contracts are reported in the consolidated statements of operations in the period in which they occur. For core earnings purposes, these realized gains or losses are deferred and amortized as net yield adjustments over the term of the related debt, which generally ranges from 3 to 15 years.

- Initial cash payments received by Farmer Mac upon the inception of certain swaps. When there is no direct payment arrangement between a swap dealer counterparty and a debt dealer issuing Farmer Mac's medium-term notes for a particular transaction, Farmer Mac may receive an initial cash payment from the swap dealer at the inception of the swap to offset dollar-for-dollar the amount of the discount on the associated hedged debt. For GAAP purposes, changes in fair value of the swaps are recognized in "Gains on financial derivatives," while the economically offsetting discount on the associated hedged debt is amortized over the term of the debt as an adjustment to its yield. For purposes of core earnings, these initial cash payments are deferred and amortized as net yield adjustments over the term of the related debt, which generally ranges from 3 to 15 years.

5. The recognition of deferred issuance costs on the retirement of the Series B Preferred Stock in second quarter 2019 has been excluded from core earnings because it is not a frequently occurring transaction, nor is it indicative of future operating results. This is consistent with Farmer Mac's previous treatment of deferred issuance costs associated with the retirement of preferred stock.

6. Re-measurement of net deferred tax asset due to enactment of new tax legislation. This non-recurring, non-cash charge to income tax expense in fourth quarter 2017 was the result of a re-measurement by Farmer Mac of its net deferred tax asset at a lower federal corporate tax rate due to enactment of the Tax Cuts and Jobs Act on December 22, 2017. This charge has been excluded from core earnings because it is not the result of frequently occurring transactions, is not indicative of future operating results, and is a non-cash charge. Farmer Mac re-measured its net deferred tax asset at the newly-enacted 21% corporate tax rate which will be applied when temporary differences that gave rise to the net deferred tax asset will be realized or settled.

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

Net Interest Income. The following table provides information about interest-earning assets and funding for the years ended December 31, 2019, 2018, and 2017. 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 Year Ended								
	December 31, 2019			December 31, 2018			December 31, 2017		
	Average Balance	Income/ Expense	Average Rate	Average Balance	Income/ Expense	Average Rate	Average Balance	Income/ Expense	Average Rate
	(dollars in thousands)								
Interest-earning assets:									
Cash and investments	$ 3,218,286	$ 81,522	2.53 %	$ 2,723,136	$ 55,179	2.03 %	$ 2,703,306	$ 34,586	1.28 %
Loans, Farmer Mac Guaranteed Securities and USDA Securities(1)	15,214,248	502,694	3.30 %	13,917,222	434,585	3.12 %	12,763,456	320,932	2.51 %
Total interest-earning assets	18,432,534	584,216	3.17 %	16,640,358	489,764	2.94 %	15,466,762	355,518	2.30 %
Funding:									
Notes payable due within one year	3,758,256	86,031	2.29 %	3,412,019	62,447	1.83 %	5,148,548	49,318	0.96 %
Notes payable due after one year(2)	14,116,085	332,719	2.36 %	12,501,093	259,638	2.08 %	9,683,124	154,789	1.60 %
Total interest-bearing liabilities(3)	17,874,341	418,750	2.34 %	15,913,112	322,085	2.02 %	14,831,672	204,107	1.38 %
Net non-interest-bearing funding	558,193	—		727,246	—		635,090	—	
Total funding	18,432,534	418,750	2.27 %	16,640,358	322,085	1.94 %	15,466,762	204,107	1.32 %
Net interest income/yield prior to consolidation of certain trusts	18,432,534	165,466	0.90 %	16,640,358	167,679	1.01 %	15,466,762	151,411	0.98 %
Net effect of consolidated trusts(4)	1,544,052	7,669	0.50 %	1,443,394	6,757	0.47 %	1,251,048	6,236	0.50 %
Net interest income/yield	$19,976,586	$ 173,135	0.87 %	$18,083,752	$ 174,436	0.96 %	$16,717,810	$ 157,647	0.94 %

(1) Excludes interest income of $60.9 million, $54.5 million, and $45.0 million in 2019, 2018, and 2017, 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 $53.2 million, $47.8 million and in $38.8 million 2019, 2018, and 2017, 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.

For 2019 compared to 2018, the $1.3 million decrease in net interest income was due to a $12.8 million decrease in net fair value changes from fair value hedge accounting relationships, a $5.2 million increase in funding and liquidity costs and a $1.7 million decrease in cash-basis interest income. These factors were partially offset by:

1) $15.1 million from business volume, including:
    - $12.3 million in new business volume,
    - $1.9 million from the refinancing of existing Institutional Credit business volume at higher spreads,
    - and $0.9 million from consolidated trusts; and

2) $3.4 million in interest income fluctuations, including:
    - the absence of $2.0 million from the Interest-Only Amortization, and
    - the receipt of a $1.4 million prepayment penalty.

The 9 basis point decrease was primarily attributable to a 6 basis point decrease in net fair value changes from fair value hedge accounting relationships and a 5 basis point increase in funding and liquidity costs, partially offset by a 1 basis point increase from business volume.

The $16.8 million increase in net interest income for 2018 compared to 2017 was driven by net growth in on-balance sheet AgVantage securities, Farm & Ranch loans, and USDA Securities, which contributed to a $10.1 million increase in net interest income. Another factor contributing to the increase were the fair value changes on financial derivatives and corresponding financial assets and liabilities in fair value hedge relationships, which contributed $4.9 million in net interest income during 2018. Also contributing to the year-over-year increase in net interest income was an increase in the amount of cash basis interest income recognized on non-accrual Farm & Ranch loans, which contributed $1.5 million in net interest income during 2018. The increase was offset in part by the $2.0 million negative effect of the Interest-Only Amortization during 2018. The 2 basis point year-over-year increase in net interest yield was primarily driven by an increase in the aforementioned fair value changes on financial derivatives and corresponding financial assets and liabilities in fair value hedge relationships, offset in part by the effect of the Interest-Only Amortization.

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

Table 5

	2019 vs. 2018			2018 vs. 2017		
	Increase/(Decrease) Due to			Increase/(Decrease) Due to		
	Rate	Volume	Total	Rate	Volume	Total
			(in thousands)			
Income from interest-earning assets:						
Cash and investments	$ 15,253	$ 11,090	$ 26,343	$ 20,338	$ 255	$ 20,593
Loans, Farmer Mac Guaranteed Securities and USDA Securities	26,158	41,951	68,109	82,733	30,920	113,653
Total	41,411	53,041	94,452	103,071	31,175	134,246
Expense from other interest-bearing liabilities	54,225	42,440	96,665	102,156	15,822	117,978
Change in net interest income prior to consolidation of certain trusts[1]	$ (12,814)	$ 10,601	$ (2,213)	$ 915	$ 15,353	$ 16,268

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

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

Table 6

	For the Years Ended December 31,					
	2019		2018		2017	
	Dollars	Yield	Dollars	Yield	Dollars	Yield
Net interest income/yield	$ 173,135	0.87 %	$ 174,436	0.96 %	$ 157,647	0.94 %
Net effects of consolidated trusts	(7,669)	0.03 %	(6,757)	0.04 %	(6,236)	0.04 %
Expense related to undesignated financial derivatives	(5,095)	(0.03)%	(11,685)	(0.07)%	(10,261)	(0.07)%
Amortization of premiums/discounts on assets consolidated at fair value	398	— %	417	0.01 %	1,191	0.01 %
Amortization of losses due to terminations or net settlements on financial derivatives	(68)	— %	(275)	— %	(1,038)	(0.01)%
Fair value changes on fair value hedge relationships	7,907	0.04 %	(4,941)	(0.03)%	—	— %
Net effective spread	$ 168,608	0.91 %	$ 151,195	0.91 %	$ 141,303	0.91 %

For 2019 compared to 2018, the $17.4 million increase in net effective spread in dollars was due to:

1) $14.2 million increase from business volume, including:
   - $12.3 million in net new business volume,
   - $1.9 million from the refinancing of existing Institutional Credit business volume at higher spreads;

2) $1.6 million in interest income fluctuations, including:
    - the absence of $2.0 million from the Interest-Only Amortization,
    - the receipt of a $1.4 million prepayment penalty,
    - partially offset by a $1.7 million decrease in cash-basis interest income; and

3) $1.6 million decrease in non-GAAP funding costs.

In percentage terms, net effective spread remained at 0.91% in both 2019 and 2018 primarily because the increase from the absence of the Interest-Only Amortization was offset by the decrease from narrower spreads on liquidity investment securities.

For 2018 compared to 2017, the $9.9 million increase in net effective spread in dollars was primarily due to: (1) growth in outstanding business volume, which increased net effective spread by approximately $10.1 million; and (2) a $1.5 million increase in the amount of cash basis interest income recognized on nonaccrual Farm & Ranch loans. The increase was offset in part by the $2.0 million effect of the Interest-Only Amortization. In percentage terms, net effective spread remained at 0.91% in both 2018 and 2017 primarily because the positive effect of the cash basis interest income was offset by the negative effect of the Interest-Only Amortization.

See Note 14 to the consolidated financial statements for more information about net interest income and net effective spread from Farmer Mac's individual business segments. See "Management's Discussion and Analysis of Financial Condition and Results of Operations—Supplemental Information" for quarterly net effective spread by line of business.

<u>*Provision for and Release of Allowance for Loan Losses and Reserve for Losses*</u>. The following table summarizes the components of Farmer Mac's total allowance for losses for each year in the three-year period ended December 31, 2019:

Table 7

	Allowance for Loan Losses	Reserve for Losses	Total Allowance for Losses
		(in thousands)	
Balance as of January 1, 2017	$ 5,415	$ 2,020	$ 7,435
Provision for losses	1,708	50	1,758
Charge-offs	(327)	—	(327)
Balance as of December 31, 2017	$ 6,796	$ 2,070	$ 8,866
Provision for losses	—	—	—
Charge-offs	(17)	—	(17)
Balance as of December 31, 2018	$ 6,779	$ 2,070	$ 8,849
Provision for/(release of) losses	3,504	(3)	3,501
Charge-offs	(67)	—	(67)
Balance as of December 31, 2019	$ 10,216	$ 2,067	$ 12,283

The provision to the allowance for loan losses recorded during 2019 was primarily due to a specific reserve on a single specialized poultry loan, a decrease in overall credit quality, and net portfolio growth.

As of December 31, 2019, Farmer Mac individually evaluated $67.4 million of the $226.6 million of recorded investment in impaired assets for collateral shortfalls against updated appraised values, other updated collateral valuations, or discounted values. For the remaining $159.1 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 $6.5 million for undercollateralized assets as of December 31, 2019. Farmer Mac's general allowance was $6.1 million as of December 31, 2019.

The total provision for losses recorded during 2018 decreased by $1.4 million compared to 2017 primarily due to decreased year-over-year loan growth and modestly improved credit quality in the Farm & Ranch portfolio.

The provision for the allowance for loan losses recorded during 2017 was due to: (1) an increase in the general allowance due to overall net volume growth in on-balance sheet Farm & Ranch loans; and (2) 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 downgrades in risk ratings on some of those loans. The increase in the provision was offset in part by a modest decline in loss rates used to estimate probable losses. The provision for the reserve for losses recorded during 2017 was primarily due to an increase in the general reserve due to downgrades in risk ratings on certain unimpaired Agricultural Storage and Processing loans underlying LTSPCs. The increase in the general reserve for losses was offset in part by a net decrease in the balance of loans underlying LTSPCs and off-balance sheet Farmer Mac Guaranteed Securities. The charge-offs recorded during 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.

See Note 8 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."

<u>Guarantee and Commitment Fees</u>. 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 $13.7 million for 2019, compared to $14.0 million and $14.1 million for 2018 and 2017, respectively.

In Farmer Mac's presentation of core earnings, guarantee and commitment fees include interest income and interest expense related to consolidated trusts owned by third parties to reflect management's view that the net interest income Farmer Mac earns is effectively a guarantee fee on the consolidated Farmer Mac Guaranteed Securities. As adjusted for the core earnings presentation, guarantee and commitment fees were $21.3 million for 2019, compared to $20.7 million and $20.4 million for 2018 and 2017, respectively.

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

Gains/(losses) on financial derivatives. The components of gains and losses on financial derivatives for the years ended December 31, 2019, 2018, and 2017 are summarized in the following table:

Table 8

	For the Years Ended December 31,		
	2019	2018(1)	2017
		(in thousands)	
Fair value hedges:			
(Losses)/gains due to fair value changes:			
Financial derivatives(2)	$ —	$ —	$ 1,694
Hedged items	—	—	(2,413)
Losses on fair value hedging activities	—	—	(719)
Cash flow hedges:			
Loss recognized (ineffective portion)	—	—	(320)
Losses on cash flow hedges	—	—	(320)
No hedge designation:			
Gains due to fair value changes	10,077	7,958	10,218
Accrual of contractual payments	(5,095)	(11,685)	(9,941)
Gains due to terminations or net settlements	300	40	1,515
Gains/(losses) on financial derivatives not designated in hedging relationships	5,282	(3,687)	1,792
Gains/(losses) on financial derivatives	$ 5,282	$ (3,687)	$ 753

(1) Effective in first quarter 2018, Farmer Mac adopted ASU 2017-12, "*Derivatives and Hedging (Topic 815): Targeted Improvements to Accounting for Hedging Activities*." For financial derivatives designated in fair value hedge relationships, changes in the fair values of the derivative and the associated hedged item are recorded within net interest income. For financial derivatives designated in cash flow hedge relationships, changes in the fair values of the derivative and the associated hedged item are recorded within accumulated other comprehensive income and reclassified to net interest income when the hedged item impacts earnings.

(2) Included in the assessment of hedge effectiveness as of December 31, 2017, but excluded from the amounts in the table, were gains of $0.1 million for the year ended December 31, 2017, attributable to the fair value of the swaps at the inception of the hedging relationship. Accordingly, the amounts recognized as hedge ineffectiveness for the year ended December 31, 2017 were gains of $0.6 million.

For 2018, the table above only presents changes in the fair values of Farmer Mac's open financial derivative positions that are not designated in hedge accounting relationships. Before 2018, gains and losses on financial derivatives were included in "(Losses)/gains due to fair value changes" whether or not they were designated in hedge accounting relationships. For 2017, the table above presents gains and losses on all financial derivatives in "(Losses)/gains due to fair value changes."

These changes in fair value are primarily the result of fluctuations in long-term interest rates. The accrual of periodic cash settlements for interest paid or received from Farmer Mac's interest rate swaps that are 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 security futures that are not designated in hedge accounting relationships and initial cash payments received upon the inception of certain swaps not designated in hedge accounting relationships are included in "Gains due to terminations or net settlements" in the table above. For swaps not designated in a hedge accounting relationship, when there is no direct payment arrangement between a swap dealer counterparty and a debt dealer issuing Farmer Mac's medium-term notes for a particular transaction, Farmer Mac may receive an initial cash payment from the swap dealer at the inception of the swap to offset dollar-for-dollar the amount of the discount on the associated hedged debt. Changes in the fair value of these swaps are recognized immediately in "Gains/(losses) on financial derivatives," while the offsetting discount on the hedged debt is amortized over the term of the debt as an adjustment to its yield. The amounts of initial cash payments received by Farmer Mac vary depending on the number of the aforementioned type of swaps it executes during a quarter.

Other Income. Other income totaled $1.9 million during 2019, compared to $1.4 million and $0.8 million during 2018 and 2017, respectively. Other income includes late fees of $1.1 million and other ancillary fees of $0.8 million on Farm & Ranch loans during 2019, compared to late fees of $1.3 million and other ancillary fees of $0.1 million during 2018. The increase in other income for 2018 compared to 2017 was primarily due to the collection of $1.3 million and $0.5 million, respectively, in late fees received on Farm & Ranch loans. The increase was offset in part by the absence in 2018 of the recognition of $0.4 million of appraisal fees received by Farmer Mac's former consolidated appraisal company subsidiary, AgVisory, that occurred in 2017. As of May 1, 2017, Farmer Mac transferred its entire 65% ownership interest in AgVisory back to the limited liability company. Farmer Mac recognized a loss of approximately $0.1 million upon the transfer.

Compensation and Employee Benefits. Compensation and employee benefits were $28.8 million in 2019, compared to $27.5 million and $24.2 million in 2018 and 2017, respectively. The increase in compensation and employee benefits in 2019 compared to 2018 was primarily due to hiring of executives and related employee health insurance costs. The increase in compensation and employee benefits in 2018 compared to 2017 was due to an increase in headcount and related employee health insurance costs and higher payouts of variable incentive compensation resulting from actual performance exceeding certain performance target amounts during 2017, which was paid in 2018. Another significant factor contributing to the increase in compensation expense in 2018 compared to 2017 was the absence in 2018 of the recoupment of approximately $1.3 million in compensation costs related to the forfeiture of unvested equity awards and annual variable incentive compensation resulting from the termination of employment of Farmer Mac's former President and Chief Executive Officer in December 2017.

General and Administrative Expenses. General and administrative ("G&A") expenses were $20.3 million in 2019, compared to $19.7 million and $16.0 million in 2018 and 2017, respectively. The increase in G&A expenses in 2019 compared to 2018 was due to various growth, strategic, and compliance initiatives in 2019. The increase in G&A expenses for 2018 compared to 2017 was primarily due to higher expenses related to: (1) continued technology and business infrastructure investments; (2) an increase in headcount and the search process for Farmer Mac's current President and Chief Executive Officer; and (3) new leases for office space entered into during 2017.

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 $2.8 million for 2019, compared to $2.6 million and $2.5 million for 2018, and 2017, respectively. FCA has advised Farmer Mac that its estimated fees for the federal government fiscal year ending September 30, 2020 would increase to $2.9 million ($0.725 million per federal government fiscal quarter). 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 was $29.1 million for 2019, compared to $27.9 million and $46.4 million for 2018 and 2017, respectively. The effective federal tax rate for 2019 closely approximates the 21.0% statutory federal corporate tax rate. The decrease in income tax expense for 2018 compared to 2017 was primarily due to a lower effective federal corporate tax rate under the Tax Cuts and Jobs Act enacted in December 2017. The effective federal tax rate for the year ended December 31, 2018 was slightly lower than the statutory federal corporate tax rate due to the effect of exercises of share-based compensation awards during 2018.

Business Volume. Our outstanding business volume was $21.1 billion as of December 31, 2019, a net increase of $1.4 billion from December 31, 2018, after taking into account all new business, maturities, and paydowns on existing assets. This net increase was across all four lines of business: $0.7 billion in Rural Utilities, $0.5 billion in Farm & Ranch, $0.1 billion in USDA Guarantees, and $0.1 billion in the Institutional Credit line of business.

The $0.7 billion net growth in our Rural Utilities line of business during 2019 was primarily due to the purchase of a $0.5 billion portfolio of participations in seasoned Rural Utilities loans in February of 2019.

The $0.5 billion net increase in our Farm & Ranch line of business was comprised of a $0.7 billion net increase in outstanding loan purchase volume, partially offset by a $0.1 billion net decrease in loans under LTSPCs. The $0.7 billion net increase in loan purchase volume includes the purchase of a pool of 34 dairy loans in the aggregate amount of $0.1 billion. The net decrease of $0.1 billion of loans under LTSPCs reflects the fact that repayments exceeded new loans under LTSPCs. Our net growth of 15.0% in Farm & Ranch loan purchases over the twelve months ended December 31, 2019 compared favorably to the 2.3% net growth of the overall agricultural mortgage loan market over the twelve months ended September 30, 2019 (based on our analysis of bank and Farm Credit System call report data).

Our USDA Guarantees line of business grew by $0.1 billion in 2019. The 2019 increase was lower compared to the increase in 2018 primarily due to the government shutdown that began in late December 2018 and extended into 2019. In the second half of 2019, we adjusted our product structure to more effectively meet customer demands in an increasingly competitive environment and increased loan limits mandated by the 2018 Farm Bill described in "Management's Discussion and Analysis of Financial Condition and Results of Operations—Outlook" in this report.

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

The following table sets forth the net growth or decrease under Farmer Mac's lines of business for the years ended December 31, 2019, 2018, and 2017:

Table 9

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

	For the Years Ended December 31,		
	2019	2018	2017
	Net Growth/ (Decrease)	Net Growth/ (Decrease)	Net Growth/ (Decrease)
		(in thousands)	
Farm & Ranch:			
Loans	$ 688,234	$ 389,589	$ 684,279
LTSPCs	(145,257)	(23,204)	44,003
USDA Guarantees:			
USDA Securities	83,023	52,537	113,217
Farmer Mac Guaranteed USDA Securities	21,532	110,870	144,622
Rural Utilities:			
Loans	732,450	(137,448)	76,779
LTSPCs	(43,994)	(153,069)	(72,256)
Institutional Credit:			
AgVantage securities	357,429	477,939	617,192
AgVantage revolving line of credit facility[1]	(300,000)	—	—
Total purchases, guarantees, LTSPCs, and AgVantage securities	$ 1,393,417	$ 717,214	$ 1,607,836

(1) During 2019, the facility was drawn on two separate occurrences for $100.0 million and $150.0 million and later repaid. During 2018, $100.0 million of this facility was drawn and later repaid. The facility was terminated during fourth quarter 2019.

During 2019, we purchased 2,204 Farm & Ranch term loans and revolving line of credit draws. These purchases consisted of 991 term loans with an average unpaid principal balance of $1,160,000 and 1,213 revolving line of credit draws with an average unpaid principal balance of $185,000. During 2018, we purchased 2,171 Farm & Ranch term loans and revolving line of credit draws. These purchases consisted of 910 term loans with an average unpaid principal balance of $910,000 and 1,261 revolving line of credit draws with an average unpaid principal balance of $127,000.

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 2019 and 2018 was less than one year. Of those loans, 50% and 59% had principal amortization periods longer than the maturity date, resulting in balloon payments at maturity, with a weighted-average remaining term to maturity of 14.2 years and 18.5 years, respectively.

During 2019 and 2018, Farmer Mac securitized some of the Farm & Ranch loans it had purchased and sold the resulting Farmer Mac Guaranteed Securities, as shown below. During 2019 and 2018, Farmer Mac realized no gains or losses from the sale of Farmer Mac Guaranteed Securities or USDA Securities. Farmer Mac consolidates these loans and presents them as "Loans held for investment in consolidated trusts, at amortized cost" on the consolidated balance sheets. In 2019, 2018, and 2017, $163.1 million, $68.7 million, and $128.9 million, respectively, of Farmer Mac Guaranteed Securities were sold to a related party to Farmer Mac (which is related by virtue of its owning more than 10% of Farmer Mac's Class A voting common stock).

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

Table 10

	For the Years Ended December 31,		
	2019	2018	2017
		(in thousands)	
Loans securitized and sold as Farm & Ranch Guaranteed Securities	$ 263,561	$ 255,078	$ 363,475
Farmer Mac Guaranteed USDA Securities	57,853	127,851	161,925
AgVantage securities	2,258,550	3,010,307	2,383,912
Total Farmer Mac Guaranteed Securities issuances	$ 2,579,964	$ 3,393,236	$ 2,909,312

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

Table 11

Lines of Business - Outstanding Business Volume

	As of December 31,		
	2019	2018	2017
		(in thousands)	
Farm & Ranch:			
Loans	$ 3,675,640	$ 3,071,222	$ 2,798,906
Loans held in trusts:			
Beneficial interests owned by third party investors	1,600,917	1,517,101	1,399,827
LTSPCs	2,393,071	2,509,787	2,335,342
Guaranteed Securities	107,322	135,862	333,511
USDA Guarantees:			
USDA Securities	2,199,072	2,120,553	2,068,017
Farmer Mac Guaranteed USDA Securities	421,103	395,067	284,197
Rural Utilities:			
Loans	1,671,293	938,843	1,076,291
LTSPCs[1]	609,278	653,272	806,342
Institutional Credit			
AgVantage Securities	8,440,246	8,082,817	7,604,878
Revolving floating rate AgVantage facility[2]	—	300,000	300,000
Total	$ 21,117,942	$ 19,724,524	$ 19,007,311

(1) As of December 31, 2019 and 2018, includes $20.0 million and $17.0 million, respectively, related to one-year loan purchase commitments on which Farmer Mac receives a nominal unused commitment fee.

(2) During 2019, the facility was drawn on two separate occurrences for $100.0 million and $150.0 million and later repaid. During 2018, $100.0 million of this facility was drawn and later repaid. The facility was terminated during fourth quarter 2019.

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 December 31, 2019:

Table 12

Schedule of Principal Amortization as of December 31, 2019

	Loans Held	Loans Underlying Off-Balance Sheet Farmer Mac Guaranteed Securities and LTSPCs	USDA Securities and Farmer Mac Guaranteed USDA Securities	Total
		(in thousands)		
2020	$ 292,801	$ 237,306	$ 116,210	$ 646,317
2021	316,836	272,912	113,570	703,318
2022	280,784	220,772	117,177	618,733
2023	296,048	196,905	120,601	613,554
2024	295,694	184,686	119,097	599,477
Thereafter	5,465,687	1,997,090	2,033,520	9,496,297
Total	$ 6,947,850	$ 3,109,671	$ 2,620,175	$ 12,677,696

Of the $21.1 billion outstanding principal balance of volume included in Farmer Mac's four lines of business as of December 31, 2019, $8.4 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 December 31, 2019:

Table 13

AgVantage Balances by Year of Maturity

	As of December 31, 2019
	(in thousands)
2020	$ 1,299,051
2021	1,733,728
2022	1,386,050
2023	805,992
2024	801,611
Thereafter[(1)]	2,413,814
Total	$ 8,440,246

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

The weighted-average remaining maturity of the outstanding AgVantage securities shown in the table above was 5.2 years as of December 31, 2019.

Related Party Transactions. As provided by Farmer Mac's statutory charter, only banks, insurance companies, and other financial institutions or similar entities may hold Farmer Mac's Class A voting common stock, and only institutions of the FCS may hold Farmer Mac's Class B voting common stock. Farmer Mac's charter also provides that holders of Class A voting common stock elect five members of Farmer Mac's 15-member board of directors and that holders of Class B voting common stock elect five members of the board of directors. The ownership of Farmer Mac's two classes of voting common stock is currently concentrated in a small number of institutions. Approximately 45% of the Class A voting common stock is held by three financial institutions, with 31% held by one institution. Approximately 97% of the Class B voting common stock is held by five FCS institutions (two of which are related to each other through a parent-subsidiary relationship).

Unlike some other GSEs, specifically other FCS institutions and the Federal Home Loan Banks, Farmer Mac is not structured as a cooperative owned exclusively by member institutions and established to provide services exclusively to its members. Farmer Mac, as a stockholder-owned, publicly-traded corporation, seeks to fulfill its mission of serving the financing needs of rural America in a way that is consistent with providing a return on the investment of its stockholders, including those who do not directly participate in the secondary market provided by Farmer Mac. Farmer Mac's policy is to generally require financial institutions to own a requisite amount of common stock, based on the size and type of institution, to participate in the Farm & Ranch line of business. As a result of this requirement, coupled with the ability of holders of Class A and Class B voting common stock to elect two-thirds of Farmer Mac's board of directors, Farmer Mac regularly conducts business with "related parties," including institutions affiliated with members of Farmer Mac's board of directors and institutions that own large amounts of Farmer Mac's voting common stock. Farmer Mac has adopted a Code of Business Conduct and Ethics and other related corporate policies that govern any conflicts of interest that may arise in these transactions, and Farmer Mac's policy is to require that any transactions with related parties be conducted in the ordinary course of business, with terms and conditions comparable to those available to any other counterparty not related to Farmer Mac.

The following table summarizes the material relationships between Farmer Mac and certain related parties. The related parties listed in the table below consist of (1) all holders of at least five percent of a class of Farmer Mac voting common stock as of December 31, 2019 and (2) other institutions that are considered "related parties" through an affiliation with a Farmer Mac director and that have conducted business with Farmer Mac during the two years ended December 31, 2019. The table below does not specify any relationships based on the ownership of Farmer Mac's non-voting common stock or any series of preferred stock. For information about Zions' ownership of Farmer Mac's Class C non-voting common stock and the potential sale of that stock in response to a regulatory action, see "Risk Factors—Financial Risk" in Part I, Item 1A of this report.

Table 14

Name of Institution	Ownership of Farmer Mac Voting Common Stock	Affiliation with Any Farmer Mac Directors	Primary Aspects of Institution's Business Relationship with Farmer Mac
AgFirst Farm Credit Bank	84,024 shares of Class B voting common stock (16.79% of outstanding Class B stock and 5.49% of total voting common stock outstanding)	None	In 2019 and 2018, Farmer Mac earned approximately \$1.2 million and \$1.3 million, respectively, in fees attributable to transactions with AgFirst, primarily commitment fees for LTSPCs.

Name of Institution	Ownership of Farmer Mac Voting Common Stock	Affiliation with Any Farmer Mac Directors	Primary Aspects of Institution's Business Relationship with Farmer Mac
AgriBank, FCB	201,621 shares of Class B voting common stock (40.30% of outstanding Class B stock and 13.17% of total voting common stock outstanding)	Farmer Mac directors Richard H. Davidson and Daniel L. Shaw currently serve as directors of AgriBank.	Farmer Mac did not conduct any business with AgriBank during 2019 or 2018.
Bath State Bank	Less than 5% ownership	Farmer Mac director Dennis L. Brack serves as a director of Bath State Bank and Bath State Bancorp, the holding company of Bath State Bank.	Farmer Mac purchased \$4.0 million and \$2.0 million in USDA Securities from Bath State Bank in 2019 and 2018, respectively.
CoBank, ACB	163,253 shares of Class B voting common stock (32.63% of outstanding Class B stock and 10.66% of total voting common stock outstanding)	Farmer Mac director Everett M. Dobrinski served as a director of CoBank through December 2019. Former Farmer Mac director Douglas E. Wilhelm served as an executive officer of CoBank until June 30, 2012 and was a party to a services agreement with CoBank, under which he served as an employee of CoBank through May 2019.	Farmer Mac purchased \$776.4 million in participation interests in loans from CoBank in 2019. This represented 89.1% of loan purchases under the Rural Utilities line of business for 2019. Farmer Mac did not conduct any business with CoBank during 2018. In 2019, CoBank retained \$1.2 million of servicing fees related to the loan participations sold to Farmer Mac.
Farm Credit Bank of Texas (FCBT)	38,503 shares of Class B voting common stock (7.70% of outstanding Class B stock and 2.51% of total voting common stock outstanding)	Farmer Mac director Thomas W. Hill served as an executive officer of FCBT until November 2010. Mr. Hill was also a party to a services agreement with FCBT through May 2019, under which he served as an employee of FCBT.	In 2019 and 2018, Farmer Mac earned approximately \$1.1 million and \$1.0 million, respectively, in fees attributable to transactions with FCBT, primarily commitment fees for LTSPCs. In 2019 and 2018, FCBT retained approximately \$0.1 million and \$0.2 million, respectively, in servicing fees for its work as a Farmer Mac servicer.

Name of Institution	Ownership of Farmer Mac Voting Common Stock	Affiliation with Any Farmer Mac Directors	Primary Aspects of Institution's Business Relationship with Farmer Mac
First Dakota National Bank (First Dakota)	Less than 5% ownership	Former Farmer Mac director Dennis A. Everson is a director of First Dakota and also served as Branch Administration Director of First Dakota until December 2012.	Farmer Mac purchased $51.4 million and $39.5 million in loans from First Dakota in 2019 and 2018, respectively, entered into $3.2 million and $3.0 million of new USDA Securities with First Dakota in 2019 and 2018, respectively, and entered into $3.6 million and no new LTSPCs in 2019 and 2018, respectively. In 2019 and 2018, First Dakota retained approximately $1.2 million and $1.4 million, respectively, in servicing fees for its work as a Farmer Mac servicer.
National Rural Utilities Cooperative Finance Corporation (CFC)	81,500 shares of Class A voting common stock (7.91% of outstanding Class A stock and 5.32% of total voting common stock outstanding)	Farmer Mac director Todd P. Ware serves as a director of CFC.	Transactions with CFC represented 9.8% and 100% of loan purchases under the Rural Utilities line of business during 2019 and 2018, respectively. Transactions with CFC during 2019 and 2018 represented 12.5% and 19.1%, respectively, of Farmer Mac's total purchases for those years. Transactions with CFC represented 21.2% and 23.6%, respectively, of Farmer Mac's total outstanding business volume as of December 31, 2019 and 2018. In 2019 and 2018, Farmer Mac earned commitment fees of approximately $1.7 million and $1.9 million, respectively, attributable to transactions with CFC. In 2019 and 2018, Farmer Mac earned interest income of $97.3 million and $76.8 million, respectively, attributable to AgVantage transactions with CFC. In 2019 and 2018, CFC retained approximately $3.2 million and $3.6 million, respectively, in servicing fees for its work as a Farmer Mac servicer.
The Vanguard Group, Inc.	56,505 shares of Class A voting common stock (5.48% of outstanding Class A stock and 3.69% of total voting common stock outstanding)	None	Farmer Mac did not conduct any business with The Vanguard Group during 2019 and 2018.

Name of Institution	Ownership of Farmer Mac Voting Common Stock	Affiliation with Any Farmer Mac Directors	Primary Aspects of Institution's Business Relationship with Farmer Mac
Zions Bancorporation, National Association (Zions)	322,100 shares of Class A voting common stock (31.25% of outstanding Class A stock and 21.04% of total voting common stock outstanding)	None	In 2019 and 2018, Farmer Mac's purchases of loans from Zions under the Farm & Ranch line of business represented approximately 9.5% and 11.9%, respectively, of Farm & Ranch loan purchase volume for those years. Those purchases represented 7.6% and 8.2%, respectively, of total Farm & Ranch business volume for those years. The purchases of USDA Securities from Zions under the USDA Guarantees line of business represented approximately 2.1% and 4.2%, respectively, of the USDA Guarantees line of business purchases for the years ended December 31, 2019 and 2018. Transactions with Zions represented 4.5% and 4.7%, respectively, of Farmer Mac's total outstanding business volume as of December 31, 2019 and 2018. In 2019 and 2018, Zions retained approximately \$12.2 million and \$11.6 million, respectively, in servicing fees for its work as a Farmer Mac servicer.

As discussed in more detail in Note 2(n) to the consolidated financial statements, Farmer Mac’s consolidated financial statements include the accounts of VIEs in which Farmer Mac determines itself to be the primary beneficiary, including securitization trusts where Farmer Mac shares the power to make decisions about default mitigation with a related party. If that related party status changes, consolidation or deconsolidation of securitization trusts may occur. For more information about related party transactions, see Note 3 to the consolidated financial statements.

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 lending institutions in the agriculture and rural financing business, Farmer Mac foresees opportunities for continued growth across our lines of business, driven by several key factors:

- As agricultural and rural utilities lenders seek to manage equity capital and return on equity capital requirements or seek to reduce exposure due to lending limits or concentration limits, Farmer Mac can provide relief for those institutions through loan purchases, participations, guarantees, LTSPCs, or wholesale funding.
- While overall loan growth within the rural utilities industry appears to be moderate in the near term due to generally flat demand for capital, future growth opportunities may increase in Farmer Mac's Rural Utilities line of business from transacting business with new counterparties and exploring new types of loan products. These opportunities may be limited by sector growth, credit quality, and the competitiveness of Farmer Mac's products.
- As a result of business development efforts, targeted marketing and brand awareness initiatives, product development efforts, and continued interest in the agricultural asset class from institutional

investors, Farmer Mac's customer base and product set continue to expand, which may generate more demand for Farmer Mac's products from new sources.
- Consolidation within the agricultural finance industry, coupled with Farmer Mac's relationships with larger regional and national lenders, continue to provide opportunities that could influence Farmer Mac's loan demand and increase the average transaction size within Farmer Mac's Farm & Ranch line of business.
- Expansion opportunities for agricultural producers that have benefited from a decrease in interest rates have resulted in increased financing requirements for mergers and acquisitions, consolidation, and vertical integration across many sectors of the agricultural industry, which may also generate demand for Farmer Mac's loan products.

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

Expense Outlook. Farmer Mac continues to expand its investments in human capital, technology, and business infrastructure to increase capacity and efficiency as it seeks to accommodate its growth opportunities and achieve its long-term strategic objectives. Accordingly, Farmer Mac expects continued increases in its operating expenses over the next several years. Our operating expenses (compensation and employee benefits, G&A expenses, and regulatory fees) for the year ended December 31, 2019 increased by less than what we had expected at the end of 2018 because we are in the early stages of modernizing our infrastructure and hiring personnel. In particular, personnel whom we had planned to hire in 2019 are being hired and on-boarded in 2020. We expect these efforts to continue and increase through 2020 as we innovate and grow our business.

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 while others are not. The profitability of agricultural sectors is also affected by the demand for and supply of agricultural commodities and products on a domestic and global basis, which can vary largely as a result of global production trends, international trade policies, weather patterns, access to water supply, and harvest conditions.

Net cash income, one of the USDA's benchmark measures of economic activity in the agricultural industry, has leveled off near the long-run, inflation-adjusted historical average for the sector. However, changes in farm profitability are largely localized and depend on producer region and commodity production type. The USDA forecasts that aggregate net cash income levels increased significantly in 2019, primarily due to higher government support payments from crop insurance as well as trade-related Market Facilitation Program payments. The USDA projects that net cash income will fall by 9.9% in 2020 due to a pullback in government program payments and higher farm expenses, partially offset by higher commodity prices and steady demand.

Farmland values continue to increase, rising at approximately the rate of inflation. Data released in 2019 by the USDA indicates an average decrease in farm real estate values of 0.2% in 2019 in Corn Belt states (Illinois, Indiana, Iowa, Missouri, and Ohio), but an increase of 2.8% in Northern Plains states (Kansas, Nebraska, North Dakota, and South Dakota). In all other regions, farmland value averages are reported to be flat to increasing. While regional averages for farmland values provide a good barometer for the overall movement in U.S. farmland values, economic forces affecting land markets are highly localized and some markets may experience greater volatility than state or national averages indicate.

Over the past few decades, the U.S. agricultural industry has become increasingly connected to global trade, and agricultural export demand depends significantly on trading relationships in numerous foreign markets, as well as on foreign exchange rates. A slowdown in global economic growth or continued tightening in trade policies and agreements could adversely affect the demand for certain U.S. agricultural exports, which may result in downward pressure on commodity prices. For example, the series of reciprocal import tariffs placed on various agricultural products by China and the U.S. during 2018 and 2019 has materially affected the export sales for these products, particularly soybeans produced in the U.S. Also, the strength of the U.S. dollar relative to trading-partner currencies has been elevated since 2016 (as measured by the U.S. Dollar Index). A strong U.S. dollar decreases the competitiveness of U.S. agricultural exports by raising U.S. prices relative to other countries' producers.

U.S. agricultural trade was disrupted between 2018 and 2019 as a result of different trade disputes with Canada, Mexico, and China, the three largest foreign markets for U.S. agricultural products. The retaliatory tariffs each country placed on a variety of U.S. farm products reduced the competitiveness of U.S. goods and in many cases lowered local prices for producers. The USDA has issued nearly $20 billion in direct payments to producers between 2018 and 2019 through the Market Facilitation Program, a program designed to offset farmer financial losses from the lower commodity prices driven by the trade disputes. However, the outlook for trade improved significantly in late 2019 and early 2020. In December 2019, the U.S. and Japan signed a free trade agreement lowering tariffs rates across many agricultural products, primarily animal proteins like beef and pork. In January 2020, President Trump signed into law the United States-Mexico-Canada Agreement, which removed uncertainty around North American trade relations. The U.S. and China also signed the first phase of an economic and trade agreement in January 2020. Although the agreement did not lower tariffs between the two countries, it stopped them from adding additional goods and services to the tariff list. The improved trade outlook has prompted the USDA to signal no additional rounds of Market Facilitation Program payments in 2020, but USDA is expected to pay the final tranche of the 2019 payments in early 2020.

In addition to global trade disruptions, many U.S. farmers and ranchers experienced difficult weather conditions during the first half of 2019. Due to excessive soil moisture, record-setting precipitation, and cool temperatures early in the growing cycle, many corn and soybean growers throughout the Midwest were either significantly delayed or prevented from planting their intended crop for 2019. According to USDA data, nearly 90% of all U.S. corn and soybean acres planted between 2016 and 2018 were enrolled in federal crop insurance programs, and most policies include a provision that allows for insurance payment claims on acres that were prevented from planting due to inclement weather. Farmer Mac estimates that about 85% of outstanding Farm & Ranch loan volume to borrowers growing some corn or soybeans in the affected states likely maintain federal crop insurance coverage. Although planting conditions were difficult in 2019, Farmer Mac believes that there are enough risk mitigators in its grain portfolio to offset the short-term pressure to grain profitability related to adverse weather.

In recent years, the 90-day delinquencies and credit losses in Farmer Mac's portfolio have remained low compared to historical averages. However, the volume of Farmer Mac's substandard assets has generally increased since 2015. To date, the fluctuations in 90-day delinquencies and the increase in substandard assets have not yet translated into rising credit losses. Farmer Mac believes that 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. Farmer Mac, therefore, 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 and weather 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 December 31, 2019, 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. The Agricultural Improvement Act of 2018, also referred to as the "Farm Bill," was signed into law in December 2018. Many provisions in the Farm Bill are a continuation of existing federal agricultural policies in effect under the previous farm bill, including those affecting crop insurance, commodity support programs, and other aspects of agricultural production. We will continue to monitor the effects of any altered federal agricultural policies as the USDA adopts final regulations implementing the 2018 Farm Bill.

The Farm Bill included a provision that amends Farmer Mac's charter to expand the acreage exception to the loan amount limitation on Farm & Ranch loans (currently $13.2 million) from 1,000 acres to 2,000 acres, subject to FCA's assessment of the feasibility of the change. FCA submitted its assessment to Congress on June 18, 2019. In that assessment, FCA concluded that increasing the acreage exception from 1,000 to 2,000 acres is feasible, would not raise any safety and soundness concerns, and would provide additional farming operations unconstrained access to Farmer Mac's secondary market. Accordingly, the acreage exception will increase to 2,000 acres on June 18, 2020, meaning that the statutory loan amount limitation will not apply to Farm & Ranch loans secured by 2,000 acres of agricultural real estate or less. Farmer Mac will continue to evaluate this future increase in the acreage limitation to determine the potential benefits to Farmer Mac's customers and the related effects on our business.

Under the Farm Bill, the authorized limit for the amount of new guarantees issued by the USDA under the Consolidated Farm and Rural Development Act (which are eligible for Farmer Mac's USDA Guarantees line of business) was increased from $3.026 billion to $7.0 billion for each government fiscal year through September 2023. Also, the limit for the size of individual loans to which these guarantees are applied was increased from $1.399 million to $1.75 million, which thereby increases the authorized amount of the USDA-guaranteed portion for an individual loan. These higher loan limits likely contributed to additional growth in the USDA Guarantees purchased by Farmer Mac during 2019, and they could result in more increases in new business volume in our USDA Guarantees line of business in the future.

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

Farmer Mac's marketing and brand awareness initiatives 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 conducts its outreach efforts to these lenders through leveraging new technology initiatives as well as direct personal contact. Outreach 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. 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 agricultural borrowers and rural America. 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 Farmer Mac's AgVantage and other secondary loan product offerings continue to grow. For more information about the AgVantage products, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Risk Management—Credit Risk – Institutional."

Rural Utilities Industry. Prospects for loan growth within the rural utilities industry overall appear to be moderate in the near term due to generally flat demand for capital, as capital expenditures for large generation assets have decreased and increased revenues for electrical cooperatives have driven a de-leveraging trend. Farmer Mac's future growth opportunities for lending to the electrical cooperative industry may be affected by the demand for electric power in rural areas, capital expenditures by electric cooperatives driven by regulatory or technological changes, the continuation of a low interest rate environment, and competitive dynamics within the rural utilities cooperative finance industry. The retirement of coal generation assets, growth in renewable energy generation, deployment of energy storage technologies, expansion of broadband service in rural areas, and the deepening of relationships with new and existing counterparties, all may provide new business opportunities for Farmer Mac. To address some of these trends, Farmer Mac has deployed new financing products tailored to the renewable energy sector, which represents a new market opportunity for Farmer Mac. Under this new program, Farmer Mac purchased a participation interest in a solar project financing in late 2019 and anticipates further growth in this area during 2020.

Balance Sheet Review

Assets. Farmer Mac's total assets as of December 31, 2019 were $21.7 billion, compared to $18.7 billion as of December 31, 2018. The increase in total assets was primarily attributable to the net growth in our outstanding business volume across all lines of business.

As of December 31, 2019, Farmer Mac had $0.6 billion of cash and cash equivalents and $3.0 billion of investment securities, compared to $0.4 billion of cash and cash equivalents and $2.3 billion of investment securities as of December 31, 2018. The increase in investment securities was primarily due to an increase in the liquidity investment portfolio to support our program asset growth and due to the early reinvestment of maturing U.S. Treasury Securities.

As of December 31, 2019, Farmer Mac had $8.6 billion of Farmer Mac Guaranteed Securities, $7.0 billion of loans, net of allowance, and $2.2 billion of USDA Securities. This compares to $8.1 billion of Farmer Mac Guaranteed Securities, $5.5 billion of loans, net of allowance, and $2.2 billion of USDA Securities as of December 31, 2018.

Liabilities. Farmer Mac's total liabilities were $20.9 billion as of December 31, 2019, compared to $17.9 billion as of December 31, 2018. The increase in total liabilities was primarily due to an increase in total notes payable to support our program asset growth.

Equity. As of December 31, 2019, Farmer Mac had total equity of $799.3 million, compared to $752.6 million as of December 31, 2018. The increase in total equity was primarily due to the issuance of Series D preferred stock and net income attributable to Farmer Mac, partially offset by the redemption of the Series B preferred stock and other comprehensive losses, net of tax.

Risk Management

Credit Risk – Loans and Guarantees. Farmer Mac's direct credit exposure to Farm & Ranch loans held and loans underlying Farm & Ranch Guaranteed Securities and LTSPCs as of December 31, 2019 was $7.8 billion across 48 states. For more information about Farmer Mac's underwriting and collateral valuation standards for Farm & Ranch loans, see "Business—Farmer Mac's Lines of Business—Farm & Ranch—Underwriting and Collateral Valuation (Appraisal) Standards."

Farmer Mac's direct credit exposure to Rural Utilities loans held and loans underlying LTSPCs as of December 31, 2019 was $2.3 billion across 43 states, of which $1.8 billion were loans to electric distribution cooperatives and $0.5 billion were loans to generation & transmission cooperatives. For more information about Farmer Mac's underwriting and collateral valuation standards for Rural Utilities loans, see "Business—Farmer Mac's Lines of Business—Rural Utilities—Underwriting." As of December 31, 2019, there were no delinquencies in Farmer Mac's portfolio of Rural Utilities loans. 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. As of December 31, 2019, Farmer Mac had not experienced any credit losses on any AgVantage securities. See "Management's Discussion and Analysis of Financial Condition and Results of Operations—Risk Management—Credit Risk – Institutional" for more information about Farmer Mac's credit risk on AgVantage securities.

The credit exposure 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 we have little or no credit risk exposure in the USDA Guarantees line of business because of the USDA guarantee. As of December 31, 2019, Farmer Mac had not experienced any credit losses on any business under the USDA Guarantees line of business and does not expect to incur any such losses in the future.

Farmer Mac considers a loan's original loan-to-value ratio as one of many factors in evaluating loss severity. Loan-to-value ratios depend on the market value of a property, as determined in accordance with Farmer Mac's collateral valuation standards. As of December 31, 2019 and December 31, 2018, the average unpaid loan balances for loans outstanding in the Farm & Ranch line of business was $683,000 and $640,000, respectively. Farmer Mac calculates the original loan-to-value ratio of a loan by dividing the original loan principal balance by the original appraised property value. This calculation does not reflect any amortization of the original loan balance or any adjustment to the original appraised value to provide a current market value. The original loan-to-value ratio of any cross-collateralized loans is calculated on a combined basis rather than on a loan-by-loan basis. The weighted-average original loan-to-value ratio for Farm & Ranch loans purchased during 2019 was 51%, compared to 54% for loans purchased during 2018. The weighted-average original loan-to-value ratio for all Farm & Ranch loans held and all loans underlying off-balance sheet Farm & Ranch Guaranteed Securities and LTSPCs was 51% as of both December 31, 2019 and December 31, 2018. The weighted-average original loan-to-value ratio for all 90-day delinquencies was 53% and 52% as of December 31, 2019 and December 31, 2018, respectively.

The weighted-average current loan-to-value ratio (the loan-to-value ratio based on original appraised value and current outstanding loan amount adjusted to reflect loan amortization) for Farm & Ranch loans held and loans underlying off-balance sheet Farm & Ranch Guaranteed Securities and LTSPCs was 45% as of both December 31, 2019 and December 31, 2018. See Table 17 for more information.

For more information about the credit quality of Farmer Mac's Farm & Ranch portfolio and the associated allowance for losses please refer to Note 8 to the consolidated financial statements.

Activity affecting the allowance for loan losses and reserve for losses is discussed in "Management's Discussion and Analysis of Financial Condition and Results of Operations—Results of Operations—Provision for and Release of Allowance for Loan Losses and Reserve for Losses."

Farmer Mac's 90-day delinquency measure includes loans 90 days or more past due, as well as loans in foreclosure and non-performing loans where the borrower is in bankruptcy. As of December 31, 2019, Farmer Mac's 90-day delinquencies were $61.0 million (0.78% of the Farm & Ranch portfolio), compared to $26.9 million (0.37% of the Farm & Ranch portfolio) as of December 31, 2018. Those 90-day delinquencies were comprised of 57 delinquent loans as of December 31, 2019, compared to 47 delinquent loans as of December 31, 2018. The increase in 90-day delinquencies as a percentage of the Farm & Ranch portfolio compared to December 31, 2018 was across various commodities and primarily arose from loans greater than $10.0 million.

Farmer Mac's 90-day delinquencies have historically fluctuated from quarter to quarter, both in dollars and as a percentage of the outstanding Farm & Ranch portfolio, with higher levels generally observed at the end of the first and third quarters and lower levels generally observed at the end of the second and fourth quarters of each year as a result of the annual (January 1st) and semi-annual (January 1st and July 1st) payment terms of most Farm & Ranch loans. Farmer Mac believes that it remains adequately collateralized on its delinquent loans. Farmer Mac expects that over time its 90-day delinquency rate will revert closer to Farmer Mac's historical average, and possibly exceed it (which it did in third quarter 2017), due to macroeconomic factors and the cyclical nature of the agricultural economy. Farmer Mac's average 90-day delinquency rate as a percentage of its Farm & Ranch portfolio over the last 15 years is approximately 1%. The highest 90-day delinquency rate observed during that period occurred in 2009 at approximately 2%, which coincided with increased delinquencies in loans within Farmer Mac's then-held ethanol loan portfolio that Farmer Mac no longer holds.

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

Table 15

	Farm & Ranch Line of Business	90-Day Delinquencies	Percentage
	(dollars in thousands)		
As of:			
December 31, 2019	$ 7,776,950	$ 60,954	0.78 %
September 30, 2019	7,393,728	59,691	0.81 %
June 30, 2019	7,291,352	28,045	0.38 %
March 31, 2019	7,215,585	52,366	0.73 %
December 31, 2018	7,233,971	26,881	0.37 %
September 30, 2018	7,072,018	37,545	0.53 %
June 30, 2018	7,045,397	43,076	0.61 %
March 31, 2018	6,932,002	47,560	0.69 %
December 31, 2017	6,867,586	48,444	0.71 %

When analyzing the overall risk profile of its lines of business, Farmer Mac considers 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 0.29% of total outstanding business volume as of December 31, 2019, compared to 0.14% as of December 31, 2018. 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 December 31, 2019 by year of origination, geographic region, commodity/collateral type, original loan-to-value ratio, and range in the size of borrower exposure:

Table 16

Farm & Ranch 90-Day Delinquencies as of December 31, 2019	Distribution of Farm & Ranch Line of Business	Farm & Ranch Line of Business	90-Day Delinquencies[1]	Percentage
		(dollars in thousands)		
By year of origination:				
2009 and prior	8 %	$ 647,421	$ 5,284	0.82 %
2010	2 %	112,641	—	— %
2011	2 %	168,778	61	0.04 %
2012	6 %	436,631	—	— %
2013	8 %	649,529	2,312	0.36 %
2014	7 %	526,328	15,066	2.86 %
2015	9 %	713,297	6,747	0.95 %
2016	14 %	1,068,476	11,083	1.04 %
2017	15 %	1,192,276	20,087	1.68 %
2018	13 %	986,716	314	0.03 %
2019	16 %	1,274,857	—	— %
Total	100 %	$ 7,776,950	$ 60,954	0.78 %
By geographic region[2]:				
Northwest	13 %	$ 982,222	$ 13,521	1.38 %
Southwest	33 %	2,573,691	6,223	0.24 %
Mid-North	30 %	2,358,592	16,726	0.71 %
Mid-South	12 %	947,544	8,713	0.92 %
Northeast	4 %	321,794	2,700	0.84 %
Southeast	8 %	593,107	13,071	2.20 %
Total	100 %	$ 7,776,950	$ 60,954	0.78 %
By commodity/collateral type:				
Crops	51 %	$ 3,930,858	$ 22,660	0.58 %
Permanent plantings	22 %	1,727,261	16,024	0.93 %
Livestock	19 %	1,502,887	20,420	1.36 %
Part-time farm	7 %	532,065	1,850	0.35 %
Ag. Storage and Processing	1 %	76,466	—	— %
Other	—	7,413	—	— %
Total	100 %	$ 7,776,950	$ 60,954	0.78 %
By original loan-to-value ratio:				
0.00% to 40.00%	18 %	$ 1,418,075	$ 4,812	0.34 %
40.01% to 50.00%	26 %	2,008,307	21,350	1.06 %
50.01% to 60.00%	34 %	2,616,272	27,327	1.04 %
60.01% to 70.00%	18 %	1,385,116	6,755	0.49 %
70.01% to 80.00%[3]	4 %	329,979	328	0.10 %
80.01% to 90.00%[3]	— %	19,201	382	1.99 %
Total	100 %	$ 7,776,950	$ 60,954	0.78 %
By size of borrower exposure[4]:				
Less than $1,000,000	32 %	$ 2,455,109	$ 10,783	0.44 %
$1,000,000 to $4,999,999	36 %	2,812,060	18,895	0.67 %
$5,000,000 to $9,999,999	13 %	1,003,021	—	— %
$10,000,000 to $24,999,999	10 %	773,658	31,276	4.04 %
$25,000,000 and greater	9 %	733,102	—	— %
Total	100 %	$ 7,776,950	$ 60,954	0.78 %

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

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

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

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

Another indicator that Farmer Mac considers in analyzing the credit quality of its Farm & Ranch portfolio is the level of internally-rated "substandard" assets, both in dollars and as a percentage of the outstanding Farm & Ranch portfolio. Assets categorized as "substandard" have a well-defined weakness or weaknesses, and there is a distinct possibility that some loss will be sustained if deficiencies are not corrected. As of December 31, 2019, Farmer Mac's substandard assets were $310.0 million (4.0% of the Farm & Ranch portfolio), compared to $232.7 million (3.2% of the Farm & Ranch portfolio) as of December 31, 2018. Those substandard assets were comprised of 353 loans as of December 31, 2019 and 318 loans as of December 31, 2018.

The increase of $77.3 million in substandard assets during 2019 reflected a deterioration in the credit quality of the portfolio with more loans migrating into the substandard classification than migrating or paying off from the substandard classification. The percentage of substandard assets within the portfolio is at the historical average. The deterioration in the credit quality of the portfolio was across almost all commodity groups, which reflects general headwinds in the agricultural economy. Although many commodities continue to operate in a lower pricing environment, farm incomes have held fairly steady during 2019 as a result of government-sponsored programs rather than improved economic conditions. There has not been a significant change in the commodity composition of the substandard assets with the top three commodities including oilseeds, feed grains, and cattle and calf operations, which account for approximately 50% of the total substandard assets. Regionally, the substandard assets are concentrated in the Southwest and Mid-North regions with the Mid-North accounting for the largest volume of substandard assets, which reflects its share of the overall portfolio of loans.

Farmer Mac's average substandard assets as a percentage of its Farm & Ranch portfolio over the last 15 years is approximately 4%. Due to macroeconomic factors and the cyclical nature of the agricultural economy, we believe that the substandard rate will remain near or even slightly above the historical average of 4% in the short-term. The highest substandard asset rate observed during that period occurred in 2010 at approximately 8%, which coincided with an increase in substandard loans within Farmer Mac's then-held ethanol portfolio that Farmer Mac no longer holds. If Farmer Mac's substandard asset rate increases from current levels, it is likely that Farmer Mac's provision to the allowance for loan losses and the reserve for losses will also increase.

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

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

Table 17

Farm & Ranch current loan-to-value ratio by internally assigned risk rating as of December 31, 2019

	Acceptable	Special Mention	Substandard	Total
		(in thousands)		
Current loan-to-value ratio[1]:				
0.00% to 40.00%	$ 2,523,916	$ 111,790	$ 80,319	$ 2,716,025
40.01% to 50.00%	1,910,383	115,453	82,195	2,108,031
50.01% to 60.00%	1,556,049	104,719	93,737	1,754,505
60.01% to 70.00%	802,998	59,282	24,018	886,298
70.01% to 80.00%	247,273	14,889	12,844	275,006
80.01% and greater	19,022	1,221	16,842	37,085
Total	$ 7,059,641	$ 407,354	$ 309,955	$ 7,776,950

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

The following table presents Farmer Mac's cumulative net credit losses relative to the cumulative original balance for all Farm & Ranch loans purchased and loans underlying LTSPCs and off-balance sheet Farm & Ranch Guaranteed Securities as of December 31, 2019 by year of origination, geographic region, and commodity/collateral type. The purpose of this information is to present information about 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 December 31, 2019

	Cumulative Original Loans, Guarantees and LTSPCs	Cumulative Net Credit Losses/ (Recoveries)	Cumulative Loss Rate
	(dollars in thousands)		
By year of origination:			
2009 and prior	$ 14,669,249	$ 30,146	0.21 %
2010	664,342	5	— %
2011	781,034	3,661	0.47 %
2012	1,161,015	—	— %
2013	1,450,157	—	— %
2014	1,022,055	—	— %
2015	1,181,215	(473)	(0.04)%
2016	1,467,693	—	— %
2017	1,541,595	—	— %
2018	1,261,294	—	— %
2019	1,397,275	—	— %
Total	$ 26,596,924	$ 33,339	0.13 %
By geographic region(1):			
Northwest	$ 3,526,335	$ 11,191	0.32 %
Southwest	9,450,376	8,167	0.09 %
Mid-North	6,648,540	12,897	0.19 %
Mid-South	3,146,365	(211)	(0.01)%
Northeast	1,506,062	323	0.02 %
Southeast	2,319,246	972	0.04 %
Total	$ 26,596,924	$ 33,339	0.13 %
By commodity/collateral type:			
Crops	$ 12,108,882	$ 2,887	0.02 %
Permanent plantings	5,869,301	9,368	0.16 %
Livestock	6,189,165	3,877	0.06 %
Part-time farm	1,552,261	1,534	0.10 %
Ag. Storage and Processing	722,698	15,673	2.17 %
Other	154,617	—	— %
Total	$ 26,596,924	$ 33,339	0.13 %

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

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

Table 19

	As of December 31, 2019						
	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	$ 461,320	$ 154,679	$ 277,429	$ 83,399	$ 5,184	$ 211	$ 982,222
	5.9 %	2.0 %	3.5 %	1.1 %	0.1 %	— %	12.6 %
Southwest	581,790	1,331,147	510,545	99,150	46,560	4,499	2,573,691
	7.5 %	17.1 %	6.6 %	1.3 %	0.6 %	0.1 %	33.2 %
Mid-North	1,960,324	14,885	238,161	136,155	6,741	2,326	2,358,592
	25.2 %	0.2 %	3.1 %	1.8 %	0.1 %	— %	30.4 %
Mid-South	576,392	26,806	272,111	64,147	8,062	26	947,544
	7.4 %	0.3 %	3.5 %	0.8 %	0.1 %	— %	12.1 %
Northeast	150,528	29,588	65,891	71,927	3,860	—	321,794
	1.9 %	0.4 %	0.8 %	0.9 %	— %	— %	4.0 %
Southeast	200,504	170,156	138,750	77,287	6,059	351	593,107
	2.6 %	2.2 %	1.8 %	1.0 %	0.1 %	— %	7.7 %
Total	$ 3,930,858	$ 1,727,261	$ 1,502,887	$ 532,065	$ 76,466	$ 7,413	$ 7,776,950
	50.5 %	22.2 %	19.3 %	6.9 %	1.0 %	0.1 %	100.0 %

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

Table 20

	As of December 31, 2019					
	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:						
2009 and Prior	$ 3,427	$ 9,368	$ 3,872	$ 1,467	$ 12,012	$ 30,146
2010	—	—	5	—	—	5
2011	—	—	—	—	3,661	3,661
2012	—	—	—	—	—	—
2013	—	—	—	—	—	—
2014	—	—	—	—	—	—
2015	(540)	—	—	67	—	(473)
2016	—	—	—	—	—	—
2017	—	—	—	—	—	—
2018	—	—	—	—	—	—
2019	—	—	—	—	—	—
Total	$ 2,887	$ 9,368	$ 3,877	$ 1,534	$ 15,673	$ 33,339

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

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, the central servicer is responsible for any corresponding damages to Farmer Mac and, in most cases, Farmer Mac has the right to terminate the servicing relationship for a particular loan or the entire portfolio serviced by the central servicer. Farmer Mac also can proceed against the central servicer in arbitration or exercise any remedies available to it under law. During the previous three years ended December 31, 2019, 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."

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

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

Farmer Mac approves AgVantage counterparties and manages institutional credit risk related to those AgVantage counterparties by requiring them to meet Farmer Mac's standards for creditworthiness for the particular counterparty type and transaction. The required collateralization level is established when the AgVantage facility is entered into with the counterparty and does not change during the life of the AgVantage securities issued under the facility without Farmer Mac's consent. In AgVantage transactions, the corporate obligor is 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 and smaller financial funds or entities, Farmer Mac also requires that the counterparty generally (1) maintain a higher collateralization level through lower loan-to-value ratio thresholds than required for traditional AgVantage securities and (2) comply with specified financial covenants for the life of the related AgVantage security to avoid default. For a more detailed description of AgVantage securities, see "Business—Farmer Mac's Lines of Business—Institutional Credit."

The unpaid principal balance of outstanding on-balance sheet AgVantage securities secured by loans eligible for the Farm & Ranch line of business totaled $5.5 billion as of December 31, 2019 and $5.3 billion as of December 31, 2018. The unpaid principal balance of on-balance sheet AgVantage securities secured by loans eligible for the Rural Utilities line of business totaled $2.9 billion as of December 31, 2019 and $2.8 billion as of December 31, 2018. The unpaid principal balance of outstanding off-balance sheet AgVantage securities totaled $7.6 million as of December 31, 2019 and $0.3 billion as of December 31, 2018. A $0.3 billion off-balance sheet AgVantage revolving line of credit facility was terminated during fourth quarter 2019.

The following table provides information about the issuers of AgVantage securities, as well as the required collateralization levels for those transactions as of December 31, 2019 and 2018:

Table 21

	As of December 31, 2019			As of December 31, 2018		
Counterparty	Balance	Credit Rating	Required Collateralization	Balance	Credit Rating	Required Collateralization
			(dollars in thousands)			
AgVantage:						
CFC	$ 2,949,500	A	100%	$ 3,070,455	A	100%
MetLife	2,550,000	AA-	103%	2,550,000	AA-	103%
Rabo AgriFinance	2,225,000	None	110%	2,075,000	None	110%
Other[(1)]	436,041	None	106% to 125%	407,572	None	106% to 125%
Farm Equity AgVantage[(2)]	279,705	None	110%	279,790	None	110%
Total outstanding	$ 8,440,246			$ 8,382,817		

(1) Consists of AgVantage securities issued by 5 different issuers as of December 31, 2019 and 6 different issuers as of December 31, 2018.
(2) Consists of AgVantage securities issued by 5 different issuers as of both December 31, 2019 and 2018.

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."

Farmer Mac manages institutional credit risk related to its interest rate swap counterparties through collateralization provisions contained in each of its swap agreements that varies based on the market value of its swap portfolio with each counterparty. Farmer Mac and its interest rate swap counterparties are required to fully collateralize their derivatives positions without any minimum threshold for cleared swap transactions, as well as for non-cleared swap transactions entered into after March 1, 2017. Farmer Mac transacts interest rate swaps with multiple counterparties to reduce counterparty credit exposure concentration. Farmer Mac's usage of cleared derivatives has increased over time as has its exposure to clearinghouses. The usage of cleared swap transactions reduces Farmer Mac's exposure to individual counterparties with the central clearinghouse acting to settle the change in value of contracts on a daily basis. Credit risk related to interest rate swap contracts is discussed in "Management's Discussion and Analysis of Financial Condition and Results of Operations—Risk Management—Interest Rate Risk" and Note 6 to the consolidated financial statements.

Credit Risk – Other Investments. As of December 31, 2019, Farmer Mac had $0.6 billion of cash and cash equivalents and $3.0 billion of investment securities. The management of the credit risk inherent in these investments is governed by Farmer Mac's internal policies as well as the liquidity and investment regulations for Farmer Mac, which were issued by FCA and which establish criteria for investments that are eligible for Farmer Mac's investment portfolio, including limitations on asset class, dollar amount, issuer concentration, and credit quality. In addition to establishing a portfolio of highly liquid investments as an available source of cash, the goals of Farmer Mac's investment policies are designed to minimize Farmer Mac's exposure to financial market volatility, preserve capital, and support Farmer Mac's access to the debt markets.

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

Farmer Mac's liquidity and investment regulations and internal policies also establish concentration limits, which are intended to limit exposure to any single entity, issuer, or obligor. Farmer Mac's liquidity and investment regulations limit Farmer Mac's total credit exposure to any single entity, issuer, or obligor of securities to 10% of Farmer Mac's regulatory capital ($82.8 million as of December 31, 2019). However, Farmer Mac's current policy limits this total credit exposure to 5% of its regulatory capital ($41.4 million as of December 31, 2019). These exposure limits do not apply to obligations of U.S. government agencies or GSEs, although Farmer Mac's current policy restricts investing more than 100% of regulatory capital in the senior non-convertible debt securities of any one GSE.

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

Interest Rate Risk. Farmer Mac is subject to interest rate risk on all assets retained on its balance sheet because of timing differences in the cash flows of the assets and related liabilities. This risk is primarily related to loans, loan participation interests, Farmer Mac Guaranteed Securities, and USDA Securities due to the ability of borrowers to prepay their loans before the scheduled maturities. Cash flow mismatches in a changing interest rate environment can reduce the earnings of Farmer Mac if assets 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. Alternatively, Farmer Mac could see a drop in income if assets repay more slowly than expected in a rising interest rate environment and the associated debt must be replaced by higher-cost debt.

Interest Rate Risk Management

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

Farmer Mac's objective is to ensure exposure to interest rate risk is within appropriate limits, as approved by Farmer Mac's board of directors. Farmer Mac's management-level Asset and Liability Committee ("ALCO") is tasked with oversight and approval of strategies to ensure interest rate risk remains within the board-established limits.

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

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

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

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

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

Farmer Mac's $0.6 billion of cash and cash equivalents mature within three months and are funded with discount notes having similar maturities. As of December 31, 2019, $2.9 billion of the $3.0 billion of investment securities (96%) were floating rate securities with rates that adjust within one year or fixed rate securities with original maturities between three months and one year. Those securities are funded with effectively floating rate debt that closely matches the rate adjustment dates of the associated investments.

Interest Rate Risk Metrics

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

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

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

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

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

The following schedule summarizes the results of Farmer Mac's MVE and NES sensitivity analysis as of December 31, 2019 and 2018 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 December 31, 2019	As of December 31, 2018
+100 basis points	2.7 %	(0.7)%
-100 basis points	(8.4)%	(5.9)%

	Percentage Change in NES from Base Case	
Interest Rate Scenario	As of December 31, 2019	As of December 31, 2018
+100 basis points	0.8 %	3.0 %
-100 basis points	0.1 %	(3.0)%

As of December 31, 2019, Farmer Mac's effective duration gap was negative 2.5 months, compared to negative 0.8 months as of December 31, 2018. Interest rates decreased during 2019. This rate movement reduced the duration of Farmer Mac's assets relative to its liabilities, thereby widening Farmer Mac's duration gap.

Financial Derivatives Transactions

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

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

As of December 31, 2019, Farmer Mac had $14.0 billion combined notional amount of interest rate swaps, with terms ranging from less than one year to thirty years, of which $5.7 billion were pay-fixed interest rate swaps, $5.6 billion were receive-fixed interest rate swaps, and $2.7 billion were basis swaps.

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

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

As discussed in Note 6 to the consolidated financial statements, all financial derivatives are recorded on the balance sheet at fair value as derivative assets or as derivative liabilities. Changes in the fair values of financial derivatives are reported in "Gains/(losses) on financial derivatives" in the consolidated statements of operations. For financial derivatives designated in fair value hedge accounting relationships, changes in the fair values of the hedged items related to the risk being hedged are reported in "Net interest income" in the consolidated statements of operations. Interest accruals on derivatives designated in fair value hedge relationships are also recorded in "Net interest income" in the consolidated statements of operations. For financial derivatives designated in cash flow hedge accounting relationships, the unrealized gain or loss on the derivative is recorded in other comprehensive income. Because the hedging instrument is an interest rate swap and the hedged forecasted transactions are future interest payments on variable rate debt, amounts recorded in accumulated other comprehensive income are reclassified to "Total interest expense" in conjunction with the recognition of interest expense on the debt. All of Farmer Mac's financial derivatives transactions are conducted under standard collateralized agreements that limit Farmer Mac's potential credit exposure to any counterparty. As of December 31, 2019, Farmer Mac had no uncollateralized net exposures. As of December 31, 2018, Farmer Mac had uncollateralized net exposures of $1.4 million to three counterparties.

Re-funding and repricing risk

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

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

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

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

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

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

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

As of December 31, 2019, Farmer Mac held $6.4 billion of floating rate assets in its lines of business and its investment portfolio that reset based on floating rate market indexes, primarily one-month and three-month LIBOR. As of the same date, Farmer Mac also had $5.7 billion of interest rate swaps outstanding where Farmer Mac pays a fixed rate of interest and receives a floating rate of interest.

Throughout 2019, Farmer Mac's funding relative to LIBOR deteriorated to levels less favorable than historical experience. Farmer Mac regularly adjusts its funding strategies to mitigate the effects of this variability from time to time and seeks to maintain an effective funding cost in the context of its overall liability management and liquidity management strategies.

Discontinuation of LIBOR

As described in "Risk Factors—Market Risk," Farmer Mac faces risks associated with the reform, replacement, or discontinuation of the LIBOR benchmark interest rate and the transition to an alternative benchmark interest rate. We are currently evaluating the potential effect on our business of the replacement of the LIBOR benchmark interest rate, including the possibility of replacement benchmark interest rates. As of December 31, 2019, Farmer Mac held $5.1 billion of floating rate assets in its lines of business and its investment portfolio, had issued $3.8 billion of floating rate debt, and had entered into $13.8 billion notional amount of interest rate swaps, each of which reset based on LIBOR. In addition, our Non-Cumulative Series C Preferred Stock currently pays a fixed rate of interest until July 17, 2024. It becomes redeemable at our option on July 18, 2024 and thereafter pays interest at a floating rate equal to three-month LIBOR plus 3.260%. The market transition away from LIBOR and towards an alternative benchmark interest rate that may be developed is expected to be complicated and may require the development of term and credit adjustments to accommodate for differences between the benchmark interest rates. The transition may also result in different financial performance for previously booked transactions, require different hedging strategies, or require renegotiation of previously booked transactions. During 2019, we issued $765 million in medium-term notes based on the Secured Overnight Financing Rate (SOFR), a potential alternative benchmark interest rate.

Liquidity and Capital Resources

Farmer Mac's primary sources of funds to meet its liquidity and funding needs are the proceeds of its debt issuances, guarantee and commitment fees, net effective spread, loan repayments, and maturities of AgVantage securities. Farmer Mac regularly accesses the capital markets for funding, and Farmer Mac has maintained access to the capital markets at favorable rates throughout 2018 and 2019. Farmer Mac funds its purchases of eligible loan assets, USDA Securities, Farmer Mac Guaranteed Securities, and investment assets and finances its operations primarily by issuing debt obligations of various maturities in the public capital markets. As of December 31, 2019, Farmer Mac had outstanding discount notes of $2.2 billion, medium-term notes that mature within one year of $7.8 billion, and medium-term notes that mature after one year of $9.1 billion. Through November 2019, Farmer Mac's board of directors had authorized the issuance of up to $20.0 billion of discount notes and medium-term notes. In November 2019, Farmer Mac's board of directors revised the applicable board policy to authorize the issuance of debt in accordance with the most recent liability maturity management plan approved by the board and with the funding strategy approved by the management ALCO.

Assuming continued access to the capital markets, Farmer Mac believes it has sufficient liquidity and capital resources to support its operations for the next 12 months and for the foreseeable future. Farmer Mac also has a contingency funding plan to manage unanticipated disruptions in its access to the capital markets. That plan involves borrowing through repurchase agreement arrangements and the sale of liquid assets. Farmer Mac must maintain a minimum of 90 days of liquidity under its liquidity and investment regulations. Under the methodology for calculating available days of liquidity prescribed by those regulations, Farmer Mac maintained an average of 181 days of liquidity during 2019 and had 176 days of liquidity as of December 31, 2019. ALCO regularly reviews Farmer Mac's liquidity position and ensures the required minimums are maintained.

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

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

The following table presents these assets as of December 31, 2019 and 2018:

Table 23

	As of December 31, 2019	As of December 31, 2018
	(in thousands)	
Cash and cash equivalents	$ 604,381	$ 425,256
Investment securities:		
Guaranteed by U.S. Government and its agencies	1,842,640	1,216,911
Guaranteed by GSEs	1,143,323	1,013,281
Asset-backed securities	18,912	32,692
Total	$ 3,609,256	$ 2,688,140

The increase in the investment portfolio since December 31, 2018 was to provide a greater level of liquidity to support program asset growth as the overall funding needs for the balance sheet increased.

Capital Requirements. Farmer Mac is subject to the following statutory capital requirements – minimum, critical, and risk-based. Farmer Mac must comply with the higher of the minimum capital requirement and the risk-based capital requirement. As of December 31, 2019, Farmer Mac was in compliance with its statutory capital requirements and was classified as within "level I" (the highest compliance level).

In accordance with FCA's rule on capital planning, Farmer Mac's board of directors has adopted a policy for maintaining a sufficient level of "Tier 1" capital (consisting of retained earnings, paid-in capital, common stock, and qualifying preferred stock). That policy restricts Tier 1-eligible dividends and any discretionary bonus payments if Tier 1 capital falls below specified thresholds. As of December 31, 2019 and 2018, Farmer Mac's Tier 1 capital ratio was 12.9% and 13.4%, respectively. The year-over-year decrease in our Tier 1 capital ratio was due to the fact that growth in risk-weighted assets outpaced capital growth during 2019. In particular, significant asset growth that occurred late in 2019 did not contribute a full year of earnings to Tier 1 capital. As of December 31, 2019, Farmer Mac was in compliance with its capital adequacy policy. Farmer Mac does not expect its compliance on an ongoing basis with FCA's rule on capital planning, including Farmer Mac's policy on Tier 1 capital, to materially affect Farmer Mac's operations or financial condition.

For more information about the capital requirements applicable to Farmer Mac, its capital adequacy policy, and FCA's rule on capital planning, see "Business—Government Regulation of Farmer Mac—Capital Standards." See Note 9 to the consolidated financial statements for more information about Farmer Mac's capital position.

Contractual Obligations. The following table presents the amount and timing of Farmer Mac's known, fixed, and determinable contractual obligations by payment date as of December 31, 2019. The payment amounts represent those amounts contractually due to the recipient (including return of discount and interest on debt) and do not include unamortized premiums or discounts or other similar carrying value adjustments.

Table 24

	One Year or Less	One to Three Years	Three to Five Years	Over Five Years	Total
			(in thousands)		
Discount notes[1]	$ 2,200,309	$ —	$ —	$ —	$ 2,200,309
Medium-term notes[1]	7,825,600	5,291,500	1,967,000	1,821,887	16,905,987
Interest payments on fixed rate medium-term notes[2]	205,967	254,005	135,603	190,151	785,726
Interest payments on floating rate medium-term notes[3]	72,256	28,048	15,288	17,394	132,986
Operating lease obligations[4]	1,978	4,003	3,306	—	9,287
Purchase obligations[5]	3,223	2,848	1,701	—	7,772

(1) Future events, including additional issuance of discount notes and medium-term notes and refinancing of those notes, could cause actual payments to differ significantly from these amounts. For more information regarding discount notes and medium-term notes, see Note 7 to the consolidated financial statements.

(2) Interest payments on callable medium-term notes are calculated based on contractual maturity. Future calls of these notes could cause actual interest payments to differ significantly from the amounts presented.

(3) Calculated using the effective interest rates as of December 31, 2019. As a result, these amounts do not reflect the effects of changes in the contractual interest rates effective on future interest rate reset dates.

(4) Includes amounts due under non-cancellable operating leases for office space and office equipment. See Note 12 to the consolidated financial statements for more information about Farmer Mac's minimum lease payments for office space.

(5) Includes minimum amounts due under non-cancellable agreements to purchase goods or services that are enforceable and legally binding and specify all significant terms. These agreements include, among others, agreements for the provision of consulting services, information technology support, equipment maintenance, and financial analysis software and services. The amounts actually paid under these agreements will likely be higher due to the variable components of some of these agreements under which the ultimate obligation owed is determined by reference to actual usage or hours worked. The table does not include amounts due under agreements that are cancellable without penalty or further payment as of December 31, 2019 and therefore do not represent enforceable and legally binding obligations. The table also does not include payments that are based on a varying outstanding loan volume (such as servicing fees), as those payments are not known, fixed, and determinable contractual obligations.

Farmer Mac enters into financial derivatives contracts under which it either receives cash from counterparties, or is required to pay cash to them, depending on changes in interest rates. Financial derivatives are carried on the consolidated balance sheets at fair value, representing the net present value of expected future cash payments or receipts based on market interest rates as of the balance sheet date adjusted for the consideration of credit risk of Farmer Mac and its counterparties. The fair values of the contracts change daily as market interest rates change. Because the financial derivative liabilities recorded on the consolidated balance sheet as of December 31, 2019 do not represent the amounts that may ultimately be paid under the financial derivative contracts, those liabilities are not included in the table of contractual obligations presented above. More information about financial derivatives is included in Note 2(e) and Note 6 to the consolidated financial statements.

Contingent Liabilities. In conducting its loan purchase activities, Farmer Mac enters into mandatory delivery commitments to purchase agricultural real estate mortgage loans and USDA Securities. In conducting its LTSPC activities, Farmer Mac commits, subject to the applicable LTSPC agreement, to a future purchase of one or more loans from identified pools of eligible loans that met Farmer Mac's standards when the applicable transaction was entered into and Farmer Mac assumed the credit risk on the loans. The following table presents these significant commitments:

Table 25

	As of December 31,	
	2019	2018
	(in thousands)	
LTSPCs[1]	$ 3,002,349	$ 3,163,059
Mandatory commitments to purchase loans and USDA Securities	65,056	37,077

(1) As of December 31, 2019 and 2018, includes $20.0 million and $17.0 million, respectively, related to one-year loan purchase commitments on which Farmer Mac receives a nominal unused commitment fee.

For more information about Farmer Mac's commitments to purchase loans, see Note 12 to the consolidated financial statements.

Off-Balance Sheet Arrangements

Farmer Mac offers approved lenders two credit enhancement alternatives to increase their liquidity or lending capacity while retaining the cash flow benefits of their loans: (1) Farmer Mac Guaranteed Securities, which are available through each of the Farm & Ranch, USDA Guarantees, Rural Utilities, and Institutional Credit lines of business; and (2) LTSPCs, which are available through the Farm & Ranch and Rural Utilities lines of business. For securitization trusts where Farmer Mac is the primary beneficiary, the trust assets and liabilities are included on Farmer Mac's consolidated balance sheet. For securitization trusts where Farmer Mac is not the primary beneficiary and in the event of de-consolidation, both of these alternatives create off-balance sheet obligations for Farmer Mac. See Note 12 to the consolidated financial statements for more information about consolidation and Farmer Mac's off-balance sheet business activities.

As of December 31, 2019 and 2018, outstanding off-balance sheet LTSPCs and Farmer Mac Guaranteed Securities totaled $3.5 billion and $4.0 billion, respectively. The following table presents the balance of outstanding LTSPCs and off-balance sheet Farmer Mac Guaranteed Securities as of December 31, 2019 and 2018:

Table 26

Outstanding Balance of LTSPCs and
Off-Balance Sheet Farmer Mac Guaranteed Securities

	As of December 31,	
	2019	2018
	(in thousands)	
Farm & Ranch obligations:		
LTSPCs	$ 2,393,071	$ 2,509,787
Farm & Ranch Guaranteed Securities	107,322	135,862
Total Farm & Ranch obligations	2,500,393	2,645,649
USDA Guarantees obligations:		
Farmer Mac Guaranteed USDA Securities	389,216	367,684
Rural Utilities obligations:		
LTSPCs[(1)]	609,278	653,272
Institutional Credit obligations:		
AgVantage Securities	7,567	9,898
Revolving floating rate AgVantage facility[(2)]	—	300,000
Total Institutional Credit obligations	7,567	309,898
Total off-balance sheet	$ 3,506,454	$ 3,976,503

(1) As of December 31, 2019 and 2018, includes $20.0 million and $17.0 million, respectively, related to one-year loan purchase commitments on which Farmer Mac receives a nominal unused commitment fee.

(2) During 2019, the facility was drawn on two separate occurrences for $100.0 million and $150.0 million and later repaid. During 2018, $100.0 million of this facility was drawn and later repaid. The facility was terminated during fourth quarter 2019.

See "Management's Discussion and Analysis of Financial Condition and Results of Operations—Risk Management—Credit Risk – Loans and Guarantees" and Notes 2(b), 2(d), 5 and 12 to the consolidated financial statements for more information about Farmer Mac Guaranteed Securities and Notes 2(l) and 12 to the consolidated financial statements for more information about LTSPCs.

Regulatory Matters

The Agricultural Improvement Act of 2018, known as the "Farm Bill," was signed into law on December 20, 2018 and contains provisions that affect Farmer Mac. The Farm Bill requires FCA to prepare a study with two components related to Farmer Mac: (1) an analysis and comparison of the financial risks inherent in loans made, held, securitized, or purchased by Farm Credit System ("FCS") banks and associations and Farmer Mac, and how those risks are required to be capitalized under statutes and regulations currently in effect; and (2) an assessment of the feasibility of an increase to the acreage limitation applicable to Farmer Mac's maximum loan size that includes FCA's opinion on alternatives other than the current acreage limitation to adequately address any safety and soundness issues. FCA submitted its assessment to Congress on June 18, 2019.

In the first component of the study, FCA analyzed the loan risk and capital requirements of Farmer Mac compared to FCS banks and associations. FCA concluded that "compared with the System, Farmer Mac has a significantly lower risk profile from a total portfolio perspective" (footnote omitted explaining statistical significance) and that "[t]his difference in the two GSEs' risk profiles is appropriate given their differing statutory authorities, business models, and large proportions of volume in lines of business that the other is not engaged in." In comparing capital requirements, FCA concluded that "[t]here are important differences in capital requirements that are driven by the two GSEs' differing statutory purposes, lending authorities, and asset composition, among other factors"; that Farmer Mac's Basel approach was "appropriate for Farmer Mac’s unique rural-focused secondary market business model and the product mix in its program portfolio"; and that "[d]ifferences in authorities, business mode[l]s, and business practices, as well as the magnitude of those differences as measured by credit metrics, support the GSEs’ differing capital requirements, both statutory and regulatory." Overall, FCA noted that "the major differences between the two GSEs’ statutory authorities, business models, and portfolio contents result in different risk profiles"; that "the practical reality of both GSEs’ capital requirements is that they generally follow the Basel framework"; and that "both GSEs' capital provisions make appropriate adjustments to the Basel framework consistent with the differences in their business models and risk profiles."

In the second component of the study, FCA concluded that increasing the acreage exception from 1,000 to 2,000 acres is feasible, would not raise any safety and soundness concerns, and would provide additional farming operations unconstrained access to Farmer Mac’s secondary market. Accordingly, the acreage exception will increase to 2,000 acres on June 18, 2020, meaning that the statutory loan amount limitation will not apply to Farm & Ranch loans secured by 2,000 acres of agricultural real estate or less. Farmer Mac will continue to evaluate this future increase in the acreage limitation to determine the potential benefits to Farmer Mac's customers and the related effects on our business.

Consistent with Congress’ guidance in the 2018 Farm Bill Conference Report, FCA also examined alternatives to the acreage rule (whether 1,000 or 2,000 acres). FCA concluded that the acreage rule does not result in Farmer Mac safety and soundness protections and considered alternatives focused on the risk of exposure concentrations in individual borrowers. FCA's report recommends that Congress direct FCA to use its regulatory authorities to establish exposure concentration limits to replace both the dollar limit and the acreage exception to the limit in Farmer Mac's charter.

Other Matters

The expected effects of recently issued accounting pronouncements on the consolidated financial statements are presented in Note 2(o) to the consolidated financial statements.

Supplemental Information

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

Table 27

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:							
December 31, 2019	$ 602,750	$ 65,614	$ 143,565	$ 102,900	$ —	$ 371,075	$ 1,285,904
September 30, 2019	309,805	125,022	113,664	117,279	—	402,611	1,068,381
June 30, 2019	248,152	57,321	118,335	105,000	—	659,447	1,188,255
March 31, 2019	203,156	91,215	57,223	546,198	—	825,417	1,723,209
December 31, 2018	285,008	80,840	90,297	3,000	—	585,814	1,044,959
September 30, 2018	192,628	64,100	116,339	—	—	1,085,953	1,459,020
June 30, 2018	224,101	126,066	129,960	—	—	825,203	1,305,330
March 31, 2018	259,111	159,065	123,525	8,645	—	813,337	1,363,683
December 31, 2017	204,917	282,809	100,024	15,000	—	234,753	837,503
For the year ended:							
December 31, 2019	1,363,863	339,172	432,787	871,377	—	2,258,550	5,265,749
December 31, 2018	960,848	430,071	460,121	11,645	—	3,310,307	5,172,992

Table 28

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	$ 57,488	$ 4,737	$ 39,878	$ 25,142	$ 10,317	$ 10,551	$ 656,095	$ 804,208
Unscheduled	105,671	3,247	74,121	66,011	34,063	—	13,000	296,113
December 31, 2019	$ 163,159	$ 7,984	$113,999	$ 91,153	$ 44,380	$ 10,551	$ 669,095	$ 1,100,321
Scheduled	$ 97,421	$ 3,095	$ 22,713	$ 27,853	$ 31,656	$ 8,692	$ 441,575	$ 633,005
Unscheduled	129,676	2,663	76,883	39,442	—	—	1,088	249,752
September 30, 2019	$ 227,097	$ 5,758	$ 99,596	$ 67,295	$ 31,656	$ 8,692	$ 442,663	$ 882,757
Scheduled	$ 39,879	$ 3,758	$ 58,779	$ 38,676	$ 6,951	$ 17,092	$ 612,964	$ 778,099
Unscheduled	64,912	3,399	58,979	43,044	—	—	—	170,334
June 30, 2019	$ 104,791	$ 7,157	$117,758	$ 81,720	$ 6,951	$ 17,092	$ 612,964	$ 948,433
Scheduled	$ 112,973	$ 5,843	$ 74,054	$ 41,266	$ 31,492	$ 7,660	$ 470,812	$ 744,100
Unscheduled	67,608	1,798	50,482	46,798	24,448	—	5,587	196,721
March 31, 2019	$ 180,581	$ 7,641	$124,536	$ 88,064	$ 55,940	$ 7,660	$ 476,399	$ 940,821
Scheduled	$ 36,006	$ 8,331	$ 35,682	$ 24,793	$ 6,321	$ 16,062	$ 568,277	$ 695,472
Unscheduled	56,299	9,257	33,319	21,135	20,538	—	—	140,548
December 31, 2018	$ 92,305	$ 17,588	$ 69,001	$ 45,928	$ 26,859	$ 16,062	$ 568,277	$ 836,020
Scheduled	$ 73,476	$ 5,677	$ 21,742	$ 28,135	$ 25,640	$ 8,286	$ 1,102,798	$ 1,265,754
Unscheduled	77,492	4,562	47,159	35,068	3,476	—	9,760	177,517
September 30, 2018	$ 150,968	$ 10,239	$ 68,901	$ 63,203	$ 29,116	$ 8,286	$ 1,112,558	$ 1,443,271
Scheduled	$ 33,075	$ 8,391	$ 31,067	$ 36,983	$ 353	$ 8,699	$ 759,223	$ 877,791
Unscheduled	86,426	8,273	69,539	66,601	51,306	—	—	282,145
June 30, 2018	$ 119,501	$ 16,664	$100,606	$ 103,584	$ 51,659	$ 8,699	$ 759,223	$ 1,159,936
Scheduled	$ 110,733	$ 14,085	$ 70,057	$ 40,811	$ 26,507	$ —	$ 392,310	$ 654,503
Unscheduled	73,502	4,929	81,204	43,189	14,952	120,022	—	337,798
March 31, 2018	$ 184,235	$ 19,014	$151,261	$ 84,000	$ 41,459	$120,022	$ 392,310	$ 992,301
Scheduled	$ 25,848	$ 14,371	$ 36,806	$ 22,381	$ 315	$ 13,621	$ 231,717	$ 345,059
Unscheduled	49,229	6,941	43,975	24,385	4,876	—	—	129,406
December 31, 2017	$ 75,077	$ 21,312	$ 80,781	$ 46,766	$ 5,191	$ 13,621	$ 231,717	$ 474,465
For the year ended:								
Scheduled	$ 307,761	$ 17,433	$195,424	$ 132,937	$ 80,416	$ 43,995	$ 2,181,446	$ 2,959,412
Unscheduled	367,867	11,107	260,465	195,295	58,511	—	19,675	912,920
December 31, 2019	$ 675,628	$ 28,540	$455,889	$ 328,232	$ 138,927	$ 43,995	$ 2,201,121	$ 3,872,332
Scheduled	$ 253,290	$ 36,484	$158,548	$ 130,722	$ 58,821	$ 33,047	$ 2,822,608	$ 3,493,520
Unscheduled	293,719	27,021	231,221	165,993	90,272	120,022	9,760	938,008
December 31, 2018	$ 547,009	$ 63,505	$389,769	$ 296,715	$ 149,093	$153,069	$ 2,832,368	$ 4,431,528

Table 29

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:								
December 31, 2019	$5,276,557	$ 107,322	$2,393,071	$ 2,620,175	$ 1,671,293	$ 609,278	$ 8,440,246	$ 21,117,942
September 30, 2019	4,836,966	115,306	2,441,456	2,567,763	1,612,773	619,829	8,738,266	20,932,359
June 30, 2019	4,754,258	121,064	2,416,030	2,521,394	1,527,150	628,521	8,778,318	20,746,735
March 31, 2019	4,610,897	128,221	2,476,467	2,484,779	1,429,101	645,613	8,731,835	20,506,913
December 31, 2018	4,588,322	135,862	2,509,787	2,515,620	938,843	653,273	8,382,817	19,724,524
September 30, 2018	4,420,619	287,594	2,363,805	2,471,251	962,702	669,335	8,365,280	19,540,586
June 30, 2018	4,378,958	297,833	2,368,606	2,418,115	991,819	677,621	8,391,885	19,524,837
March 31, 2018	4,274,359	314,497	2,343,146	2,391,739	1,043,477	686,320	8,325,905	19,379,443
December 31, 2017	4,198,733	333,511	2,335,342	2,352,214	1,076,291	806,342	7,904,878	19,007,311

Table 30

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:				
December 31, 2019	$ 10,045,712	$ 2,863,199	$ 4,702,577	$ 17,611,488
September 30, 2019	9,642,802	2,850,000	4,549,689	17,042,491
June 30, 2019	9,446,117	2,825,151	4,601,917	16,873,185
March 31, 2019	9,206,082	2,720,639	4,643,506	16,570,227
December 31, 2018	8,325,347	2,717,505	4,705,169	15,748,021
September 30, 2018	7,945,007	2,629,612	4,986,987	15,561,606
June 30, 2018	7,551,149	2,594,399	5,398,021	15,543,569
March 31, 2018	7,507,581	2,498,985	5,432,923	15,439,489
December 31, 2017	7,158,014	2,499,203	5,309,126	14,966,343

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

Table 31

	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:												
December 31, 2019[1]	$ 16,374	1.90 %	$ 4,363	0.78 %	$ 4,871	1.17 %	$ 18,008	0.85 %	$ 2,375	0.27 %	$ 45,991	0.95 %
September 30, 2019	13,181	1.66 %	4,314	0.79 %	4,502	1.16 %	17,807	0.84 %	2,657	0.30 %	42,461	0.90 %
June 30, 2019	13,335	1.72 %	4,097	0.76 %	3,996	1.10 %	17,371	0.82 %	2,556	0.34 %	41,355	0.91 %
March 31, 2019	12,737	1.70 %	3,964	0.74 %	3,233	1.12 %	16,373	0.79 %	2,494	0.35 %	38,801	0.89 %
December 31, 2018[1]	13,288	1.79 %	4,630	0.85 %	2,833	1.19 %	15,751	0.80 %	2,353	0.36 %	38,855	0.93 %
September 30, 2018	13,887	1.91 %	4,627	0.86 %	2,877	1.18 %	15,642	0.78 %	2,044	0.30 %	39,077	0.93 %
June 30, 2018	13,347	1.86 %	4,398	0.83 %	2,923	1.15 %	15,220	0.76 %	274	0.04 %	36,162	0.86 %
March 31, 2018	12,540	1.80 %	4,400	0.82 %	2,950	1.12 %	14,824	0.78 %	2,387	0.36 %	37,101	0.91 %
December 31, 2017	12,396	1.80 %	4,979	0.93 %	3,057	1.14 %	14,800	0.78 %	2,235	0.35 %	37,467	0.93 %

(1) See Note 14 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 years ended December 31, 2019 and 2018.

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

Table 32

	Core Earnings by Quarter End								
	December 2019	September 2019	June 2019	March 2019	December 2018	September 2018	June 2018	March 2018	December 2017
					(in thousands)				
Revenues:									
Net effective spread	$ 45,991	$ 42,461	$ 41,355	$ 38,801	$ 38,855	$ 39,077	$ 36,162	$ 37,101	$ 37,467
Guarantee and commitment fees	5,432	5,208	5,276	5,419	5,309	5,170	5,171	5,083	5,157
Other	100	389	777	509	(129)	110	111	428	69
Total revenues	51,523	48,058	47,408	44,729	44,035	44,357	41,444	42,612	42,693
Credit related expense/(income):									
Provision for/(release of) losses	2,851	623	420	(393)	166	(3)	582	(410)	464
REO operating expenses	—	—	64	—	—	—	—	16	—
Losses/(gains) on sale of REO	—	—	—	—	—	41	(34)	—	(964)
Total credit related expense/ (income)	2,851	623	484	(393)	166	38	548	(394)	(500)
Operating expenses:									
Compensation and employee benefits	6,732	7,654	6,770	7,606	7,167	6,777	6,936	6,654	5,247
General and administrative	5,773	5,253	4,689	4,596	5,829	4,350	5,202	4,326	4,348
Regulatory fees	725	688	687	688	687	625	625	625	625
Total operating expenses	13,230	13,595	12,146	12,890	13,683	11,752	12,763	11,605	10,220
Net earnings	35,442	33,840	34,778	32,232	30,186	32,567	28,133	31,401	32,973
Income tax expense	7,526	7,018	7,351	6,715	6,431	6,891	5,477	6,259	11,796
Preferred stock dividends	3,432	3,427	3,785	3,296	3,296	3,295	3,296	3,295	3,296
Core earnings	$ 24,484	$ 23,395	$ 23,642	$ 22,221	$ 20,459	$ 22,381	$ 19,360	$ 21,847	$ 17,881
Reconciling items:									
Gains/(losses) on undesignated financial derivatives due to fair value changes	4,469	(7,117)	10,485	2,240	(96)	3,625	6,709	(2,279)	(261)
(Losses)/gains on hedging activities due to fair value changes	(220)	(4,535)	(1,438)	(2,817)	(853)	1,051	1,687	2,564	(3)
Unrealized gains/(losses) on trading assets	172	49	61	44	57	(3)	11	16	60
Amortization of premiums/ discounts and deferred gains on assets consolidated at fair value	40	(7)	(139)	(16)	67	(38)	196	(686)	(129)
Net effects of terminations or net settlements on financial derivatives	1,339	232	(592)	110	(312)	546	232	1,242	632
Issuance costs on the retirement of preferred stock	—	—	(1,956)	—	—	—	—	—	—
Re-measurement of net deferred tax asset due to enactment of new tax legislation	—	—	—	—	—	—	—	—	(1,365)
Income tax effect related to reconciling items	(1,218)	2,389	(1,759)	92	238	(1,088)	(1,855)	(180)	(105)
Net income attributable to common stockholders	$ 29,066	$ 14,406	$ 28,304	$ 21,874	$ 19,560	$ 26,474	$ 26,340	$ 22,524	$ 16,710

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

Farmer Mac is exposed to market risk from changes in interest rates. Farmer Mac manages this market risk by entering into various financial transactions, including financial derivatives, and by monitoring and measuring its exposure to changes in interest rates. See "Management's Discussion and Analysis of Financial Condition and Results of Operations—Risk Management—Interest Rate Risk" for more information about Farmer Mac's exposure to interest rate risk and its strategies to manage that risk. For information about Farmer Mac's use of financial derivatives and related accounting policies, see Note 6 to the consolidated financial statements.

Item 8. Financial Statements

Management's Report on Internal Control over Financial Reporting

The management of Farmer Mac is responsible for establishing and maintaining adequate internal control over financial reporting, as defined in Exchange Act Rule 13a-15(f). Internal control over financial reporting is a process designed under the supervision of Farmer Mac's Chief Executive Officer and Chief Financial Officer to provide reasonable assurance regarding the reliability of financial reporting and the preparation of Farmer Mac's financial statements for external purposes in accordance with accounting principles generally accepted in the United States of America.

Farmer Mac's internal control over financial reporting includes those policies and procedures that: (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of Farmer Mac; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of Farmer Mac are being made only in accordance with authorizations of management and directors of Farmer Mac; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of Farmer Mac's assets that could have a material effect on the consolidated financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Under the supervision and with the participation of Farmer Mac's Chief Executive Officer and Chief Financial Officer, Farmer Mac's management assessed the effectiveness of Farmer Mac's internal control over financial reporting as of December 31, 2019. In making this assessment, Farmer Mac's management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in *Internal Control - Integrated Framework (2013)*. Based on its evaluation under the COSO criteria, management concluded that Farmer Mac's internal control over financial reporting as of December 31, 2019 was effective.

Farmer Mac's independent registered public accounting firm, PricewaterhouseCoopers LLP, has audited the effectiveness of Farmer Mac's internal control over financial reporting as of December 31, 2019, as stated in their report appearing below.

Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders
of the Federal Agricultural Mortgage Corporation:

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of the Federal Agricultural Mortgage Corporation and its subsidiaries (the "Company") as of December 31, 2019 and 2018, and the related consolidated statements of operations, comprehensive income, equity and cash flows for each of the three years in the period ended December 31, 2019, including the related notes (collectively referred to as the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2018, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2019 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the COSO.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control over Financial Reporting. Our responsibility is to express opinions on the Company's consolidated financial statements and on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Critical Audit Matters

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

General Allowance for Losses - Farm & Ranch Loan Classification System Methodology

As described in Notes 2 and 8 to the consolidated financial statements, the Company maintains an allowance for loan losses in the Farm & Ranch loan portfolio, representing the estimate of probable losses incurred on the portfolio. As of December 31, 2019, the Farm & Ranch on-balance sheet loan portfolio of $5.1 billion, collectively evaluated for impairment, had an allowance for loan losses of $4.3 million ("the general allowance"). The general allowance for loan losses is determined using the Company's automated loan classification system, which scores loans based on underlying loan level criteria such as historical repayment performance, indicators of current financial condition, loan seasoning, loan size and loan-to-value ratio. The loss rates calculated within each loan classification are applied to the current classification distribution of the loan portfolio collectively evaluated for impairment to estimate the general allowance, on the assumption that the historical credit losses and trends used to calculate losses will continue in the future.

The principal considerations for our determination that performing procedures relating to the loan classification system methodology used in the calculation of the general allowance for losses for the Farm & Ranch loan portfolio is a critical audit matter are the high level of audit effort necessary to perform procedures and evaluate the audit evidence related to the loan classification system methodology. In addition, the audit effort involved the use of professionals with specialized skill and knowledge to assist in evaluating the audit evidence obtained from these procedures.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to the Company's allowance for loan losses, including controls over the Company's loan classification system methodology. These procedures also included, among others, evaluating the appropriateness of the loan scores generated by the system and testing management's process for determining the allowance. In addition, professionals with specialized skill and knowledge were used to assist in evaluating the appropriateness of the loan classification system methodology used in the calculation of the general allowance.

/s/PricewaterhouseCoopers LLP
McLean, Virginia
February 25, 2020

We have served as the Company's auditor since 2010.

FEDERAL AGRICULTURAL MORTGAGE CORPORATION AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS

	As of	
	December 31, 2019	December 31, 2018
	(in thousands)	
Assets:		
Cash and cash equivalents	$ 604,381	$ 425,256
Investment securities:		
Available-for-sale, at fair value	2,959,843	2,217,852
Held-to-maturity, at amortized cost	45,032	45,032
Total Investment Securities	3,004,875	2,262,884
Farmer Mac Guaranteed Securities:		
Available-for-sale, at fair value	7,143,025	5,974,497
Held-to-maturity, at amortized cost	1,447,451	2,096,618
Total Farmer Mac Guaranteed Securities	8,590,476	8,071,115
USDA Securities:		
Trading, at fair value	8,913	9,999
Held-to-maturity, at amortized cost	2,232,160	2,166,174
Total USDA Securities	2,241,073	2,176,173
Loans:		
Loans held for investment, at amortized cost	5,390,977	4,004,968
Loans held for investment in consolidated trusts, at amortized cost	1,600,917	1,517,101
Allowance for loan losses	(10,454)	(7,017)
Total loans, net of allowance	6,981,440	5,515,052
Real estate owned, at lower of cost or fair value	1,770	128
Financial derivatives, at fair value	10,519	7,487
Interest receivable (includes $20,568 and $19,783, respectively, related to consolidated trusts)	199,195	180,080
Guarantee and commitment fees receivable	38,442	40,366
Deferred tax asset, net	16,510	6,369
Prepaid expenses and other assets	20,693	9,418
Total Assets	$ 21,709,374	$ 18,694,328
Liabilities and Equity:		
Liabilities:		
Notes payable:		
Due within one year	$ 10,019,082	$ 7,757,050
Due after one year	9,079,566	8,486,647
Total notes payable	19,098,648	16,243,697
Debt securities of consolidated trusts held by third parties	1,616,504	1,528,957
Financial derivatives, at fair value	27,042	19,633
Accrued interest payable (includes $18,018 and $17,125, respectively, related to consolidated trusts)	106,959	96,743
Guarantee and commitment obligation	36,700	38,683
Accounts payable and accrued expenses	22,081	11,891
Reserve for losses	2,164	2,167
Total Liabilities	20,910,098	17,941,771
Commitments and Contingencies (Note 12)		
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 as of December 31, 2018 (redemption value $75,000,000)	—	73,044
Series C, par value $25 per share, 3,000,000 shares authorized, issued and outstanding	73,382	73,382
Series D, par value $25 per share, 4,000,000 shares authorized, issued and outstanding	96,659	—
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, 9,180,744 shares and 9,137,550 shares outstanding, respectively	9,181	9,138
Additional paid-in capital	119,304	118,822
Accumulated other comprehensive (loss)/income, net of tax	(16,161)	24,956
Retained earnings	457,047	393,351
Total Equity	799,276	752,557
Total Liabilities and Equity	$ 21,709,374	$ 18,694,328

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

FEDERAL AGRICULTURAL MORTGAGE CORPORATION AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF OPERATIONS

	For the Years Ended December 31,		
	2019	2018	2017
	(in thousands, except per share amounts)		
Interest income:			
Investments and cash equivalents	$ 81,522	$ 55,179	$ 34,586
Farmer Mac Guaranteed Securities and USDA Securities	333,896	290,953	203,796
Loans	229,675	198,152	162,150
Total interest income	645,093	544,284	400,532
Total interest expense	471,958	369,848	242,885
Net interest income	173,135	174,436	157,647
Provision for loan losses	(3,504)	(238)	(1,708)
Net interest income after provision for loan losses	169,631	174,198	155,939
Non-interest income:			
Guarantee and commitment fees	13,666	13,976	14,114
Gains/(losses) on financial derivatives	5,282	(3,687)	753
Gains/(losses) on trading securities	326	81	(24)
(Losses)/gains on sale of available-for-sale investment securities	(236)	—	89
(Losses)/gains on sale of real estate owned	—	(7)	1,748
Other income	1,904	1,377	832
Non-interest income	20,942	11,740	17,512
Non-interest expense:			
Compensation and employee benefits	28,762	27,534	24,233
General and administrative	20,311	19,707	15,959
Regulatory fees	2,788	2,562	2,500
Real estate owned operating costs, net	64	16	23
(Release of)/provision for reserve for losses	(3)	97	50
Non-interest expense	51,922	49,916	42,765
Income before income taxes	138,651	136,022	130,686
Income tax expense	29,105	27,942	46,369
Net income	109,546	108,080	84,317
Less: Net loss attributable to non-controlling interest	—	—	165
Net income attributable to Farmer Mac	109,546	108,080	84,482
Preferred stock dividends	(13,940)	(13,182)	(13,182)
Loss on retirement of preferred stock	(1,956)	—	—
Net income attributable to common stockholders	$ 93,650	$ 94,898	$ 71,300
Earnings per common share:			
Basic earnings per common share	$ 8.76	$ 8.91	$ 6.73
Diluted earnings per common share	$ 8.69	$ 8.83	$ 6.60

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

FEDERAL AGRICULTURAL MORTGAGE CORPORATION AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

	For the Years Ended December 31,		
	2019	2018	2017
Net income	$ 109,546	$ 108,080	$ 84,317
Other comprehensive income before taxes:			
Net unrealized (losses)/gains on available-for-sale securities	(22,831)	(29,980)	20,012
Net changes in held-to-maturity securities	(13,415)	(6,067)	(9,329)
Net unrealized (losses)/gains on cash flow hedges	(15,801)	2,938	2,046
Other comprehensive (loss)/income before tax	(52,047)	(33,109)	12,729
Income tax benefit/(expense) related to other comprehensive (loss)/income	10,930	6,953	(4,455)
Other comprehensive (loss)/income net of tax	(41,117)	(26,156)	8,274
Comprehensive income	68,429	81,924	92,591
Less: comprehensive loss attributable to non-controlling interest	—	—	165
Comprehensive income attributable to Farmer Mac	$ 68,429	$ 81,924	$ 92,756

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

FEDERAL AGRICULTURAL MORTGAGE CORPORATION AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF EQUITY

	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 January 1, 2017	8,400	$ 204,759	10,539	$ 10,539	$ 118,655	$ 33,758	$ 275,714	$ 222	$ 643,647
Net income/(loss):									
Attributable to Farmer Mac	—	—	—	—	—	—	84,482	—	84,482
Attributable to non-controlling interest	—	—	—	—	—	—	—	(165)	(165)
Other comprehensive income, net of tax	—	—	—	—	—	8,274	—	—	8,274
Reclassification of stranded tax effects due to enactment of new tax legislation	—	—	—	—	—	9,053	(9,053)	—	—
Cash dividends:									
Preferred stock	—	—	—	—	—	—	(13,182)	—	(13,182)
Common stock (cash dividend of $0.36 per share)	—	—	—	—	—	—	(15,257)	—	(15,257)
Issuance of Class C common stock	—	—	80	80	231	—	—	—	311
Stock-based compensation cost	—	—	—	—	2,701	—	—	—	2,701
Other stock-based award activity	—	—	—	—	(2,608)	—	—	—	(2,608)
Redemption of interest in subsidiary	—	—	—	—	—	—	—	(57)	(57)
Balance as of December 31, 2017	8,400	$ 204,759	10,619	$ 10,619	$ 118,979	$ 51,085	$ 322,704	$ —	$ 708,146
Cumulative effect from change in hedge accounting	—	—	—	—	—	27	471	—	498
Balance as of January 1, 2018	8,400	$ 204,759	10,619	$ 10,619	$ 118,979	$ 51,112	$ 323,175	$ —	$ 708,644
Net income attributable to Farmer Mac	—	—	—	—	—	—	108,080	—	108,080
Other comprehensive loss, net of tax	—	—	—	—	—	(26,156)	—	—	(26,156)
Cash dividends:									
Preferred stock	—	—	—	—	—	—	(13,182)	—	(13,182)
Common stock (cash dividend of $0.58 per share)	—	—	—	—	—	—	(24,722)	—	(24,722)
Issuance of Class C Common Stock	—	—	50	50	7	—	—	—	57
Stock-based compensation cost	—	—	—	—	2,518	—	—	—	2,518
Other stock-based award activity	—	—	—	—	(2,682)	—	—	—	(2,682)
Balance as of December 31, 2018	8,400	$ 204,759	10,669	$ 10,669	$ 118,822	$ 24,956	$ 393,351	$ —	$ 752,557
Net income attributable to Farmer Mac	—	—	—	—	—	—	109,546	—	109,546
Other comprehensive loss, net of tax	—	—	—	—	—	(41,117)	—	—	(41,117)
Cash dividends:									
Preferred stock	—	—	—	—	—	—	(13,940)	—	(13,940)
Common stock (cash dividend of $0.70 per share)	—	—	—	—	—	—	(29,954)	—	(29,954)
Issuance of Series D preferred stock	4,000	96,659	—	—	—	—	—	—	96,659
Redemption of Series B preferred stock	(3,000)	(73,044)	—	—	—	—	—	—	(73,044)
Loss on retirement of preferred stock	—	—	—	—	—	—	(1,956)	—	(1,956)
Issuance of Class C common stock	—	—	43	43	44	—	—	—	87
Stock-based compensation cost	—	—	—	—	2,258	—	—	—	2,258
Other stock-based award activity	—	—	—	—	(1,820)	—	—	—	(1,820)
Balance as of December 31, 2019	9,400	$ 228,374	10,712	$ 10,712	$ 119,304	$ (16,161)	$ 457,047	$ —	$ 799,276

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

FEDERAL AGRICULTURAL MORTGAGE CORPORATION AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS

	For the Years Ended December 31,		
	2019	2018	2017
		(in thousands)	
Cash flows from operating activities:			
Net income	$ 109,546	$ 108,080	$ 84,317
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	(10,399)	(1,104)	1,739
Amortization of debt premiums, discounts and issuance costs	50,052	30,207	22,858
Net change in fair value of trading securities, hedged assets, and financial derivatives	(220,080)	(23,747)	(11,187)
Loss/(gain) on sale of real estate owned	—	7	(1,748)
Total provision for losses	3,501	335	1,758
Excess tax benefits related to stock-based awards	449	946	860
Deferred income taxes	789	2,625	3,221
Other	236	—	11
Stock-based compensation expense	2,258	2,517	2,702
Purchases of loans held for sale	—	(25,000)	—
Proceeds from the sale of loans held for sale	—	25,000	—
Proceeds from repayment of loans purchased as held for sale	54,195	92,060	70,630
Net change in:			
Interest receivable	(19,080)	(25,866)	(32,468)
Guarantee and commitment fees receivable	(59)	(188)	94
Other assets	(2,744)	(6,435)	3,641
Accrued interest payable	10,216	21,341	25,702
Other liabilities	1,421	(747)	2,881
Net cash (used in)/provided by operating activities	(19,699)	200,031	175,011
Cash flows from investing activities:			
Purchases of available-for-sale investment securities	(2,166,376)	(1,221,392)	(979,671)
Purchases of held-to-maturity investment securities	—	—	(45,032)
Purchases of Farmer Mac Guaranteed Securities and USDA Securities	(2,691,104)	(3,470,832)	(2,913,514)
Purchases of loans held for investment	(2,234,715)	(947,495)	(1,266,926)
Purchases of defaulted loans	(469)	(1,483)	(311)
Proceeds from repayment of available-for-sale investment securities	1,425,402	1,242,310	1,326,779
Proceeds from repayment of Farmer Mac Guaranteed Securities and USDA Securities	2,190,702	2,813,041	1,063,178
Proceeds from repayment of loans purchased as held for investment	758,192	611,344	435,356
Proceeds from sale of available-for-sale investment securities	12,367	—	10,218
Proceeds from sale of Farmer Mac Guaranteed Securities	321,414	382,929	519,219
Proceeds from sale of real estate owned	—	116	8,099
Net cash used in investing activities	(2,384,587)	(591,462)	(1,842,605)
Cash flows from financing activities:			
Proceeds from issuance of discount notes	64,642,545	41,726,788	51,980,890
Proceeds from issuance of medium-term notes	10,195,775	7,692,845	8,600,860
Payments to redeem discount notes	(64,079,322)	(41,891,576)	(54,064,438)
Payments to redeem medium-term notes	(7,970,126)	(6,834,057)	(4,675,300)
Payments to third parties on debt securities of consolidated trusts	(181,493)	(138,806)	(106,888)
Proceeds from common stock issuance	44	7	238
Retirement of Series B preferred stock	(75,000)	—	—
Proceeds from Series D preferred stock issuance, net of stock issuance costs	96,659	—	—
Tax payments related to share-based awards	(1,777)	(2,631)	(2,536)
Dividends paid on common and preferred stock	(43,894)	(37,905)	(28,439)
Net cash provided by financing activities	2,583,411	514,665	1,704,387
Net change in cash and cash equivalents	179,125	123,234	36,793
Cash and cash equivalents at beginning of period	425,256	302,022	265,229
Cash and cash equivalents at end of period	$ 604,381	$ 425,256	$ 302,022
Cash paid during the period for:			
Interest	365,526	268,728	161,060
Income taxes	23,100	30,882	39,500
Non-cash activity:			
Real estate owned acquired through loan liquidation	—	128	5,400
Loans acquired and securitized as Farmer Mac Guaranteed Securities	321,414	382,929	519,219
Consolidation of Farmer Mac Guaranteed Securities from off-balance sheet to loans held for investment in consolidated trusts and to debt securities of consolidated trusts held by third parties	263,561	255,080	363,475
Reclassification of defaulted loans from loans held for investment in consolidated trusts to loans held for investment	5,479	7,748	5,670
Purchases of securities - traded, not yet settled	—	(1,400)	1,400

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

1. ORGANIZATION

The Federal Agricultural Mortgage Corporation ("Farmer Mac") is a stockholder-owned, federally chartered instrumentality of the United States established under Title VIII of the Farm Credit Act of 1971, as amended (12 U.S.C. §§ 2279aa et seq.), which is sometimes referred to as Farmer Mac's charter. Farmer Mac was originally created by the United States Congress to provide a secondary market for a variety of loans made to borrowers in rural America. This secondary market is designed to increase the availability of long-term credit at stable interest rates to America's rural communities and to provide rural borrowers with the benefits of capital markets pricing and product innovation.

Farmer Mac's secondary market activities include:

- purchasing eligible loans directly from lenders;
- providing advances against eligible loans by purchasing obligations secured by those loans;
- securitizing assets and guaranteeing the payment of principal and interest on the resulting securities that represent interests in, or obligations secured by, pools of eligible loans; and
- issuing long-term standby purchase commitments ("LTSPCs") for eligible loans.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The accounting and reporting policies of Farmer Mac conform with accounting principles generally accepted in the United States of America ("generally accepted accounting principles" or "GAAP"). The preparation of consolidated financial statements in conformity with generally accepted accounting principles requires management to make certain estimates and assumptions that affect the reported amounts of assets and liabilities and disclosures of contingent assets and liabilities as of the date of the consolidated financial statements and the reported amounts of income and expenses during the reporting period. Actual results could differ from those estimates. The following are the significant accounting policies that Farmer Mac follows in preparing and presenting its consolidated financial statements:

(a) Principles of Consolidation

The consolidated financial statements include the accounts of Farmer Mac and its two subsidiaries during the year: (1) Farmer Mac Mortgage Securities Corporation ("FMMSC"), whose principal activities are to facilitate the purchase and issuance of Farmer Mac Guaranteed Securities; and (2) Farmer Mac II LLC, whose principal activity is the operation of substantially all of the business related to the USDA Guarantees line of business – primarily the acquisition of USDA Securities. The consolidated financial statements also include the accounts of Variable Interest Entities ("VIEs") in which Farmer Mac determined itself to be the primary beneficiary. The accounts of Contour Valuation Services, LLC (which began doing business as AgVisory during first quarter 2016) ("AgVisory"), Farmer Mac's former majority-owned subsidiary, are also included through June 30, 2017. Farmer Mac redeemed its ownership interest in AgVisory on May 1, 2017.

(b) Investment Securities, Farmer Mac Guaranteed Securities, and USDA Securities

Securities for which Farmer Mac has the intent and ability to hold to maturity are classified as held-to-maturity and are carried at amortized cost. Securities for which Farmer Mac does not have the positive intent and ability to hold to maturity are classified as available-for-sale or trading and are carried at estimated fair value. Unrealized gains and losses on available-for-sale securities are reported as a component of accumulated other comprehensive income in stockholders' equity. For securities classified as trading, unrealized gains and losses are included in earnings. Gains and losses on the sale of available-for-sale and trading securities are determined using the specific identification cost method.

Farmer Mac determines the fair value of investment securities using quoted market prices, when available, and evaluates the securities for other-than-temporary impairment. Farmer Mac determines the fair values of certain investment securities for which quoted market prices are not available, Farmer Mac Guaranteed Securities, and USDA Securities based on the present value of the associated expected future cash flows. In estimating the present value of the expected future cash flows, management is required to make estimates and assumptions. The key estimates and assumptions include discount rates and collateral repayment rates. Premiums, discounts, and other deferred costs are amortized to interest income using the effective interest method.

Farmer Mac generally receives compensation when loans with yield maintenance provisions underlying Farmer Mac Guaranteed Securities prepay. These yield maintenance payments mitigate Farmer Mac's exposure to reinvestment risk and are calculated such that, when reinvested with the prepaid principal, they should generate substantially the same cash flows that would have been generated had the loans not prepaid. Yield maintenance payments are recognized as interest income in the consolidated statements of operations upon receipt.

(c) Loans

Loans for which Farmer Mac has the positive intent and ability to hold for the foreseeable future are classified as held for investment and reported at their unpaid principal balance, net of unamortized purchase discounts or premiums. Loans for which Farmer Mac does not have the positive intent and ability to hold for the foreseeable future are classified as held for sale and reported at the lower of cost or fair value determined on a pooled basis. Farmer Mac de-recognizes sold loans, and recognizes any associated gain or loss, when they have been isolated from Farmer Mac, the buyer has the right to pledge or exchange them, and Farmer Mac does not maintain effective control over them. When Farmer Mac consolidates a trust, it recognizes the loans underlying the trust in the consolidated balance sheets as "Loans held for investment in consolidated trusts, at amortized cost." See Note 2(n) for more information on the accounting policy related to consolidation.

Non-accrual Loans

Non-accrual loans are loans for which it is probable that Farmer Mac will be unable to collect all amounts due according to the contractual terms of the loan agreement and include all loans 90 days or more past due. When a loan becomes 90 days past due, interest accrual on the loan is discontinued and interest previously accrued is reversed against interest income in the current period. The interest on such loans is accounted for on the cash basis until a loan qualifies for return to accrual status. Loans are returned to accrual status when all the principal and interest payments contractually due are collected and certain performance criteria are met.

Troubled Debt Restructuring ("TDR")

A modification to the contractual terms of a loan that results in granting a concession to a borrower experiencing financial difficulties is considered a TDR. Farmer Mac has granted a concession when, as a result of the restructuring, it does not expect to collect all amounts due in a timely manner, including interest accrued at the original contract rate. In making its determination of whether a borrower is experiencing financial difficulties, Farmer Mac considers several factors, including whether (1) the borrower has declared or is in the process of declaring bankruptcy, (2) there is substantial doubt as to whether the borrower will continue to be a going concern, and (3) the borrower can obtain funds from other sources at an effective interest rate at or near a current market interest rate for debt with similar risk characteristics. Farmer Mac evaluates TDRs similarly to other impaired loans for purposes of the allowance for losses.

(d) Securitization

Securitization involves the transfer of financial assets to another entity in exchange for cash and/or beneficial interests in the assets transferred. Farmer Mac or third parties transfer agricultural real estate mortgage loans, Rural Utilities loans, or USDA securities into trusts that are used as vehicles for the securitization of the transferred financial assets. The trusts issue Farmer Mac Guaranteed Securities that are beneficial interests in the assets of the trusts, to either Farmer Mac or third party investors. Farmer Mac guarantees the timely payment of principal and interest on the securities issued by the trusts and receives guarantee fees as compensation for its guarantee. Farmer Mac recognizes guarantee fees on the accrual basis over the terms of the Farmer Mac Guaranteed Securities, which generally coincide with the terms of the underlying loans. As such, no guarantee fees are unearned at the end of any reporting period.

Farmer Mac is required to perform under its guarantee obligation when the underlying loans for the off-balance sheet Farmer Mac Guaranteed Securities do not make their scheduled installment payments. When a loan underlying a Farm & Ranch Guaranteed Security becomes 90 days or more past due, Farmer Mac may, in its sole discretion, repurchase the loan from the trust and generally does repurchase such loans, thereby reducing the principal balance of the outstanding Farm & Ranch Guaranteed Security. When Farmer Mac purchases a delinquent loan underlying a Farmer Mac Guaranteed Security, Farmer Mac stops accruing the guarantee fee upon loan purchase.

If Farmer Mac repurchases a loan that is collateral for a Farmer Mac Guaranteed Security, Farmer Mac would have the right to enforce the terms of the loan, and in the event of a default, would have access to the underlying collateral. Farmer Mac typically recovers its investment in the defaulted loans purchased either through borrower payments, loan payoffs, payments by third parties, or foreclosure and sale of the property securing the loans.

Farmer Mac has recourse to the USDA for any amounts advanced for the timely payment of principal and interest on Farmer Mac Guaranteed USDA Securities. That recourse is the USDA guarantee, a full-faith-and-credit obligation of the United States that becomes enforceable if a lender fails to repurchase the USDA-guaranteed portion from its owner within 30 days after written demand from the owner when (a) the borrower under the guaranteed loan is in default not less than 60 days in the payment of any principal or interest due on the USDA-guaranteed portion, or (b) the lender has failed to remit to the owner the payment made by the borrower on the USDA-guaranteed portion or any related loan subsidy within 30 days after the lender's receipt of the payment.

(e) 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, not for trading or speculative purposes. Farmer Mac enters into interest rate swap contracts to adjust the characteristics of its short-term debt to match more closely the cash flow and duration characteristics of its longer-term loans and other assets, and also to adjust the characteristics of its long-term debt to match more closely the cash flow and duration characteristics of its short-term 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.

Accounting for financial derivatives differs depending on whether a derivative is designated in a hedge accounting relationship. Derivative instruments designated in fair value hedge accounting relationships mitigate exposure to changes in the fair value of assets or liabilities. Derivative instruments designated in cash flow hedge accounting relationships mitigate exposure to the variability in expected future cash flows or other forecasted transactions. In order to qualify for fair value or cash flow hedge accounting treatment, documentation must indicate the intention to designate the derivative as a hedge of a specific asset, or liability, or a future cash flow. Effectiveness of the hedge is assessed before the end of the quarter of inception and monitored over the life of the hedging relationship.

Beginning in first quarter 2018, changes in the fair values of financial derivatives not designated as cash flow or fair value hedges were reported in "(Losses)/gains on financial derivatives" in the consolidated statements of operations. For financial derivatives designated in fair value hedge accounting relationships, changes in the fair values of hedged items related to the risk being hedged are reported in "Net interest income" in the consolidated statements of operations. Interest accruals on derivatives designated in fair value hedge relationships are also recorded in "Net interest income" in the consolidated statements of operations. For financial derivatives designated in cash flow hedge relationships, the unrealized gain or loss on the derivative is recorded in other comprehensive income. Because the hedging instrument is an interest rate swap and the hedged forecasted transactions are future interest payments on variable rate debt, amounts recorded in accumulated other comprehensive income are reclassified to "Total interest expense" in conjunction with the recognition of interest expense on the debt. Before 2018, gains and losses on financial derivatives were included in "Gains/(losses) on financial derivatives" whether or not they were designated in hedge accounting relationships.

See Notes 6 and 13 for more information on financial derivatives.

(f) Notes Payable

Notes payable are classified as due within one year or due after one year based on the length of time remaining to their contractual maturities. Debt issuance costs and premiums and discounts are deferred and amortized to interest expense using the effective interest method over the contractual life of the related debt.

(g) Allowance for Loan Losses and Reserve for Losses

Farmer Mac maintains an allowance for losses to cover estimated probable losses incurred as of the balance sheet date on loans held ("allowance for loan losses") and loans underlying LTSPCs and off-balance sheet Farmer Mac Guaranteed Securities ("reserve for losses") based on available information. Disaggregation by: commodity type, portfolio, and risk rating; is performed, where appropriate, in analyzing the need for an allowance for losses.

The allowance for losses increases through periodic provisions for loan losses that are charged against net interest income and the reserve for losses increases through provisions for losses that are charged to non-interest expense, and decreases by charge-offs for realized losses, net of recoveries. Negative provisions, or releases from the allowance for losses, generally occur when the estimate of probable losses as of the end of a period is less than the estimate at the beginning of the period. In certain circumstances, for example, when a defaulted loan is purchased out of a guaranteed security or pursuant to an LTSPC, the related reserve for losses is released and a corresponding amount is provided to the allowance for loan losses.

The total allowance for losses consists of a general allowance for losses and a specific allowance for individual impaired loans.

Charge-offs

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

General Allowance for Losses

Farmer Mac's methodology for determining its allowance for losses incorporates Farmer Mac's automated loan classification system. That system scores loans based on criteria such as historical repayment performance, indicators of current financial condition, loan seasoning, loan size and loan-to-value ratio. The allowance methodology captures the migration of loan scores across concurrent and overlapping 3-year time horizons and calculates loss rates separately within each loan classification for (1) loans underlying LTSPCs and (2) loans held and loans underlying Farm & Ranch Guaranteed Securities. The calculated loss rates are applied to the current classification distribution of unimpaired loans in Farmer Mac's portfolio to estimate inherent losses, on the assumption that the historical credit losses and trends used to calculate loss rates will continue in the future.

Management evaluates this assumption by considering many relevant factors, including:

- economic conditions;
- geographic and agricultural commodity/product concentrations in the portfolio;
- the credit profile of the portfolio;
- delinquency trends of the portfolio;
- historical charge-off and recovery activities of the portfolio; and
- other factors to capture current portfolio trends and characteristics that differ from historical experience.

Management believes that its use of this methodology produces a reasonable estimate of probable losses, as of the balance sheet date, for all loans held in the Farm & Ranch portfolio and loans underlying off-balance sheet Farm & Ranch Guaranteed Securities and LTSPCs.

Farmer Mac separately evaluates the Rural Utilities loans it owns to determine if there are any probable losses inherent in those assets.

Specific Allowance for Impaired Loans

Farmer Mac also analyzes certain loans in its portfolio for impairment in accordance with accounting guidance on measuring impairment of individual loans. Farmer Mac's impaired loans include loans 90 days or more past due, in foreclosure, restructured, in bankruptcy and certain performing loans that have previously been delinquent or are secured by real estate that produces agricultural commodities or products currently under stress.

Farmer Mac uses a risk-based approach in determining the necessity of obtaining updated appraisals on impaired loans. For example, larger exposures associated with highly improved and specialized collateral will generally receive updated appraisals once the loans are identified as impaired. Updated appraisals are always obtained during the foreclosure process. Depending on the risk factors associated with the loan and underlying collateral, which can vary widely depending on the circumstances of the loan and collateral, this can occur early in the foreclosure process, while in other instances this may occur just before the transfer of title. As part of its routine credit review process, Farmer Mac often will exercise judgment in discounting an appraisal value due to local real estate trends or the condition of the property (e.g., following an inspection by Farmer Mac or the servicer). A property appraisal value may also be discounted based on the market's reaction to Farmer Mac's asking price for sale of the property.

For loans with an updated appraised value, other updated collateral valuation or management's estimate of discounted collateral value, this analysis includes the measurement of the fair value of the underlying collateral for individual loans relative to the total recorded investment, including principal, interest, and advances and net of any charge-offs. In the event that the collateral value, less estimated costs to sell, does not support the total recorded investment, Farmer Mac specifically provides an allowance for the loan for the difference between the recorded investment and its fair value, less estimated costs to liquidate the collateral. Estimated selling costs are based on historical selling costs incurred by Farmer Mac or management's best estimate of selling costs for a particular property. For the remaining impaired assets without updated valuations, this analysis is performed in the aggregate in consideration of the similar risk characteristics of the assets and historical statistics. Farmer Mac believes this methodology that uses loan classification scores and historical loss experience is a better indication of impairment for these collateral-dependent loans than other valuation methods.

(h) Earnings Per Common Share

Basic earnings per common share ("EPS") is based on the daily weighted-average number of shares of common stock outstanding. Diluted earnings per common share is based on the daily weighted-average number of shares of common stock outstanding adjusted to include all potentially dilutive stock appreciation rights ("SARs") and unvested restricted stock awards. The following schedule reconciles basic and diluted EPS for the years ended December 31, 2019, 2018, and 2017:

Table 2.1

	For the Years Ended December 31,								
	2019			2018			2017		
	Net Income	Weighted-Average Shares	$ per Share	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	$ 93,650	10,696	$ 8.76	$ 94,898	10,654	$ 8.91	$ 71,300	10,594	$ 6.73
Effect of dilutive securities[(1)]									
SARs and restricted stock	—	82	(0.07)	—	92	(0.08)	—	209	(0.13)
Diluted EPS	$ 93,650	10,778	$ 8.69	$ 94,898	10,746	$ 8.83	$ 71,300	10,803	$ 6.60

(1) For the years ended December 31, 2019, 2018, and 2017, SARs and restricted stock of 43,374, 15,812, and 28,579, respectively, were outstanding but not included in the computation of diluted earnings per share of common stock because they were anti-dilutive. For the years ended December 31, 2019, 2018, and 2017, contingent shares of unvested restricted stock of 10,349, 13,138, and 29,647, 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.

(i) Income Taxes

Deferred federal income tax assets and liabilities are established for temporary differences between financial and taxable income and are measured using the current enacted statutory tax rate. Tax legislation was enacted on December 22, 2017, that included a broad range of provisions, including a reduction to the corporate tax rate. Farmer Mac re-measured its deferred tax assets and liabilities as of December 31, 2017 using the newly enacted statutory tax rate of 21% and recognized a one-time, non-cash charge of $1.4 million to income tax expense during 2017.

Due to the re-measurement of Farmer Mac's deferred tax assets and liabilities as of December 31, 2017 at the new statutory federal income tax rate of 21%, items originally recorded through other comprehensive income did not reflect the new statutory federal income tax rate. Farmer Mac adopted ASU 2018-02, *"Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income,"* for the year ended December 31, 2017. This change in accounting principle resulted in an increase to "Accumulated other comprehensive income, net of tax" and a corresponding decrease to "Retained earnings" of $9.1 million.

Income tax expense is equal to the income taxes payable in the current year plus the net change in the deferred tax asset or liability balance.

Farmer Mac evaluates its tax positions quarterly to identify and recognize any liabilities related to uncertain tax positions in its federal income tax returns. Farmer Mac uses a two-step approach in which income tax benefits are recognized if, based on the technical merits of a tax position, it is more likely than not (a probability of greater than 50%) that the tax position would be sustained upon examination by the taxing authority, which includes all related appeals and litigation process. The amount of tax benefit recognized is then measured at the largest amount of tax benefit that is greater than 50% likely to be realized upon settlement with the taxing authority, considering all information available at the reporting date. Farmer Mac's policy for recording interest and penalties associated with uncertain tax positions is to record them as a component of income tax expense. Farmer Mac establishes a valuation allowance for deferred tax assets if it is more likely than not that some portion or all of the deferred tax assets will not be realized.

(j) Stock-Based Compensation

Farmer Mac accounts for its stock-based employee compensation plans using the grant date fair value method of accounting. Farmer Mac measures the cost of employee services received in exchange for an award of equity instruments based on the grant-date fair value of the award determined using the Black-Scholes option pricing model. The cost is recognized over the period during which an employee is required to provide service in exchange for the award. For performance-based grants, Farmer Mac recognizes the grant-date fair value over the vesting period as long as it remains probable that the performance conditions will be met. If the service or performance conditions are not met, Farmer Mac reverses previously recognized compensation expense upon forfeiture.

Farmer Mac recognized $2.3 million, $2.5 million, and $2.7 million of compensation expense related to stock options, SARs, and non-vested restricted stock awards for 2019, 2018, and 2017, respectively.

(k) 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 years ended December 31, 2019, 2018, and 2017:

Table 2.2

	Available-for-Sale Securities	Held-to-Maturity Securities	Cash Flow Hedges	Total
		(in thousands)		
Balance as of January 1, 2017	$ (14,387)	$ 45,752	$ 2,393	$ 33,758
Other comprehensive income before reclassifications	23,925	—	152	24,077
Amounts reclassified from AOCI	(10,917)	(6,064)	1,178	(15,803)
Net comprehensive income/(loss)	13,008	(6,064)	1,330	8,274
Stranded tax effects reclassified from AOCI due to enactment of new tax legislation	(297)	8,548	802	9,053
Balance as of December 31, 2017	$ (1,676)	$ 48,236	$ 4,525	$ 51,085
Cumulative effect from change in hedge accounting	—	—	27	27
Balance as of January 1, 2018	(1,676)	48,236	4,552	51,112
Other comprehensive income before reclassifications	(19,151)	—	2,571	(16,580)
Amounts reclassified from AOCI	(4,533)	(4,793)	(250)	(9,576)
Net comprehensive income/(loss)	(23,684)	(4,793)	2,321	(26,156)
Balance as of December 31, 2018	$ (25,360)	$ 43,443	$ 6,873	$ 24,956
Other comprehensive income before reclassifications	(14,976)	—	(11,561)	(26,537)
Amounts reclassified from AOCI	(3,061)	(10,598)	(921)	(14,580)
Net comprehensive income/(loss)	(18,037)	(10,598)	(12,482)	(41,117)
Balance as of December 31, 2019	$ (43,397)	$ 32,845	$ (5,609)	$ (16,161)

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 years ended December 31, 2019, 2018, and 2017:

Table 2.3

	For the Years Ended December 31,								
	2019			2018			2017		
	Before Tax	Provision (Benefit)	After Tax	Before Tax	Provision (Benefit)	After Tax	Before Tax	Provision (Benefit)	After Tax
	(in thousands)								
Other comprehensive income:									
Available-for-sale-securities:									
Unrealized holding (losses)/gains on available-for-sale securities	$ (18,958)	$ (3,982)	$ (14,976)	$ (24,241)	$ (5,090)	$ (19,151)	$ 36,809	$ 12,884	$ 23,925
Less reclassification adjustments included in:									
Net interest income[(1)]	(3,834)	(805)	(3,029)	(5,784)	(1,215)	(4,569)	—	—	—
Gains/(losses) on financial derivatives[(1)]	—	—	—	—	—	—	(16,845)	(5,897)	(10,948)
(Losses)/gains on sale of available-for-sale investment securities[(2)]	236	50	186	—	—	—	(89)	(31)	(58)
Other income[(3)]	(275)	(57)	(218)	45	9	36	137	48	89
Total	$ (22,831)	$ (4,794)	$ (18,037)	$ (29,980)	$ (6,296)	$ (23,684)	$ 20,012	$ 7,004	$ 13,008
Held-to-maturity securities:									
Less reclassification adjustments included in:									
Net interest income[(4)]	(13,415)	(2,817)	(10,598)	(6,067)	(1,274)	(4,793)	(9,329)	(3,265)	(6,064)
Total	$ (13,415)	$ (2,817)	$ (10,598)	$ (6,067)	$ (1,274)	$ (4,793)	$ (9,329)	$ (3,265)	$ (6,064)
Cash flow hedges									
Unrealized (losses)/gains on cash flow hedges	$ (14,635)	$ (3,074)	$ (11,561)	$ 3,254	$ 683	$ 2,571	$ 233	$ 81	$ 152
Less reclassification adjustments included in:									
Net interest income[(5)]	(1,166)	(245)	(921)	(316)	(66)	(250)	1,813	635	1,178
Total	$ (15,801)	$ (3,319)	$ (12,482)	$ 2,938	$ 617	$ 2,321	$ 2,046	$ 716	$ 1,330
Other comprehensive (loss)/ income	$ (52,047)	$ (10,930)	$ (41,117)	$ (33,109)	$ (6,953)	$ (26,156)	$ 12,729	$ 4,455	$ 8,274

(1) Relates to the amortization of unrealized gains on hedged items prior to the application of fair value hedge accounting.
(2) Represents unrealized gains and losses on sales of available-for-sale 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.

(l) Guarantees

Farmer Mac accounts for its LTSPCs as guarantees. LTSPCs and securitization trusts where Farmer Mac is not the primary beneficiary result in the creation of off-balance sheet obligations for Farmer Mac. Farmer Mac records, at the inception of an off-balance sheet guarantee or LTSPC, a liability for the fair value of its obligation to stand ready to perform under the terms of each guarantee or LTSPC and an asset that is equal to the fair value of the fees that will be received over the life of each guarantee or LTSPC. The fair values of the guarantee obligation and asset at inception 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. Because the cash flows of these instruments may be interest rate path dependent, these values and projected discount rates are derived using a Monte Carlo simulation model. The guarantee obligation and corresponding asset are later amortized into guarantee and commitment fee income in relation to the decrease in the unpaid principal balance on the underlying agricultural real estate mortgage and Rural Utilities loans.

See Note 2(g) for Farmer Mac's policy for estimating probable losses for LTSPCs.

(m) Fair Value Measurement

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. In determining fair value, Farmer Mac uses various valuation approaches, including market and income based approaches. When available, the fair value of Farmer Mac's financial instruments is based on quoted market prices, valuation techniques that use observable market-based inputs, or unobservable inputs that are corroborated by market data. Pricing information obtained from third parties is internally validated for reasonableness before use in the consolidated financial statements.

Fair value measurements related to financial instruments that are reported at fair value in the consolidated financial statements each period are referred to as recurring fair value measurements. Fair value measurements related to financial instruments that are not reported at fair value each period but are subject to fair value adjustments in certain circumstances are referred to as nonrecurring fair value measurements.

Fair Value Classification and Transfers

The fair value hierarchy ranks the quality and reliability of the information used to determine fair values. The hierarchy gives highest priority to unadjusted quoted prices in active markets for identical assets or liabilities and the lowest priority to unobservable inputs. The following three levels are used to classify fair value measurements:

Level 1	Unadjusted quoted prices in active markets that are accessible at the measurement date for identical, unrestricted assets or liabilities.
Level 2	Quoted prices in markets that are not active or financial instruments for which all significant inputs are observable, either directly or indirectly.
Level 3	Prices or valuations that require unobservable inputs that are significant to the fair value measurement.

Farmer Mac performs a detailed analysis of the assets and liabilities carried at fair value to determine the appropriate level based on the transparency of the inputs used in the valuation techniques. In certain cases, the inputs used to measure fair value may fall into different levels of the fair value hierarchy. In such cases, an instrument's level within the fair value hierarchy is based on the lowest level of input that is significant to the fair value measurement. Farmer Mac's assessment of the significance of a particular input to the fair value measurement of an instrument requires judgment and consideration of factors specific to the instrument. While Farmer Mac believes its valuation methods are appropriate and consistent with those of other market participants, using different methodologies or assumptions to determine fair value could result in a materially different estimate of fair value for some financial instruments.

The following is a description of the fair value techniques used for instruments measured at fair value as well as the general classification of those instruments under the valuation hierarchy described above.

Recurring Fair Value Measurements and Classification

Available-for-Sale and Trading Investment Securities

The fair value of investments in U.S. Treasuries is based on unadjusted quoted prices in active markets. Farmer Mac classifies these fair value measurements as "Level 1."

For a significant portion of Farmer Mac's investment portfolio, including most asset-backed securities, senior agency debt securities, and Government/GSE guaranteed mortgage-backed securities, fair value is primarily determined using a reputable and nationally recognized third-party pricing service. The prices obtained are non-binding and generally representative of recent market trades. The fair value of certain asset-backed and Government guaranteed mortgage-backed securities are estimated based on quotations from brokers or dealers. Farmer Mac corroborates its primary valuation source by obtaining a secondary price from another independent third-party pricing service. Farmer Mac classifies these fair value measurements as "Level 2."

For certain investment securities that are thinly traded or not quoted, Farmer Mac estimates fair value using internally-developed models that employ a discounted cash flow approach. Farmer Mac maximizes the use of observable market data, including prices of financial instruments with similar maturities and characteristics, interest rate yield curves, measures of volatility, and prepayment rates. Farmer Mac generally considers a market to be thinly traded or not quoted if the following conditions exist: (1) there are few transactions for the financial instruments; (2) the prices in the market are not current; (3) the price quotes vary significantly either over time or among independent pricing services or dealers; or (4) there is limited availability of public market information. Farmer Mac classifies these fair value measurements as "Level 3."

Available-for-Sale and Trading Farmer Mac Guaranteed Securities and USDA Securities

Farmer Mac estimates the fair value of its 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. Farmer Mac classifies these fair value measurements as Level 3 because there is limited market activity and therefore little or no price transparency. On a sample basis, Farmer Mac corroborates the fair value of its Farmer Mac Guaranteed Securities and USDA Securities by obtaining a secondary valuation from an independent third-party service.

Financial Derivatives

The fair value of exchange-traded U.S. Treasury futures is based on unadjusted quoted prices for identical financial instruments. Farmer Mac classifies these fair value measurements as Level 1.

Farmer Mac's derivative portfolio consists primarily of interest rate swaps and forward sales contracts on the debt of other GSEs. Farmer Mac estimates the fair value of these financial instruments primarily based upon the counterparty valuations. Farmer Mac internally values its derivative portfolio using a discounted cash flow valuation technique and obtains a secondary valuation for certain interest rate swaps to corroborate the counterparty valuations. Farmer Mac also regularly reviews the counterparty valuations as part of the collateral exchange process. Farmer Mac classifies these fair value measurements as Level 2.

Certain basis swaps are non-standard interest rate swap structures and are therefore internally modeled using significant assumptions and unobservable inputs, resulting in Level 3 classification. Farmer Mac uses a discounted cash flow valuation technique, using management's best estimate of certain key assumptions, which include prepayment speeds, forward yield curves, and discount rates commensurate with the risks involved.

See Note 13 for more information regarding fair value measurement.

(n) Consolidation of Variable Interest Entities

Farmer Mac has interests in various entities that are considered to be VIEs. These interests include investments in securities issued by VIEs, such as Farmer Mac agricultural mortgage-backed securities created pursuant to Farmer Mac's securitization transactions and mortgage and asset-backed trusts that Farmer Mac did not create. The consolidation model uses a qualitative evaluation that requires consolidation of an entity when the reporting enterprise both: (1) has the power to direct matters which significantly impact the activities and success of the entity, and (2) has exposure to benefits and/or losses that could potentially be significant to the entity. The reporting enterprise that meets both these conditions is deemed the primary beneficiary of the VIE. Upon consolidation of a VIE, Farmer Mac accounts for the incremental assets and liabilities initially at their carrying amounts.

The VIEs in which Farmer Mac has a variable interest are limited to securitization trusts. The major factor in determining if Farmer Mac is the primary beneficiary is whether Farmer Mac has the power to direct the activities of the trust that potentially have the most significant impact on the economic performance of the trust. Generally, the ability to make decisions regarding default mitigation is evidence of that power. Farmer Mac determined that it is the primary beneficiary for the securitization trusts related to most Farm & Ranch and all Rural Utilities securitization transactions because of its rights as guarantor under both programs to control the default mitigation activities of the trusts. For certain securitization trusts created when loans subject to LTSPCs were converted to Farm & Ranch Guaranteed Securities, Farmer Mac determined that it was not the primary beneficiary since the power to make decisions regarding default mitigation was shared among unrelated parties. For these trusts, the shared power provisions are substantive with respect to decision-making power and relate to the same activity (i.e., default mitigation). For similar securitization transactions where the power to make decisions regarding default mitigation was shared with a related party, Farmer Mac determined that it was the primary beneficiary because the applicable accounting guidance does not permit parties within a related party group to conclude that the power is shared. In the event that a related party status changes, consolidation or deconsolidation of these securitization trusts could occur.

For those trusts that Farmer Mac is the primary beneficiary, the assets and liabilities are presented on the consolidated balance sheets as "Loans held for investment in consolidated trusts, at amortized cost" and "Debt securities of consolidated trusts held by third parties," respectively. These assets can only be used to satisfy the obligations of the related trust.

For those trusts in which Farmer Mac has a variable interest but is not the primary beneficiary, Farmer Mac's interests are presented as either "Farmer Mac Guaranteed Securities," "USDA Securities," or

"Investment securities" on the consolidated balance sheets. Farmer Mac's involvement in VIEs classified as Farmer Mac Guaranteed Securities or USDA Securities include securitization trusts under the USDA Guarantees line of business. In the case of USDA guaranteed trusts, Farmer Mac is not determined to be the primary beneficiary because it does not have the decision-making power over default mitigation activities. Based on the USDA's program authority over the servicing and default mitigation activities of the USDA guaranteed portions of loans, Farmer Mac believes that the USDA has the power to direct the activities that most significantly impact the trust's economic performance. Farmer Mac does not have exposure to losses that could be significant to the trust and there are no triggers that would result in Farmer Mac superseding the USDA's authority with regard to directing the activities of the trust. For VIEs classified as investment securities, which include auction-rate certificates, asset-backed securities, and government-sponsored enterprise ("GSE") guaranteed mortgage-backed securities, Farmer Mac is determined not to be the primary beneficiary because of the lack of voting rights or other powers to direct the activities of the trust.

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

Table 2.4

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

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

	Consolidation of Variable Interest Entities			
	As of December 31, 2018			
	Farm & Ranch	USDA Guarantees	Corporate	Total
	(in thousands)			
On-Balance Sheet:				
Consolidated VIEs:				
Loans held for investment in consolidated trusts, at amortized cost	$ 1,517,101	$ —	$ —	$ 1,517,101
Debt securities of consolidated trusts held by third parties [1]	1,528,957	—	—	1,528,957
Unconsolidated VIEs:				
Farmer Mac Guaranteed Securities:				
Carrying value [2]	—	27,627	—	27,627
Maximum exposure to loss [3]	—	27,383	—	27,383
Investment securities:				
Carrying value [4]	—	—	1,000,942	1,000,942
Maximum exposure to loss [3] [4]	—	—	1,003,968	1,003,968
Off-Balance Sheet:				
Unconsolidated VIEs:				
Farmer Mac Guaranteed Securities:				
Maximum exposure to loss [3] [5]	135,862	367,684	—	503,546

(1) Includes borrower remittances of $11.9 million. The borrower remittances had not been passed through to third party investors as of December 31, 2018.
(2) Includes $0.2 million of unamortized premiums and discounts and fair value adjustments related to the USDA Guarantees line of business.
(3) Farmer Mac uses unpaid principal balance and outstanding face amount of investment securities to represent maximum exposure to loss.
(4) Includes auction-rate certificates, asset-backed securities, and government-sponsored enterprise ("GSE")-guaranteed mortgage-backed securities.
(5) The amount under the Farm & Ranch line of business relates to unconsolidated trusts where Farmer Mac determined it was not the primary beneficiary due to shared power with an unrelated party.

(o) New Accounting Standards

Recently Adopted Accounting Guidance

Standard	Description	Date of Adoption	Effect on Consolidated Financial Statements
ASU 2016-02, Leases (Topic 842)	This Update provides new guidance intended to improve financial reporting about leasing transactions. This Update requires organizations that lease assets to recognize on the balance sheet the assets and liabilities for the rights and obligations created by those leases. It also requires new disclosures to help investors and other financial statement users better understand the amount, timing, and uncertainty of cash flows arising from leases.	January 1, 2019	The adoption of this Update did not have a material effect on Farmer Mac's financial position, results of operations, or cash flows.
ASU 2018-15, Intangibles - Goodwill and Other Internal-Use Software (Subtopic 350-40): Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That is a Service Contract	The amendments in this Update align the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software (and hosting arrangements that include an internal-use software license).	July 1, 2019	The adoption of this Update did not have a material effect on Farmer Mac's financial position, results of operations, or cash flows.

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

Standard	Description	Date of Planned Adoption	Effect on Consolidated Financial Statements
ASU 2016-13, Financial Instruments - Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments	This Update 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, as well as require entities to use forward-looking information to form their credit loss estimates.	January 1, 2020	Farmer Mac has completed its models to estimate lifetime expected credit losses on financial instruments measured at amortized cost and on available-for-sale debt securities. The adoption of this new guidance will not have a material effect on its financial condition, results of operations or cash flows.
ASU 2017-08, Receivables - Nonrefundable Fees and Other Costs (Subtopic 310-20): Premium Amortization on Purchased Callable Debt Securities	The amendments in this Update shorten the amortization period for certain callable debt securities held at a premium by requiring the premium to be amortized to the earliest call date. There is no required accounting change for securities held at a discount in this Update.	January 1, 2020	The adoption of this new guidance will not have a material effect on Farmer Mac's financial position, results of operations, or cash flows.
ASU 2018-13, Fair Value Measurement (Topic 820): Disclosure Framework - Changes to the Disclosure Requirements for Fair Value Measurement	The amendments in this Update modify the disclosure requirements on fair value measurements in Topic 820, Fair Value Measurements, including the consideration of costs and benefits. Certain disclosure requirements were either removed, modified, or added.	January 1, 2020	The adoption of this new guidance will not have a material effect on Farmer Mac's financial position, results of operations, or cash flows.

3. RELATED PARTY TRANSACTIONS

Farmer Mac considers an entity to be a related party if (1) the entity holds at least 5% of a class of Farmer Mac voting common stock or (2) the institution has an affiliation with a Farmer Mac director and conducts material business with Farmer Mac. As provided by Farmer Mac's statutory charter, only banks, insurance companies, and other financial institutions or similar entities may hold Farmer Mac's Class A voting common stock and only institutions of the Farm Credit System may hold Farmer Mac's Class B voting common stock. Farmer Mac's statutory charter also provides that Class A stockholders elect 5 members of Farmer Mac's 15-member board of directors and that Class B stockholders elect 5 members of the board of directors. Farmer Mac generally requires financial institutions to own a requisite amount of common stock, based on the size and type of institution, to participate in the Farm & Ranch line of business. As a result of these requirements, Farmer Mac conducts business with related parties in the normal course of Farmer Mac's business. All related party transactions were conducted with terms and conditions comparable to those available to any other participant in Farmer Mac's lines of business not related to Farmer Mac.

Zions Bancorporation, National Association:

Farmer Mac considers Zions Bancorporation, National Association and its affiliates ("Zions") a related party due to the ownership by Zions of approximately 31.2% of Farmer Mac's Class A voting common stock. The following transactions occurred between Farmer Mac and Zions during 2019, 2018, and 2017:

Table 3.1

	For the Years Ended December 31,		
	2019	2018	2017
		(in thousands)	
Unpaid Principal Balance:			
Purchases:			
Loans	$ 129,040	$ 114,719	$ 126,449
USDA Securities	8,875	19,120	20,368
Sales of Farmer Mac Guaranteed Securities	163,134	68,721	128,924

The purchases of loans from Zions under the Farm & Ranch line of business represented approximately 9.5%, 11.9%, and 11.2% of Farm & Ranch loan purchases for the years ended December 31, 2019, 2018, and 2017, respectively, and 7.6%, 8.2% and 7.5%, respectively, of total new Farm & Ranch business volume. The purchases of USDA Securities from Zions under the USDA Guarantees line of business represented approximately 2.1%, 4.2%, and 3.8% of purchases in that line of business for the years ended December 31, 2019, 2018, and 2017, respectively. Outstanding Farm & Ranch loans, USDA Securities, and AgVantage securities purchased from Zions represented 4.5% and 4.7%, respectively, of Farmer Mac's outstanding business volume as of December 31, 2019 and 2018.

Zions retained servicing fees of $12.2 million, $11.6 million, and $11.5 million in 2019, 2018, and 2017, respectively, for its work as a Farmer Mac servicer.

National Rural Utilities Cooperative Financial Corporation:

Farmer Mac considers the National Rural Utilities Cooperative Financial Corporation ("CFC") a related party because of its ownership of approximately 7.9% of Farmer Mac's Class A voting common stock and because a member of Farmer Mac's board of directors has an affiliation with that entity. The following transactions occurred between Farmer Mac and CFC during 2019, 2018, and 2017:

Table 3.2

Farmer Mac Loan Purchases and Guarantees

	For the Years Ended December 31,		
	2019	2018	2017
		(in thousands)	
Unpaid Principal Balance:			
Loans	$ 85,000	$ 11,645	$ 137,341
On-balance sheet AgVantage Securities	575,000	675,000	350,000
Off-balance sheet revolving floating rate AgVantage facility	—	300,000	—
Total purchases and guarantees	$ 660,000	$ 986,645	$ 487,341

The transactions with CFC represented 9.8% of Farmer Mac's loan purchase volume under the Rural Utilities line of business for 2019, compared to 100% of Farmer Mac's loan purchase volume for both 2018 and 2017. These transactions represented 25.5%, 29.5%, and 14.7% of AgVantage securities volume under the Institutional Credit line of business for 2019, 2018, and 2017, respectively, and represented 12.5%, 19.1%, and 10.3% of total purchases, guarantees, and LTSPCs for 2019, 2018, and 2017, respectively. Of Farmer Mac's total outstanding business volume as of December 31, 2019 and 2018, Rural Utilities loans, loans under LTSPCs, and AgVantage securities issued by CFC represented 21.2% and 23.6%, respectively.

Farmer Mac had interest receivable of $9.2 million and $9.4 million as of December 31, 2019 and 2018, respectively, and earned interest income of $97.3 million, $76.8 million, and $43.9 million during 2019, 2018, and 2017, respectively, related to its AgVantage transactions with CFC.

As of both December 31, 2019 and 2018, Farmer Mac had $0.1 million of commitment fees receivable from CFC and earned commitment fees of $1.7 million, $1.9 million, and $2.2 million, respectively for 2019, 2018, and 2017.

CFC retained servicing fees of $3.2 million, $3.6 million and $3.5 million in 2019, 2018, and 2017, respectively, for its work as a Farmer Mac central servicer.

CoBank:

Farmer Mac has a related party relationship with CoBank because CoBank is a major holder (32.6%) of Farmer Mac Class B voting common stock and because a member of Farmer Mac's board of directors has an affiliation with that entity.

Farmer Mac entered into $776.4 million of loan purchases from CoBank, under the Rural Utilities line of business in 2019. The transactions with CoBank represented 89.1% of Farmer Mac's volume of loan purchases transactions under the Rural Utilities line of business for 2019. During 2018 and 2017, Farmer Mac did not do any business with CoBank through any of its lines of business.

CoBank retained servicing fees of $1.2 million during 2019 for its work as a Farmer Mac central servicer. During 2018 and 2017, CoBank was not a Farmer Mac central servicer.

AgFirst Farm Credit Bank:

Farmer Mac has a related party relationship with AgFirst Farm Credit Bank ("AgFirst") resulting from AgFirst being a holder of approximately 16.8% of Farmer Mac's Class B voting common stock.

AgFirst entered into $26.7 million, $26.6 million and $40.0 million of LTSPC transactions in 2019, 2018, and 2017, respectively, and the aggregate balance of LTSPCs outstanding as of December 31, 2019 and 2018 was $332.4 million and $340.5 million, respectively. Farmer Mac received from AgFirst $1.2 million, $1.2 million, and $1.1 million in commitment fees in 2019, 2018, and 2017, respectively, and had $0.1 million of commitment fees receivable as of both December 31, 2019 and 2018.

AgFirst owns certain securities backed by rural housing loans. Farmer Mac guarantees the last ten percent of losses (based on the original principal balance at the time of pooling) from each loan in the pool backing those securities. As of December 31, 2019 and 2018, the outstanding balance of those securities owned by AgFirst was $7.0 million and $8.6 million, respectively. Farmer Mac received guarantee fees of $29,000, $33,000, and $38,000 in 2019, 2018, and 2017, respectively, on those securities.

Farm Credit Bank of Texas:

Farmer Mac has a related party relationship with Farm Credit Bank of Texas resulting from the bank being a holder of approximately 7.7% of Farmer Mac Class B voting common stock and because a member of Farmer Mac's board of directors has an affiliation with that entity. Farmer Mac received from Farm Credit Bank of Texas commitment fees of $1.1 million, $1.0 million, and $1.0 million in 2019, 2018, and 2017, respectively. The aggregate amount of LTSPCs outstanding with Farm Credit Bank of Texas as of December 31, 2019 and 2018 was $270.3 million and $226.5 million, respectively. In 2019, 2018, and 2017, Farm Credit Bank of Texas retained $0.1 million, $0.2 million, and $0.2 million, respectively, in servicing fees for its work as a Farmer Mac central servicer.

Other Related Party Transactions:

The following institutions had a related party relationship with Farmer Mac because a member of Farmer Mac's board of directors is affiliated with each of those entities.

Farmer Mac purchased $51.4 million, $39.5 million, and $28.5 million in loans from First Dakota National Bank in 2019, 2018, and 2017, respectively. Farmer Mac entered into $3.2 million, $3.0 million, and $0.4 million of new USDA Securities in 2019, 2018, and 2017, respectively, with First Dakota National Bank. In addition, Farmer Mac entered into $3.6 million, $0.0 million, and $0.0 million of new LTSPCs in 2019, 2018, and 2017, respectively, with First Dakota National Bank. First Dakota National Bank retained servicing fees of $1.2 million, $1.4 million, and $1.2 million in 2019, 2018, and 2017, respectively, for its work as a Farmer Mac servicer.

Farmer Mac purchased $4.0 million, $2.0 million, and $5.4 million in USDA Securities from Bath State Bank in 2019, 2018, and 2017, respectively.

4. INVESTMENT SECURITIES

The following tables set forth information about Farmer Mac's investment securities as of December 31, 2019 and 2018:

Table 4.1

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

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

	As of December 31, 2018					
	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	$ —	$ (985)	$ 18,715
Floating rate asset-backed securities	28,940	(136)	28,804	2	(128)	28,678
Floating rate Government/GSE guaranteed mortgage-backed securities	1,379,472	1,528	1,381,000	721	(4,267)	1,377,454
Fixed rate GSE guaranteed mortgage-backed securities	384	1	385	18	—	403
Fixed rate U.S. Treasuries	797,913	(4,882)	793,031	119	(548)	792,602
Total available-for-sale	2,226,409	(3,489)	2,222,920	860	(5,928)	2,217,852
Held-to-maturity:						
Floating rate Government/GSE guaranteed mortgage-backed securities[1]	45,032	—	45,032	562	—	45,594
Total investment securities	$ 2,271,441	$ (3,489)	$ 2,267,952	$ 1,422	$ (5,928)	$ 2,263,446

(1) The held-to-maturity investment securities had a weighted average yield of 3.5% as of December 31, 2018.

During the year ended December 31, 2019, Farmer Mac received proceeds of $12.4 million from the sale of securities from its available-for-sale investment portfolio, resulting in gross realized losses of $0.2 million. Farmer Mac did not sell any securities from its available-for-sale investment portfolio during the year ended December 31, 2018. During the year ended December 31, 2017, Farmer Mac received proceeds of $10.2 million from the sale of securities from its available-for-sale portfolio, resulting in gross realized gains of $0.1 million.

As of December 31, 2019 and 2018, unrealized losses on available-for-sale investment securities were as follows:

Table 4.2

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

	As of December 31, 2018			
	Available-for-Sale Securities			
	Unrealized loss position for less than 12 months		Unrealized loss position for more than 12 months	
	Fair Value	Unrealized Loss	Fair Value	Unrealized Loss
	(dollars in thousands)			
Floating rate auction-rate certificates backed by Government guaranteed student loans	$ —	$ —	$ 18,715	$ (985)
Floating rate asset-backed securities	6,456	(38)	19,058	(90)
Floating rate Government/GSE guaranteed mortgage-backed securities	927,416	(2,907)	196,416	(1,360)
Fixed rate U.S. Treasuries	499,581	(336)	81,597	(212)
Total	$ 1,433,453	$ (3,281)	$ 315,786	$ (2,647)
Number of securities in loss position		72		48

The unrealized losses presented above are principally due to a general widening of market spreads and changes in the levels of interest rates from the dates of acquisition to December 31, 2019 and 2018, as applicable. The resulting decrease in fair values reflects an increase in the perceived risk by the financial markets related to those securities. As of both December 31, 2019 and December 31, 2018, all of the investment securities in an unrealized loss position either were backed by the full faith and credit of the U.S. government or had credit ratings of at least "AA+."

Securities in unrealized loss positions for 12 months or longer have a fair value as of December 31, 2019 that is, on average, approximately 99.3% 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 December 31, 2019 and 2018. 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.

The amortized cost, fair value, and weighted-average yield of available-for-sale investment securities by remaining contractual maturity as of December 31, 2019 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 4.3

	As of December 31, 2019		
	Available-for-Sale Securities		
	Amortized Cost	Fair Value	Weighted-Average Yield
	(dollars in thousands)		
Due within one year	$ 1,226,467	$ 1,227,930	1.57%
Due after one year through five years	271,300	270,938	2.19%
Due after five years through ten years	788,901	786,549	2.15%
Due after ten years	674,762	674,426	2.49%
Total	$ 2,961,430	$ 2,959,843	1.99%

5. 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 December 31, 2019 and 2018:

Table 5.1

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

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

	As of December 31, 2018					
	Unpaid Principal Balance	Unamortized Premium/ (Discount)	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
	(in thousands)					
Held-to-maturity:						
AgVantage	$ 2,069,185	$ (194)	$ 2,068,991	$ 2,637	$ (11,948)	$ 2,059,680
Farmer Mac Guaranteed USDA Securities	27,383	244	27,627	98	—	27,725
Total Farmer Mac Guaranteed Securities	2,096,568	50	2,096,618	2,735	(11,948)	2,087,405
USDA Securities	2,110,963	55,211	2,166,174	—	(62,227)	2,103,947
Total held-to-maturity	$ 4,207,531	$ 55,261	$ 4,262,792	$ 2,735	$ (74,175)	$ 4,191,352
Available-for-sale:						
AgVantage	$ 6,003,733	$ (204)	$ 6,003,529	$ 22,335	$ (51,367)	$ 5,974,497
Trading:						
USDA Securities[(1)]	$ 9,591	$ 701	$ 10,292	$ 20	$ (313)	$ 9,999

(1) The trading USDA securities had a weighted average yield of 5.21% as of December 31, 2018.

As of December 31, 2019 and 2018, unrealized losses on held-to-maturity and available-for-sale on-balance sheet Farmer Mac Guaranteed Securities and USDA Securities were as follows:

Table 5.2

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

	As of December 31, 2018			
	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	$ 669,610	$ (1,760)	$ 976,318	$ (10,188)
USDA Securities	38,203	(696)	2,065,743	(61,531)
Total held-to-maturity	$ 707,813	$ (2,456)	$ 3,042,061	$ (71,719)
Available-for-sale:				
AgVantage	$ 1,480,423	$ (9,364)	$ 1,599,679	$ (42,003)

The unrealized losses presented above are principally due to changes in interest rates from the date of acquisition to December 31, 2019 and 2018, as applicable. The unrealized losses on the held-to-maturity USDA Securities as of both December 31, 2019 and 2018 reflect their increased cost basis resulting from their transfer to held-to-maturity as of October 1, 2016.

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

The unrealized losses from AgVantage securities were on 17 and 38 available-for-sale securities as of December 31, 2019 and 2018, respectively. There were 4 and 43 held-to-maturity AgVantage securities with an unrealized loss as of December 31, 2019 and 2018, respectively. As of December 31, 2019 and December 31, 2018, 13 and 21 available-for-sale AgVantage securities, respectively, had been in a loss position for more than 12 months. 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-temporarily impaired as of either December 31, 2019 or 2018. 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 years ended December 31, 2019, 2018, and 2017, Farmer Mac had no sales of Farmer Mac Guaranteed Securities or USDA Securities and, therefore, Farmer Mac realized no gains or losses.

The amortized cost, fair value, and weighted-average yield of available-for-sale and held-to-maturity Farmer Mac Guaranteed Securities and USDA Securities by remaining contractual maturity as of December 31, 2019 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 5.3

	As of December 31, 2019		
	Available-for-Sale Securities		
	Amortized Cost	Fair Value	Weighted-Average Yield
	(dollars in thousands)		
Due within one year	$ 781,341	$ 781,680	2.35 %
Due after one year through five years	3,455,526	3,512,820	2.93 %
Due after five years through ten years	1,240,670	1,271,208	2.92 %
Due after ten years	1,539,434	1,577,317	3.30 %
Total	$ 7,016,971	$ 7,143,025	2.94 %

	As of December 31, 2019		
	Held-to-Maturity Securities		
	Amortized Cost	Fair Value	Weighted-Average Yield
	(dollars in thousands)		
Due within one year	$ 452,256	$ 452,712	2.51 %
Due after one year through five years	1,045,189	1,061,151	3.23 %
Due after five years through ten years	207,706	210,690	3.40 %
Due after ten years	1,974,460	2,024,631	3.56 %
Total	$ 3,679,611	$ 3,749,184	3.33 %

6. FINANCIAL DERIVATIVES

Farmer Mac enters into financial derivative transactions to protect against risk from the effects of market price, or interest rate movements, on the value of certain assets, future cash flows, or debt issuance, and not for trading or speculative purposes. Certain financial derivatives are designated as fair value hedges of fixed rate assets, classified as available-for-sale, to protect against fair value changes in the assets related to changes in a benchmark interest rate (e.g., LIBOR). Certain other financial derivatives are designated as cash flow hedges to mitigate the volatility of future interest rate payments on floating rate debt. Certain financial derivatives are not designated in hedge accounting relationships.

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

The following tables summarize information related to Farmer Mac's financial derivatives on a gross basis without giving consideration to master netting arrangements as of December 31, 2019 and 2018:

Table 6.1

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

	As of December 31, 2018						
		Fair Value					
	Notional Amount	Asset	(Liability)	Weighted-Average Pay Rate	Weighted-Average Receive Rate	Weighted-Average Forward Price	Weighted-Average Remaining Term (in years)
	(dollars in thousands)						
Fair value hedges:							
Interest rate swaps:							
Pay fixed non-callable	$ 3,097,084	$ 3,004	$ (4,326)	2.42%	2.58%		9.75
Receive fixed non-callable	1,871,200	547	(4,484)	2.50%	1.84%		1.58
Receive fixed callable	160,000	338	(28)	2.35%	3.06%		2.91
Cash flow hedges:							
Interest rate swaps:							
Pay fixed non-callable	373,000	2,441	(99)	2.40%	2.83%		6.12
No hedge designation:							
Interest rate swaps:							
Pay fixed non-callable	316,664	796	(10,399)	3.69%	2.52%		6.25
Receive fixed non-callable	2,347,371	—	—	2.37%	2.10%		0.86
Basis swaps	1,770,026	421	(130)	2.45%	2.49%		1.27
Treasury futures	20,400	—	(188)			121.09	
Credit valuation adjustment		(60)	21				
Total financial derivatives	$ 9,955,745	$ 7,487	$ (19,633)				
Collateral (held)/pledged		(1,778)	47,018				
Net amount		$ 5,709	$ 27,385				

As of December 31, 2019, Farmer Mac expects to reclassify $0.9 million after tax from accumulated other comprehensive income to earnings over the next twelve months. This amount could differ from amounts actually recognized due to changes in interest rates, hedge de-designations, and the addition of other hedges after December 31, 2019. During the years ended December 31, 2019 and 2018, there were no gains or losses from interest rate swaps designated as cash flow hedges reclassified to earnings because it was probable that the originally forecasted transactions would occur.

The following table summarizes the net income/(expense) recognized in the consolidated statements of operations related to derivatives for the years ended December 31, 2019, 2018, and 2017:

Table 6.2

	For the Year Ended December 31, 2019				
	Net Income/(Expense) Recognized in Consolidated Statement of Operations on Derivatives				
	Net Interest Income			Non-Interest Income	
	Interest Income Farmer Mac Guaranteed Securities and USDA Securities	Interest Income Loans	Total Interest Expense	Gains/(losses) on financial derivatives	Total
			(in thousands)		
Total amounts presented in the consolidated statement of operations	$ 333,896	$ 229,675	$ (471,958)	$ 5,282	$ 96,895
Income/(expense) related to interest settlements on fair value hedging relationships:					
Recognized on derivatives	(2,177)	(2,053)	(6,227)	—	(10,457)
Recognized on hedged items	118,609	26,352	(45,309)	—	99,652
Discount amortization recognized on hedged items	—	—	(631)	—	(631)
Income/(expense) related to interest settlements on fair value hedging relationships	$ 116,432	$ 24,299	$ (52,167)	$ —	$ 88,564
(Losses)/gains on fair value hedging relationships:					
Recognized on derivatives	$ (184,478)	$ (50,141)	$ 18,401	$ —	$ (216,218)
Recognized on hedged items	181,144	43,194	(16,027)	—	208,311
(Losses)/gains on fair value hedging relationships	$ (3,334)	$ (6,947)	$ 2,374	$ —	$ (7,907)
Expense related to interest settlements on cash flow hedging relationships:					
Interest settlements reclassified from AOCI into net income on derivatives	$ —	$ —	$ 1,166	$ —	$ 1,166
Recognized on hedged items	—	—	(10,569)	—	(10,569)
Discount amortization recognized on hedged items	—	—	(4)	—	(4)
Expense recognized on cash flow hedges	$ —	$ —	$ (9,407)	$ —	$ (9,407)
Gains on financial derivatives not designated in hedging relationships:					
Gains on interest rate swaps	$ —	$ —	$ —	$ 10,321	$ 10,321
Interest expense on interest rate swaps	—	—	—	(4,213)	(4,213)
Treasury futures	—	—	—	(826)	(826)
Gains on financial derivatives not designated in hedge relationships	$ —	$ —	$ —	$ 5,282	$ 5,282

	For the Year Ended December 31, 2018				
	Net Income/(Expense) Recognized in Consolidated Statement of Operations on Derivatives				
	Net Interest Income			Non-Interest Income	
	Interest Income Farmer Mac Guaranteed Securities and USDA Securities	Interest Income Loans	Total Interest Expense	(Losses)/gains on financial derivatives	Total
			(in thousands)		
Total amounts presented in the consolidated statement of operations:	$ 290,953	$ 198,152	$ (369,848)	$ (3,687)	$ 115,570
Income/(expense) related to interest settlements on fair value hedging relationships:					
Recognized on derivatives	1,861	(630)	(7,995)	—	(6,764)
Recognized on hedged items	65,238	6,284	(36,837)	—	34,685
Discount amortization recognized on hedged items	—	—	(668)	—	(668)
Income/(expense) related to interest settlements on fair value hedging relationships	$ 67,099	$ 5,654	$ (45,500)	$ —	$ 27,253
Gains/(losses) on fair value hedging relationships:					
Recognized on derivatives	$ (20,279)	$ 5,031	$ 835	$ —	$ (14,413)
Recognized on hedged items	21,460	(5,243)	3,137	—	19,354
Gains/(losses) on fair value hedging relationships	$ 1,181	$ (212)	$ 3,972	$ —	$ 4,941
Expense related to interest settlements on cash flow hedging relationships:					
Interest settlements reclassified from AOCI into net income on derivatives	$ —	$ —	$ 316	$ —	$ 316
Recognized on hedged items	—	—	(9,182)	—	(9,182)
Discount amortization recognized on hedged items	—	—	(6)	—	(6)
Expense recognized on cash flow hedges	$ —	$ —	$ (8,872)	$ —	$ (8,872)
Losses on financial derivatives not designated in hedge relationships:					
Gains on interest rate swaps	$ —	$ —	$ —	$ 7,206	$ 7,206
Interest expense on interest rate swaps	—	—	—	(10,920)	(10,920)
Treasury futures	—	—	—	27	27
Losses on financial derivatives not designated in hedge relationships	$ —	$ —	$ —	$ (3,687)	$ (3,687)

	For the Year Ended December 31, 2017				
	Net Income/(Expense) Recognized in Consolidated Statement of Operations on Derivatives				
	Net Interest Income			Non-Interest Income	
	Interest Income Farmer Mac Guaranteed Securities and USDA Securities	Interest Income Loans	Total Interest Expense	Gains/(losses) on financial derivatives	Total
			(in thousands)		
Total amounts presented in the consolidated statement of operations	$ 203,796	$ 162,150	$ (242,885)	$ 753	$ 123,814
Income/(expense) related to interest settlements on fair value hedging relationships:					
Recognized on derivatives	(10,346)	(1,141)	2,642	—	(8,845)
Recognized on hedged items	46,389	3,379	(14,283)	—	35,485
Discount amortization recognized on hedged items	—	—	(345)	—	(345)
Income/(expense) related to interest settlements on fair value hedging relationships	$ 36,043	$ 2,238	$ (11,986)	$ —	$ 26,295
(Losses)/gains on fair value hedging relationships:					
Recognized on derivatives	$ —	$ —	$ —	$ 1,694	$ 1,694
Recognized on hedged items	—	—	—	(2,413)	(2,413)
(Losses)/gains on fair value hedging relationships	$ —	$ —	$ —	$ (719)	$ (719)
Expense related to interest settlements on cash flow hedging relationships:					
Interest settlements reclassified from AOCI into net income on derivatives	$ —	$ —	$ (1,974)	$ —	$ (1,974)
Recognized on hedged items	—	—	(4,133)	—	(4,133)
Discount amortization recognized on hedged items	—	—	(5)	—	(5)
Losses recognized in income for hedge ineffectiveness	—	—	—	(320)	(320)
Expense recognized on cash flow hedges	$ —	$ —	$ (6,112)	$ (320)	$ (6,432)
Gains on financial derivatives not designated in hedging relationships:					
Gains on interest rate swaps	$ —	$ —	$ —	$ 12,240	$ 12,240
Interest expense on interest rate swaps	—	—	—	(10,200)	(10,200)
Agency forwards	—	—	—	(588)	(588)
Treasury futures	—	—	—	340	340
Gains on financial derivatives not designated in hedge relationships	$ —	$ —	$ —	$ 1,792	$ 1,792

(1) Included in the assessment of hedge effectiveness as of December 31, 2017, but excluded from the amounts in the table, were gains of $0.1 million for the year ended December 31, 2017, attributable to the fair value of the swaps at the inception of the hedging relationship. Accordingly, the amount recognized as hedge ineffectiveness for the year ended December 31, 2017 were gains of $0.6 million.

The following table shows the carrying amount and associated cumulative basis adjustment related to the application of hedge accounting that is included in the carrying amount of hedged assets and liabilities in fair value hedging relationships as of December 31, 2019 and 2018:

Table 6.3

	Hedged Items in Fair Value Relationship			
	Carrying Amount of Hedged Assets/(Liabilities)		Cumulative Amount of Fair Value Hedging Adjustments included in the Carrying Amount of the Hedged Assets/(Liabilities)	
	December 31, 2019	December 31, 2018	December 31, 2019	December 31, 2018
	(in thousands)			
Farmer Mac Guaranteed Securities, Available-for-Sale, at fair value	$ 4,092,611	$ 2,882,919	$ 180,215	$ (906)
Loans held for investment, at amortized cost	1,050,335	194,617	37,907	(5,287)
Notes Payable, due after one year[1]	(2,761,052)	(2,021,356)	(7,433)	8,785

[1] Carrying amount represents amortized cost.

The following table shows Farmer Mac's credit exposure to interest rate swap counterparties as of December 31, 2019 and 2018:

Table 6.4

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

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

	December 31, 2018		
	Gross Amount Recognized[1]	Counterparty Netting	Net Amount Presented in the Consolidated Balance Sheet
	(in thousands)		
Assets:			
Derivatives			
Interest rate swaps	$ 51,267	$ 48,124	$ 3,143
Liabilities:			
Derivatives			
Interest rate swaps	$ 78,437	$ 64,568	$ 13,869

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

As of December 31, 2019, Farmer Mac held $2.7 million of cash and no investment securities as collateral for its derivatives in net asset positions, compared to $0.7 million of cash and $1.1 million of investment securities as collateral for its derivatives in net asset positions as of December 31, 2018.

Farmer Mac posted $0.5 million cash and $131.7 million of investment securities as of December 31, 2019 and posted no cash and $47.0 million investment securities as of December 31, 2018. 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 December 31, 2019 and 2018, it could have been required to settle its obligations under the agreements, but would not have been required to post additional collateral. As of December 31, 2019 and 2018, there were no financial derivatives in a net payable position where Farmer Mac was required to pledge collateral which the counterparty had the right to sell or repledge.

Of Farmer Mac's $14.0 billion notional amount of interest rate swaps outstanding as of December 31, 2019, $11.0 billion were cleared through the swap clearinghouse, the Chicago Mercantile Exchange ("CME"). Of Farmer Mac's $9.9 billion notional amount of interest rate swaps outstanding as of December 31, 2018, $8.5 billion were cleared through the swap clearinghouse. During 2019, the Company increased its use of non-cleared basis swaps as it began to prepare for the transition away from the use of LIBOR as a reference rate.

7. NOTES PAYABLE

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

The following tables set forth information related to Farmer Mac's borrowings as of December 31, 2019 and 2018:

Table 7.1

	December 31, 2019			
	Outstanding as of December 31		Average Outstanding During the Year	
	Amount	Weighted-Average Rate	Amount	Weighted-Average Rate
	(dollars in thousands)			
Due within one year:				
Discount notes	$ 2,194,177	1.72 %	$ 1,977,214	2.25 %
Medium-term notes	1,152,770	1.98 %	1,780,517	2.33 %
Current portion of long-term notes	6,672,135	1.85 %		
Total due within one year	$ 10,019,082	1.84 %		
Due after one year:				
Medium-term notes due in:				
2021	$ 3,700,835	2.04 %		
2022	1,594,709	2.15 %		
2023	1,205,276	2.27 %		
2024	760,887	2.25 %		
Thereafter	1,817,859	2.89 %		
Total due after one year	9,079,566	2.28 %		
Total	$ 19,098,648	2.05 %		

	December 31, 2018			
	Outstanding as of December 31		Average Outstanding During the Year	
	Amount	Weighted-Average Rate	Amount	Weighted-Average Rate
	(dollars in thousands)			
Due within one year:				
Discount notes	$ 1,586,385	2.35 %	$ 1,432,470	1.83 %
Medium-term notes	1,826,380	2.29 %	1,977,445	1.83 %
Current portion of long-term notes	4,344,285	1.93 %		
Total due within one year	$ 7,757,050	2.10 %		
Due after one year:				
Medium-term notes due in:				
2020	$ 3,090,405	2.11 %		
2021	2,220,651	2.41 %		
2022	859,470	2.19 %		
2023	881,738	2.88 %		
Thereafter	1,434,383	3.34 %		
Total due after one year	8,486,647	2.48 %		
Total	$ 16,243,697	2.30 %		

During 2019, the Company increased its use of short-term funding in order to fund the growth of short-term assets in its liquidity portfolio. The maximum amount of Farmer Mac's discount notes outstanding at any month end during each of the years ended December 31, 2019 and 2018 was $2.3 billion and $1.6 billion, respectively.

Callable medium-term notes give Farmer Mac the option to redeem the debt at par value on a specified call date or at any time on or after a specified call date. The following table summarizes by maturity date the amounts and costs for Farmer Mac debt callable in 2020 as of December 31, 2019:

Table 7.2

Debt Callable in 2020 as of December 31, 2019		
	Amount	Weighted-Average Rate
	(dollars in thousands)	
Maturity:		
2021	$ 518,746	2.03 %
2022	289,742	2.30 %
2023	22,978	1.93 %
2024	191,688	2.32 %
Thereafter	374,064	2.80 %
Total	$ 1,397,218	2.33 %

The following schedule summarizes the earliest interest rate reset date of total borrowings outstanding as of December 31, 2019, including callable and non-callable medium-term notes, assuming callable notes are redeemed at the initial call date:

Table 7.3

	Earliest Interest Rate Reset Date of Borrowings Outstanding	
	Amount	Weighted-Average Rate
	(dollars in thousands)	
Debt with interest rate resets in:		
2020	$ 11,842,948	1.85 %
2021	2,399,892	2.18 %
2022	1,463,737	2.16 %
2023	1,160,300	2.28 %
2024	727,900	2.26 %
Thereafter	1,503,871	3.03 %
Total	$ 19,098,648	2.05 %

During 2019 and 2018, Farmer Mac called $1.5 billion and none of callable medium-term notes, respectively. The decrease in market interest rates throughout 2019 led to an increase in called medium-term notes compared to the prior year.

Authority to Borrow from the U.S. Treasury

Farmer Mac's statutory charter authorizes it to borrow up to $1.5 billion from the U.S. Treasury through the issuance of debt obligations to the U.S. Treasury. Any funds borrowed from the U.S. Treasury may be used solely for the purpose of fulfilling Farmer Mac's guarantee obligations. Any debt obligations issued by Farmer Mac under this authority would bear interest at a rate determined by the U.S. Treasury, taking into consideration the average rate on outstanding marketable obligations of the United States as of the last day of the last calendar month ending before the date of the purchase of the obligations from Farmer Mac. The charter requires Farmer Mac to repurchase any of its debt obligations held by the U.S. Treasury within a reasonable time. As of December 31, 2019, Farmer Mac had not used this borrowing authority and does not expect to use this borrowing authority in the future.

Gains on Repurchase of Outstanding Debt

No outstanding debt repurchases were made in 2019, 2018, or 2017.

8. LOANS AND ALLOWANCE FOR LOSSES

Loans

Loans held for investment are recorded at the unpaid principal balance, net of unamortized premium or discount and other cost adjustments. The following table displays the composition of the loan balances as of December 31, 2019 and 2018:

Table 8.1

	As of December 31, 2019			As of December 31, 2018		
	Unsecuritized	In Consolidated Trusts	Total	Unsecuritized	In Consolidated Trusts	Total
	(in thousands)					
Farm & Ranch	$ 3,675,640	$ 1,600,917	$ 5,276,557	$ 3,071,222	$ 1,517,101	$ 4,588,323
Rural Utilities	1,671,293	—	1,671,293	938,843	—	938,843
Total unpaid principal balance(1)	5,346,933	1,600,917	6,947,850	4,010,065	1,517,101	5,527,166
Unamortized premiums, discounts, and other cost basis adjustments	44,044	—	44,044	(5,097)	—	(5,097)
Total loans	5,390,977	1,600,917	6,991,894	4,004,968	1,517,101	5,522,069
Allowance for loan losses	(8,853)	(1,601)	(10,454)	(5,565)	(1,452)	(7,017)
Total loans, net of allowance	$ 5,382,124	$ 1,599,316	$ 6,981,440	$ 3,999,403	$ 1,515,649	$ 5,515,052

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

Allowance for Losses

Farm & Ranch

The following is a summary of the changes in the total allowance for losses for each year in the three-year period ended December 31, 2019:

Table 8.2

	Allowance for Loan Losses	Reserve for Losses	Total Allowance for Losses
		(in thousands)	
Balance as of December 31, 2016	$ 5,415	$ 2,020	$ 7,435
Provision for losses	1,708	50	1,758
Charge-offs	(327)	—	(327)
Balance as of December 31, 2017	$ 6,796	$ 2,070	$ 8,866
Provision for losses	238	97	335
Charge-offs	(17)	—	(17)
Balance as of December 31, 2018	$ 7,017	$ 2,167	$ 9,184
Provision for/(release of) losses	3,504	(3)	3,501
Charge-offs	(67)	—	(67)
Balance as of December 31, 2019	$ 10,454	$ 2,164	$ 12,618

The provision to the allowance for loan losses recorded during 2019 was primarily due to a specific reserve on a single specialized poultry loan, a decrease in overall credit quality, and net portfolio growth. The total allowance for losses in the Farm & Ranch portfolio, as a percentage of outstanding loan volume, increased slightly from the previous year. The total provision for losses increased by $3.2 million, during 2019 as compared to 2018, primarily due to the specific reserve on the single specialized poultry loan mentioned above and a decrease in overall credit quality combined with net portfolio growth.

During 2018, the total allowance for losses increased because of increased loan volume within Farmer Mac's Farm & Ranch portfolio. The total allowance for losses in the Farm & Ranch portfolio, as a percentage of outstanding loan volume, remained consistent with recent years. The total provision for losses decreased by $1.4 million during 2018 as compared to 2017 primarily due to decreased loan growth year-over-year and modestly improved credit quality in the Farm & Ranch portfolio.

During 2017, the net provisions to the allowance for loan losses recorded were primarily attributable to (1) an increase in the general allowance due to overall net volume growth in on-balance sheet Farm & Ranch loans, and (2) 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 loan balance of such loans and downgrades in risk ratings on some of those loans. The net provision to the reserve for losses recorded during 2017 was primarily attributable to an increase in the general reserve due to downgrades in risk ratings on certain unimpaired Agricultural Storage and Processing loans underlying LTSPCs.

The following tables present the changes in the total allowance for losses for the years ended December 31, 2019, 2018, and 2017 by commodity type:

Table 8.3

	For the Year Ended December 31, 2019						
	Crops	Permanent Plantings	Livestock	Part-time Farm	Ag. Storage and Processing	Other	Total
	(in thousands)						
Beginning Balance	$ 4,394	$ 2,126	$ 1,460	$ 474	$ 720	$ 10	$ 9,184
Provision for/(release of) losses	810	383	2,198	21	94	(5)	3,501
Charge-offs	—	—	—	(67)	—	—	(67)
Ending Balance	$ 5,204	$ 2,509	$ 3,658	$ 428	$ 814	$ 5	$ 12,618

	For the Year Ended December 31, 2018						
	Crops	Permanent Plantings	Livestock	Part-time Farm	Ag. Storage and Processing	Other	Total
	(in thousands)						
Beginning Balance	$ 4,081	$ 2,469	$ 1,211	$ 481	$ 606	$ 18	$ 8,866
Provision for/(release of) losses	313	(343)	249	10	114	(8)	335
Charge-offs	—	—	—	(17)	—	—	(17)
Ending Balance	$ 4,394	$ 2,126	$ 1,460	$ 474	$ 720	$ 10	$ 9,184

	For the Year Ended December 31, 2017						
	Crops	Permanent Plantings	Livestock	Part-time Farm	Ag. Storage and Processing	Other	Total
	(in thousands)						
Beginning Balance	$ 3,365	$ 1,723	$ 1,375	$ 405	$ 533	$ 34	$ 7,435
Provision for/(release of) losses	944	816	(151)	92	73	(16)	1,758
Charge-offs	(228)	(70)	(13)	(16)	—	—	(327)
Ending Balance	$ 4,081	$ 2,469	$ 1,211	$ 481	$ 606	$ 18	$ 8,866

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 December 31, 2019 and 2018:

Table 8.4

	As of December 31, 2019						
	Crops	Permanent Plantings	Livestock	Part-time Farm	Ag. Storage and Processing	Other	Total
				(in thousands)			
Ending Balance:							
Collectively evaluated for impairment:							
On-balance sheet	$ 2,664,362	$ 1,161,900	$ 871,341	$ 356,920	$ 10,360	$ 4,597	$ 5,069,480
Off-balance sheet	1,151,983	511,991	581,377	167,395	66,106	2,760	2,481,612
Total	$ 3,816,345	$ 1,673,891	$ 1,452,718	$ 524,315	$ 76,466	$ 7,357	$ 7,551,092
Individually evaluated for impairment:							
On-balance sheet	$ 108,815	$ 51,256	$ 39,962	$ 7,044	$ —	$ —	$ 207,077
Off-balance sheet	5,698	2,114	10,207	706	—	56	18,781
Total	$ 114,513	$ 53,370	$ 50,169	$ 7,750	$ —	$ 56	$ 225,858
Total Farm & Ranch loans:							
On-balance sheet	$ 2,773,177	$ 1,213,156	$ 911,303	$ 363,964	$ 10,360	$ 4,597	$ 5,276,557
Off-balance sheet	1,157,681	514,105	591,584	168,101	66,106	2,816	2,500,393
Total	$ 3,930,858	$ 1,727,261	$ 1,502,887	$ 532,065	$ 76,466	$ 7,413	$ 7,776,950
Allowance for Losses:							
Collectively evaluated for impairment:							
On-balance sheet	$ 1,880	$ 1,362	$ 714	$ 249	$ 47	$ 4	$ 4,256
Off-balance sheet	599	96	308	50	767	1	1,821
Total	$ 2,479	$ 1,458	$ 1,022	$ 299	$ 814	$ 5	$ 6,077
Individually evaluated for impairment:							
On-balance sheet	$ 2,628	$ 1,008	$ 2,447	$ 115	$ —	$ —	$ 6,198
Off-balance sheet	97	43	189	14	—	—	343
Total	$ 2,725	$ 1,051	$ 2,636	$ 129	$ —	$ —	$ 6,541
Total Farm & Ranch loans:							
On-balance sheet	$ 4,508	$ 2,370	$ 3,161	$ 364	$ 47	$ 4	$ 10,454
Off-balance sheet	696	139	497	64	767	1	2,164
Total	$ 5,204	$ 2,509	$ 3,658	$ 428	$ 814	$ 5	$ 12,618

	As of December 31, 2018						
	Crops	Permanent Plantings	Livestock	Part-time Farm	Ag. Storage and Processing	Other	Total
				(in thousands)			
Ending Balance:							
Collectively evaluated for impairment:							
On-balance sheet	$ 2,452,803	$ 952,719	$ 705,752	$ 329,070	$ 12,097	$ 4,477	$ 4,456,918
Off-balance sheet	1,239,094	515,520	624,522	166,907	73,084	3,286	2,622,413
Total	$ 3,691,897	$ 1,468,239	$ 1,330,274	$ 495,977	$ 85,181	$ 7,763	$ 7,079,331
Individually evaluated for impairment:							
On-balance sheet	$ 66,432	$ 36,333	$ 21,361	$ 7,278	$ —	$ —	$ 131,404
Off-balance sheet	13,298	5,249	3,737	883	—	69	23,236
Total	$ 79,730	$ 41,582	$ 25,098	$ 8,161	$ —	$ 69	$ 154,640
Total Farm & Ranch loans:							
On-balance sheet	$ 2,519,235	$ 989,052	$ 727,113	$ 336,348	$ 12,097	$ 4,477	$ 4,588,322
Off-balance sheet	1,252,392	520,769	628,259	167,790	73,084	3,355	2,645,649
Total	$ 3,771,627	$ 1,509,821	$ 1,355,372	$ 504,138	$ 85,181	$ 7,832	$ 7,233,971
Allowance for Losses:							
Collectively evaluated for impairment:							
On-balance sheet	$ 2,120	$ 822	$ 731	$ 303	$ 84	$ 4	$ 4,064
Off-balance sheet	668	170	207	29	636	5	1,715
Total	$ 2,788	$ 992	$ 938	$ 332	$ 720	$ 9	$ 5,779
Individually evaluated for impairment:							
On-balance sheet	$ 1,329	$ 1,065	$ 437	$ 122	$ —	$ —	$ 2,953
Off-balance sheet	277	69	85	20	—	1	452
Total	$ 1,606	$ 1,134	$ 522	$ 142	$ —	$ 1	$ 3,405
Total Farm & Ranch loans:							
On-balance sheet	$ 3,449	$ 1,887	$ 1,168	$ 425	$ 84	$ 4	$ 7,017
Off-balance sheet	945	239	292	49	636	6	2,167
Total	$ 4,394	$ 2,126	$ 1,460	$ 474	$ 720	$ 10	$ 9,184

The following tables present by commodity type the unpaid principal balances, recorded investment, and specific allowance for losses related to impaired loans and the recorded investment in loans on nonaccrual status as of December 31, 2019 and 2018:

Table 8.5

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

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

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

	As of December 31, 2018						
	Crops	Permanent Plantings	Livestock	Part-time Farm	Ag. Storage and Processing	Other	Total
	(in thousands)						
Impaired Loans:							
With no specific allowance:							
Recorded investment	$ 20,734	$ 3,592	$ 5,764	$ 1,922	$ —	$ —	$ 32,012
Unpaid principal balance	20,632	3,573	5,737	1,912	—	—	31,854
With a specific allowance:							
Recorded investment[(1)]	59,335	38,176	19,443	6,276	—	70	123,300
Unpaid principal balance	59,098	38,009	19,361	6,249	—	69	122,786
Associated allowance	1,606	1,134	522	142	—	1	3,405
Total:							
Recorded investment	80,069	41,768	25,207	8,198	—	70	155,312
Unpaid principal balance	79,730	41,582	25,098	8,161	—	69	154,640
Associated allowance	1,606	1,134	522	142	—	1	3,405
Recorded investment of loans on nonaccrual status[(2)]	$ 26,611	$ 21,349	$ 8,803	$ 4,645	$ —	$ —	$ 61,408

(1) Impairment analysis was performed in the aggregate in consideration of similar risk characteristics of the assets and historical statistics on $120.9 million (78%) of impaired loans as of December 31, 2018, which resulted in a specific allowance of $2.7 million.

(2) Includes $41.8 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 years ended December 31, 2019 and 2018:

Table 8.6

	December 31, 2019						
	Crops	Permanent Plantings	Livestock	Part-time Farm	Ag. Storage and Processing	Other	Total
	(in thousands)						
For the Year Ended:							
Average recorded investment in impaired loans	$101,053	$ 44,986	$ 36,054	$ 7,953	$ —	$ 60	$ 190,106
Income recognized on impaired loans	1,157	625	687	284	—	—	2,753

	December 31, 2018						
	Crops	Permanent Plantings	Livestock	Part-time Farm	Ag. Storage and Processing	Other	Total
	(in thousands)						
For the Year Ended:							
Average recorded investment in impaired loans	$ 74,804	$ 44,461	$ 24,523	$ 8,758	$ —	$ 231	$ 152,777
Income recognized on impaired loans	1,219	1,687	299	241	—	—	3,446

For the year ended December 31, 2019, the recorded investment of loans determined to be troubled debt restructurings ("TDRs") was $38.5 million both before and after restructuring. For the year ended December 31, 2018, the recorded investment of loans determined to be TDRs was immaterial. As of December 31, 2019 and 2018, there were no TDRs identified during the previous 12 months that were in default under the modified terms. The effect of TDRs on Farmer Mac's allowance for loans losses was immaterial for the years ended December 31, 2019 and 2018.

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. After purchase, these defaulted loans are treated as nonaccrual loans and, therefore, interest is accounted for on a cash basis. Any decreases in expected cash flows are recognized as impairment.

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 December 31, 2019, there were no delinquencies and no probable losses inherent in Farmer Mac's Rural Utilities loan portfolio and Farmer Mac had not experienced credit losses on any Rural Utilities loans.

Table 8.7

	90-Day Delinquencies[1]		Net Credit Losses/(Recoveries)		
	As of		For the Year Ended		
	December 31, 2019	December 31, 2018	December 31, 2019	December 31, 2018	December 31, 2017
			(in thousands)		
On-balance sheet assets:					
Farm & Ranch:					
Loans	$ 57,719	$ 19,577	$ 131	$ 40	$ (1,397)
Total on-balance sheet	$ 57,719	$ 19,577	$ 131	$ 40	$ (1,397)
Off-balance sheet assets:					
Farm & Ranch:					
LTSPCs	$ 3,235	$ 7,304	$ —	$ —	$ —
Total off-balance sheet	$ 3,235	$ 7,304	$ —	$ —	$ —
Total	$ 60,954	$ 26,881	$ 131	$ 40	$ (1,397)

(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 $57.7 million of on-balance sheet loans reported as 90-day delinquencies as of December 31, 2019, none were subject to "removal-of-account" provisions. Of the $19.6 million of on-balance sheet loans reported as 90-day delinquencies as of December 31, 2018, $0.1 million were loans subject to "removal-of-account" provisions.

Rural Utilities

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

Credit Quality Indicators

The following tables present credit quality indicators related to Farm & Ranch loans held and loans underlying LTSPCs and off-balance sheet Farm & Ranch Guaranteed Securities as of December 31, 2019 and 2018:

Table 8.8

	As of December 31, 2019						
	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	$ 2,556,956	$ 1,050,160	$ 825,234	$ 343,329	$ 10,360	$ 4,597	$ 4,790,636
Special mention[2]	107,406	111,739	46,107	13,591	—	—	278,843
Substandard[3]	108,815	51,257	39,962	7,044	—	—	207,078
Total on-balance sheet	$ 2,773,177	$ 1,213,156	$ 911,303	$ 363,964	$ 10,360	$ 4,597	$ 5,276,557
Off-Balance Sheet:							
Acceptable	$ 1,033,002	$ 484,601	$ 521,341	$ 161,361	$ 66,106	$ 2,594	$ 2,269,005
Special mention[2]	68,372	22,909	35,618	1,612	—	—	128,511
Substandard[3]	56,307	6,595	34,625	5,128	—	222	102,877
Total off-balance sheet	$ 1,157,681	$ 514,105	$ 591,584	$ 168,101	$ 66,106	$ 2,816	$ 2,500,393
Total Ending Balance:							
Acceptable	$ 3,589,958	$ 1,534,761	$1,346,575	$ 504,690	$ 76,466	$ 7,191	$ 7,059,641
Special mention[2]	175,778	134,648	81,725	15,203	—	—	407,354
Substandard[3]	165,122	57,852	74,587	12,172	—	222	309,955
Total	$ 3,930,858	$ 1,727,261	$1,502,887	$ 532,065	$ 76,466	$ 7,413	$ 7,776,950
Commodity analysis of past due loans[1]							
On-balance sheet	$ 21,167	$ 15,828	$ 19,354	$ 1,370	$ —	$ —	$ 57,719
Off-balance sheet	1,493	196	1,066	480	—	—	3,235
90 days or more past due	$ 22,660	$ 16,024	$ 20,420	$ 1,850	$ —	$ —	$ 60,954

(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, 2018						
	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	$ 2,381,853	$ 937,793	$ 679,253	$ 321,345	$ 10,604	$ 4,477	$ 4,335,325
Special mention[2]	71,096	14,926	26,499	7,725	1,493	—	121,739
Substandard[3]	66,286	36,333	21,361	7,278	—	—	131,258
Total on-balance sheet	$ 2,519,235	$ 989,052	$ 727,113	$ 336,348	$ 12,097	$ 4,477	$ 4,588,322
Off-Balance Sheet							
Acceptable	$ 1,128,787	$ 469,479	$ 577,708	$ 162,730	$ 71,959	$ 2,656	$ 2,413,319
Special mention[2]	62,430	36,778	30,703	1,023	—	—	130,934
Substandard[3]	61,175	14,512	19,848	4,037	1,125	699	101,396
Total off-balance sheet	$ 1,252,392	$ 520,769	$ 628,259	$ 167,790	$ 73,084	$ 3,355	$ 2,645,649
Total Ending Balance:							
Acceptable	$ 3,510,640	$ 1,407,272	$ 1,256,961	$ 484,075	$ 82,563	$ 7,133	$ 6,748,644
Special mention[2]	133,526	51,704	57,202	8,748	1,493	—	252,673
Substandard[3]	127,461	50,845	41,209	11,315	1,125	699	232,654
Total	$ 3,771,627	$ 1,509,821	$ 1,355,372	$ 504,138	$ 85,181	$ 7,832	$ 7,233,971
Commodity analysis of past due loans[1]							
On-balance sheet	$ 8,345	$ 2,997	$ 4,059	$ 4,176	$ —	$ —	$ 19,577
Off-balance sheet	6,476	197	—	631	—	—	7,304
90 days or more past due	$ 14,821	$ 3,194	$ 4,059	$ 4,807	$ —	$ —	$ 26,881

(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, the range of original loan-to-value ratios, and the range in the size of borrower exposure for all Farm & Ranch loans held and loans underlying off-balance sheet Farm & Ranch Guaranteed Securities and LTSPCs as of December 31, 2019 and 2018:

Table 8.9

	As of	
	December 31, 2019	December 31, 2018
	(in thousands)	
By commodity/collateral type:		
Crops	$ 3,930,858	$ 3,771,627
Permanent plantings	1,727,261	1,509,821
Livestock	1,502,887	1,355,372
Part-time farm	532,065	504,138
Ag. Storage and Processing	76,466	85,181
Other	7,413	7,832
Total	$ 7,776,950	$ 7,233,971
By geographic region[1]:		
Northwest	$ 982,222	$ 855,596
Southwest	2,573,691	2,273,184
Mid-North	2,358,592	2,296,073
Mid-South	947,544	883,279
Northeast	321,794	332,370
Southeast	593,107	593,469
Total	$ 7,776,950	$ 7,233,971
By original loan-to-value ratio:		
0.00% to 40.00%	$ 1,418,075	$ 1,333,790
40.01% to 50.00%	2,008,307	1,811,166
50.01% to 60.00%	2,616,272	2,530,484
60.01% to 70.00%	1,385,116	1,244,823
70.01% to 80.00%[2]	329,979	289,427
80.01% to 90.00%[2]	19,201	24,281
Total	$ 7,776,950	$ 7,233,971
By size of borrower exposure[3]:		
Less than $1,000,000	$ 2,455,109	$ 2,431,296
$1,000,000 to $4,999,999	2,812,060	2,755,996
$5,000,000 to $9,999,999	1,003,021	916,422
$10,000,000 to $24,999,999	773,658	601,349
$25,000,000 and greater	733,102	528,908
Total	$ 7,776,950	$ 7,233,971

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

(3) Includes multiple loans to the same borrower or borrower-related entities.

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.

9. EQUITY

Common Stock

Farmer Mac has three classes of common stock outstanding:

- Class A voting common stock, which may be held only by banks, insurance companies, and other financial institutions or similar entities that are not institutions of the Farm Credit System. By federal statute, no holder of Class A voting common stock may directly or indirectly be a beneficial owner of more than 33% of the outstanding shares of Class A voting common stock.
- Class B voting common stock, which may be held only by institutions of the Farm Credit System. There are no restrictions on the maximum holdings of Class B voting common stock.
- Class C non-voting common stock, which has no ownership restrictions.

During 2019, 2018, and 2017, Farmer Mac paid a quarterly dividend of $0.70, $0.58, and $0.36 per share on all classes of its common stock. Farmer Mac's ability to declare and pay dividends on its common stock could be restricted if it fails to comply with applicable capital requirements.

Farmer Mac's board of directors approved a share repurchase program during third quarter 2015 authorizing Farmer Mac to repurchase up to $25.0 million of its outstanding Class C non-voting common stock. The share repurchase program, last modified on March 14, 2019, authorizes Farmer Mac to repurchase to up to $10.0 million of Farmer Mac's outstanding Class C non-voting common stock. Farmer Mac did not repurchase any shares during 2019 under this program. As of December 31, 2019, 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, and has not repurchased any shares since first quarter 2016. The program expires at the end of March 2021.

Preferred Stock

On May 13, 2019, Farmer Mac issued 4.0 million shares of $5.700% Non-Cumulative Preferred Stock, Series D ("Series D Preferred Stock"), which has a par value and liquidation preference of $25.00 per share, or $100.0 million aggregate outstanding.

On June 12, 2019, Farmer Mac used part of the net proceeds from the sale of the Series D Preferred Stock to redeem and repurchase all $75.0 million aggregate outstanding of Farmer Mac's $6.875% Non-Cumulative Preferred Stock, Series B ("Series B Preferred Stock"), plus any declared and unpaid dividends through and including the redemption date. As a result of the retirement of the Series B Preferred Stock, Farmer Mac recognized $2.0 million of deferred issuance costs, which is presented as "Loss on retirement of preferred stock" on the consolidated statements of operations

The following table presents the Series A Preferred Stock, the Series C Preferred Stock, and the Series D Preferred Stock (collectively referred to as the "Outstanding Preferred Stock") as of December 31, 2019:

Table 9.1

Name	Issuance Date	Shares Issued	Annual Dividend Rate[3]	Liquidation Value		Redemption Date[4]
Series A	January 17, 2013	2,400,000	5.875 %	$	25.00	Any Time
Series C[1]	June 20, 2014	3,000,000	6.000 %	$	25.00	July 18, 2024
Series D[2]	May 13, 2019	4,000,000	5.700 %	$	25.00	July 17, 2024

(1) The Series C Preferred Stock pays an annual dividend rate of 6.000% from the date of issuance to and including the quarterly payment date occurring on July 17, 2024, and thereafter, at a floating rate equal to three-month LIBOR plus 3.26%.

(2) Farmer Mac has the option to redeem the preferred stock on any quarterly dividend payment date on and after July 17, 2024.

(3) Dividends on all series of Outstanding Preferred Stock are non-cumulative, which means that if Farmer Mac's board of directors has not declared a dividend before the applicable dividend payment date for any dividend period, such dividend will not be paid or cumulate, and Farmer Mac will have no obligation to pay dividends for such dividend period, whether or not dividends on any series of Outstanding Preferred Stock are declared for any future dividend period.

(4) Farmer Mac has the right but not the obligation to redeem.

Farmer Mac incurred direct costs of $1.7 million related to the issuance of the Series A Preferred Stock, direct costs of $1.9 million related to the issuance of the Series B Preferred Stock, direct costs of $1.6 million related to the issuance of the Series C Preferred Stock, and direct costs of $3.3 million related to the issuance of the Series D Preferred Stock.

For the first and second quarters of 2019, and each quarter in 2018 and 2017, 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.

For second quarter 2019, Farmer Mac also paid $0.2626 per share on the Series B Preferred Stock for the period from but not including April 17, 2019 to and including the June 12, 2019 redemption date.

For third and fourth quarter 2019, 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;
- $0.3750 per share on its 6.000% Fixed-to-Floating Rate Non-Cumulative Preferred Stock, Series C; and
- $0.35625 per share on its 5.700% Non-Cumulative Preferred Stock, Series D.

Equity-Based Incentive Compensation Plans

Farmer Mac's Amended and Restated 2008 Omnibus Incentive Compensation Plan authorizes the grant of restricted stock, stock options, and SARs, among other alternative forms of equity-based compensation, to Farmer Mac's directors, officers, and employees. SARs awarded to officers and employees vest annually in thirds. Farmer Mac has not granted SARs to directors since 2008. If not exercised or cancelled earlier due to the termination of employment, SARs granted to officers or employees expire after 10 years from the grant date. For all SARs granted, the exercise price is equal to the closing price of Farmer Mac's Class

C non-voting common stock on the date of grant. SARs granted during 2019 have an exercise price of $82.76 per share, SARs granted during 2018 have an exercise price of $86.15 per share, and SARs granted during 2017 have an exercise price of $60.84 per share. During 2019, 2018, and 2017, restricted stock awards were granted to employees, officers, and directors with vesting periods of one to three years.

The following tables summarize stock options, SARs, and non-vested restricted stock activity for the years ended December 31, 2019, 2018, and 2017:

Table 9.2

	For the Years Ended December 31,					
	2019		2018		2017	
	Stock Options and SARs	Weighted-Average Exercise Price	Stock Options and SARs	Weighted-Average Exercise Price	Stock Options and SARs	Weighted-Average Exercise Price
Outstanding, beginning of year	124,960	$ 38.38	163,272	$ 32.95	367,535	$ 30.18
Granted	24,582	82.76	10,122	86.15	24,657	60.84
Exercised	(40,851)	35.61	(48,434)	30.06	(111,278)	31.47
Canceled	(9,855)	79.45	—	—	(117,642)	31.55
Outstanding, end of year	98,836	46.47	124,960	38.38	163,272	32.95
Exercisable at end of year	72,696	34.07	95,675	31.41	93,085	28.57

	For the Years Ended December 31,					
	2019		2018		2017	
	Non-vested Restricted Stock	Weighted-Average Grant Date Fair Value	Non-vested Restricted Stock	Weighted-Average Grant Date Fair Value	Non-vested Restricted Stock	Weighted-Average Grant Date Fair Value
Outstanding, beginning of year	80,153	$ 60.98	95,015	$ 44.39	138,497	$ 34.63
Granted	41,735	80.51	32,070	84.03	45,828	59.79
Canceled	(17,054)	74.97	(1,098)	86.15	(28,815)	42.15
Vested and issued	(42,237)	52.65	(45,834)	42.12	(60,495)	34.77
Outstanding, end of year	62,597	75.81	80,153	60.98	95,015	44.39

The cancellations of stock options, SARs, and non-vested restricted stock during 2019, 2018, and 2017 were due to unvested awards terminating in accordance with the provisions of the applicable equity compensation plans or award agreements upon directors' or employees' departures from Farmer Mac.

Cash is not received from exercises of SARs or the vesting and issuance of restricted stock. During 2019, 2018, and 2017, the reduction of income taxes payable as a result of the deduction for the exercise of stock options and SARs and the vesting or accelerated tax elections of restricted stock was $1.0 million, $1.5 million, and $2.6 million, respectively. During 2019 and 2018, Farmer Mac recognized $0.4 million and $0.9 million, respectively, of tax benefits recognized in income tax expense associated with stock compensation activity.

During 2019, 2018, and 2017, Farmer Mac recorded a net decrease to additional paid-in capital of $1.8 million, $2.7 million, and $2.6 million, respectively, related to stock-based compensation awards.

Farmer Mac has a policy that permits directors of Farmer Mac to elect to receive shares of Class C non-voting common stock in lieu of cash retainers. During 2019, Farmer Mac issued 768 shares of Class C non-voting common stock with a fair value of $60,000 to the 4 directors who made that election. During 2018, Farmer Mac issued 174 shares of Class C non-voting common stock with a fair value of $14,000 to the 4 directors who made that election. During 2017, Farmer Mac issued 698 shares of Class C non-voting common stock with a fair value of $41,000 to the 4 directors who made that election.

As of December 31, 2019, Farmer Mac had no stock options outstanding. The following tables summarize information regarding SARs and non-vested restricted stock outstanding as of December 31, 2019:

Table 9.3

SARs:

	Outstanding		Exercisable		Vested or Expected to Vest	
Range of Exercise Prices	SARs	Weighted-Average Remaining Contractual Life	SARs	Weighted-Average Remaining Contractual Life	SARs	Weighted-Average Remaining Contractual Life
$10.00 - $24.99	14,000	1.6 years	14,000	1.6 years	14,000	1.6 years
25.00 - 39.99	51,449	4.7 years	51,449	4.7 years	51,449	4.7 years
40.00 - 54.99	—	0.0 years	—	0.0 years	—	0.0 years
55.00 - 69.99	6,619	7.3 years	3,873	7.3 years	6,619	7.3 years
70.00 - 84.99	19,422	9.3 years	—	0.0 years	19,422	9.3 years
85.00 - 99.99	7,346	8.3 years	3,374	8.3 years	7,346	8.3 years
	98,836		72,696		98,836	

Non-vested Restricted Stock:

	Outstanding		Expected to Vest	
Weighted-Average Grant-Date Fair Value	Non-vested Restricted Stock	Weighted-Average Remaining Contractual Life	Non-vested Restricted Stock	Weighted-Average Remaining Contractual Life
$35.00 - $49.99	—	0.0 years	—	0.0 years
50.00 - 64.99	13,535	0.3 years	13,535	0.3 years
65.00 - 79.99	15,851	1.9 years	15,851	1.9 years
80.00 - 94.99	33,211	1.4 years	33,211	1.4 years
	62,597		62,597	

As of December 31, 2019 and 2018, the intrinsic value of SARs, and non-vested restricted stock outstanding, exercisable, and vested or expected to vest was $8.9 million and $7.9 million, respectively. During 2019, 2018, and 2017, the total intrinsic value of options and SARs exercised was $1.9 million, $3.0 million, and $3.8 million, respectively. As of December 31, 2019, there was $2.7 million of total unrecognized compensation cost related to non-vested SARs and restricted stock awards. This cost is expected to be recognized over a weighted-average period of 1.8 years.

The weighted-average grant date fair values of options, SARs, and restricted stock awards granted in 2019, 2018, and 2017 were $58.27, $69.38, and $44.93 per share, respectively. Under the fair value-based method of accounting for stock-based compensation cost, Farmer Mac recognized compensation expense of $2.3 million, $2.5 million, and $2.7 million during 2019, 2018, and 2017, respectively.

The fair values of stock options and SARs were estimated using the Black-Scholes option pricing model based on the following assumptions:

Table 9.4

	For the Year Ended December 31,		
	2019	2018	2017
Risk-free interest rate	2.5%	2.7%	2.3%
Expected years until exercise	6 years	6 years	6 years
Expected stock volatility	33.8%	33.0%	34.8%
Dividend yield	3.4%	2.7%	2.4%

The risk-free interest rates used in the model were based on the U.S. Treasury yield curve in effect at the grant date. Farmer Mac used historical data to estimate the timing of option exercises and stock option cancellation rates used in the model. Expected volatilities were based on historical volatility of Farmer Mac's Class C non-voting common stock. The dividend yields were based on the expected dividends as a percentage of the value of Farmer Mac's Class C non-voting common stock on the grant date.

Because restricted stock awards will be issued upon vesting regardless of the stock price, expected stock volatility is not considered in determining grant date fair value. Restricted stock awards also accrue dividends which are paid at vesting. The weighted-average grant date fair value of the restricted stock awarded in 2019, 2018, and 2017 was $80.51, $84.03, and $59.79 per share, respectively, which is based on the closing price of the stock on the date granted.

Capital Requirements

Farmer Mac is required to comply with the higher of the minimum capital requirement and the risk-based capital requirement. As of both December 31, 2019 and 2018, 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 December 31, 2019, Farmer Mac's minimum capital requirement was $618.8 million and its core capital level was $815.4 million, which was $196.6 million above the minimum capital requirement as of that date. As of December 31, 2018, Farmer Mac's minimum capital requirement was $545.0 million and its core capital level was $727.6 million, which was $182.6 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.

10. INCOME TAXES

Farmer Mac is subject to federal corporate income taxes but is exempt from state and local corporate income taxes. The components of the federal corporate income tax expense for the years ended December 31, 2019, 2018, and 2017 were as follows:

Table 10.1

	For the Year Ended December 31,		
	2019	2018	2017
		(in thousands)	
Current income tax expense	$ 28,316	$ 25,317	$ 43,148
Deferred income tax expense	789	2,625	3,221
Income tax expense	$ 29,105	$ 27,942	$ 46,369

A reconciliation of income tax at the statutory federal corporate income tax rate to the income tax expense for the years ended December 31, 2019, 2018, and 2017 is as follows:

Table 10.2

	For the Year Ended December 31,		
	2019	2018	2017
		(dollars in thousands)	
Tax expense at statutory rate	$ 29,117	$ 28,564	$ 45,740
Re-measurement of net deferred tax asset due to enactment of new tax legislation	—	—	1,365
Excess tax benefits related to stock-based awards	(449)	(946)	(860)
Valuation allowance	49	—	4
Other	388	324	120
Income tax expense	$ 29,105	$ 27,942	$ 46,369
Statutory tax rate	21.0 %	21.0 %	35.0 %

The components of the deferred tax assets and liabilities as of December 31, 2019 and 2018 were as follows:

Table 10.3

	As of December 31,	
	2019	2018
	(in thousands)	
Deferred tax assets:		
Basis differences related to financial derivatives	$ 51,177	$ 7,614
Basis differences related to hedged items	—	1,810
Unrealized losses on securities	2,805	—
Allowance for losses	2,650	1,929
Unrealized losses on cash flow hedges	1,491	—
Compensation and benefits	819	967
Stock-based compensation	571	623
Capital loss carryforwards and other-than-temporary impairment	86	36
Valuation allowance	(86)	(36)
Other	88	121
Total deferred tax assets	59,601	13,064
Deferred tax liability:		
Basis differences related to hedged items	42,940	—
Unrealized gains on securities	—	4,807
Unrealized gains on cash flow hedges	—	1,827
Other	151	61
Total deferred tax liability	43,091	6,695
Net deferred tax asset	$ 16,510	$ 6,369

A valuation allowance is required to reduce a deferred tax asset to an amount that is more likely than not to be realized. Future realization of the tax benefit from a deferred tax asset depends on the existence of sufficient taxable income of the appropriate character. After the evaluation of both positive and negative objective evidence regarding the likelihood that its deferred tax assets will be realized, Farmer Mac established a valuation allowance of $86,000 and $36,000 as of December 31, 2019 and 2018, respectively, which was attributable to capital loss carryforwards on investment securities. Farmer Mac did not establish a valuation allowance for the remainder of its deferred tax assets because it believes it is more likely than not that those deferred tax assets will be realized. In determining its deferred tax asset valuation allowance, Farmer Mac considered its taxable income of the appropriate character (for example, ordinary income or capital gain) within the carryback and carryforward periods available under the tax law and the impact of possible tax planning strategies. As of December 31, 2019, no capital loss carryforwards expired. As of December 31, 2019, the amount of capital loss carryforwards was $0.4 million. These capital loss carryforwards will expire in 2024.

Deferred tax assets are measured at rates in effect when they arise. To the extent rates change, the deferred tax asset will be adjusted to reflect the new rate. A reduction in corporate tax rates would result in a reduction in the value of the deferred tax asset. The Tax Cuts and Jobs Act was enacted on December 22, 2017. This new legislation provided for significant changes to the U.S. Internal Revenue Code of 1986, as amended, that was in effect through the end of 2017 and included a reduction of the federal corporate income tax rate from 35% to 21%, which became effective January 1, 2018. As a result of this reduction in the federal corporate income tax rate, Farmer Mac re-measured its net deferred tax asset at the newly enacted 21% federal corporate income tax rate and thus reduced its value by $1.4 million. Accordingly, Farmer Mac recorded an increase to income tax expense of $1.4 million, or an increase of 1.04%, in Farmer Mac's effective tax rate for 2017.

As of December 31, 2019 and 2018, Farmer Mac did not identify any uncertain tax positions.

Farmer Mac did not have any unrecognized tax benefits for the years ended December 31, 2019, 2018, and 2017.

Tax years 2017 through 2019 remain subject to examination.

11. EMPLOYEE BENEFITS

Farmer Mac makes contributions to a defined contribution retirement plan for all of its employees. Farmer Mac contributed 13.2% of the lesser of an employee's gross salary and the maximum compensation permitted under the Economic Growth and Tax Relief Reconciliation Act of 2001 ("EGTRRA") ($280,000 for 2019, $275,000 for 2018, and $270,000 for 2017), plus 5.7% of the difference between: (1) the lesser of the gross salary and the amount established under EGTRRA and (2) the Social Security Taxable Wage Base. Employees are fully vested after having been employed for approximately 3 years. Expenses for this plan for the years ended December 31, 2019, 2018, and 2017 were $1.9 million, $1.8 million, and $1.5 million, respectively.

Farmer Mac established a Nonqualified Deferred Compensation Plan ("NQDC Plan") for its executive officers effective May 1, 2017. Under the NQDC Plan, Farmer Mac credits the account of each participant each calendar year with an amount equal to 18.9% of the difference between: (1) the amount established under EGTRRA and (2) a participant's gross annual base salary, which for purposes of calculating employer credits under the NQDC Plan is capped at $700,000 for Farmer Mac's Chief Executive Officer and $500,000 for all other participants. This fixed contribution percentage is the same formula used for determining employer contributions to Farmer Mac's defined contribution retirement plan based on an employee's gross annual base salary that is above the amount established under EGTRRA for that year. Expenses for the NQDC Plan were $0.1 million for both of the years ended December 31, 2019 and 2018.

12. GUARANTEES

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 contractual terms of Farmer Mac's off-balance sheet guarantees and LTSPCs range from less than 1 year to 30 years. However, the actual term of each guarantee or LTSPC may be significantly less than the contractual term based on the prepayment characteristics of the related loans. Farmer Mac's maximum potential exposure under these off-balance sheet guarantees and LTSPCs is comprised of the unpaid principal balance of the underlying loans. Guarantees issued or modified on or after January 1, 2003 are recorded in the consolidated balance sheets. Farmer Mac's maximum potential exposure was $3.5 billion and $4.0 billion as of December 31, 2019 and 2018, respectively. Farmer Mac's maximum potential exposure for guarantees issued before January 1, 2003, which are not recorded on the consolidated balance sheets, was $15.5 million and $23.8 million as of December 31, 2019 and 2018, respectively. The maximum exposure from these guarantees and LTSPCs is not representative of the actual loss Farmer Mac is likely to incur, based on historical loss experience. In the event Farmer Mac was required to make payments under its guarantees or LTSPCs, Farmer Mac would have the right to enforce the terms of the loans, and in the event of default, would have access to the underlying collateral. For information on Farmer Mac's methodology for determining the reserve for losses for its financial guarantees, see Note 2(g) and Note 8. The following table presents changes in Farmer Mac's guarantee and commitment obligations in the consolidated balance sheets for the years ended December 31, 2019, 2018, and 2017:

Table 12.1

	For the Years Ended December 31,		
	2019	2018	2017
		(in thousands)	
Beginning balance, January 1	$ 38,683	$ 38,400	$ 37,282
Additions to the guarantee and commitment obligation[(1)]	4,398	6,202	7,683
Amortization of the guarantee and commitment obligation	(6,381)	(5,919)	(6,565)
Ending balance, December 31	$ 36,700	$ 38,683	$ 38,400

(1) Represents the fair value of the guarantee and commitment obligation at inception.

Off-Balance Sheet Farmer Mac Guaranteed Securities

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 December 31, 2019 and 2018, not including offsets provided by any recourse provisions, recoveries from third parties, or collateral for the underlying loans:

Table 12.2

	Outstanding Balance of Off-Balance Sheet Farmer Mac Guaranteed Securities	
	As of December 31, 2019	As of December 31, 2018
	(in thousands)	
Farm & Ranch:		
Guaranteed Securities	$ 107,322	$ 135,862
USDA Guarantees:		
Farmer Mac Guaranteed USDA Securities	389,216	367,684
Institutional Credit:		
AgVantage Securities	7,567	9,898
Revolving floating rate AgVantage facility[(1)]	—	300,000
Total off-balance sheet Farmer Mac Guaranteed Securities	$ 504,105	$ 813,444

(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. This facility was terminated during fourth quarter 2019.

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 12.3

	For the Years Ended December 31,		
	2019	2018	2017
		(in thousands)	
Proceeds from new securitizations	$ 321,414	$ 382,929	$ 519,219
Guarantee fees received	1,413	1,920	2,610

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

Table 12.4

	As of December 31,	
	2019	2018
	(dollars in thousands)	
Guarantee and commitment obligation	$ 2,230	$ 2,804
Weighted average remaining maturity:		
Farmer Mac Guaranteed Securities	9.8 years	10.3 years
AgVantage Securities	5.0 years	5.0 years

Long-Term Standby Purchase Commitments

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

Table 12.5

	As of December 31,	
	2019	2018
	(dollars in thousands)	
Guarantee and commitment obligation[1]	$ 34,470	$ 35,880
Maximum principal amount	3,002,349	3,163,059
Weighted-average remaining maturity	15.2 years	15.3 years

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

Commitments

Farmer Mac enters into mandatory and optional delivery commitments to purchase loans. Most loan purchase commitments entered into by Farmer Mac are mandatory commitments, in which Farmer Mac charges a fee to extend or cancel the commitment. As of December 31, 2019 and 2018, commitments to purchase Farm & Ranch loans and USDA Guarantees totaled $65.1 million and $37.1 million, respectively, all of which were mandatory commitments. As of December 31, 2019, there were no commitments to purchase Rural Utilities loans. Any optional loan purchase commitments are sold forward under optional commitments to deliver Farmer Mac Guaranteed Securities that may be canceled by Farmer Mac without penalty.

Rental expense for Farmer Mac's office space for each of the years ended December 31, 2019, 2018, and 2017 was $2.0 million, $2.0 million, and $1.6 million, respectively. The future minimum lease payments under Farmer Mac's non-cancellable leases for its office space and other contractual obligations as of December 31, 2019 are as follows:

Table 12.6

	Future Minimum Lease Payments	Other Contractual Obligations
	(in thousands)	
2020	$ 1,978	$ 3,223
2021	1,982	1,751
2022	2,021	1,097
2023	1,995	1,090
2024	1,311	611
Thereafter	—	—
Total	$ 9,287	$ 7,772

Other contractual obligations in the table above include minimum amounts due under non-cancellable agreements to purchase goods or services that are enforceable and legally binding and specify all significant terms. These agreements include, among others, agreements for the provision of consulting services, information technology support, equipment maintenance, and financial analysis software and services. The amounts actually paid under these agreements will likely be higher due to the variable components of some of these agreements under which the ultimate obligation owed is determined by reference to actual usage or hours worked.

13. FAIR VALUE DISCLOSURES

Fair Value Classification and Transfers

The following tables present information about Farmer Mac's assets and liabilities measured at fair value on a recurring basis as of December 31, 2019 and 2018, respectively, and indicate the fair value hierarchy of the valuation techniques used by Farmer Mac to determine such fair value:

Table 13.1

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

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

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

Assets and Liabilities Measured at Fair Value as of December 31, 2018

	Level 1	Level 2	Level 3[1]	Total
		(in thousands)		
Recurring:				
Assets:				
Investment Securities:				
Available-for-sale:				
Floating rate auction-rate certificates backed by Government guaranteed student loans	$ —	$ —	$ 18,715	$ 18,715
Floating rate asset-backed securities	—	28,678	—	28,678
Floating rate Government/GSE guaranteed mortgage-backed securities	—	1,377,454	—	1,377,454
Fixed rate GSE guaranteed mortgage-backed securities	—	403	—	403
Fixed rate U.S. Treasuries	792,602	—	—	792,602
Total available-for-sale	792,602	1,406,535	18,715	2,217,852
Farmer Mac Guaranteed Securities:				
Available-for-sale:				
AgVantage	—	—	5,974,497	5,974,497
Total Farmer Mac Guaranteed Securities	—	—	5,974,497	5,974,497
USDA Securities:				
Trading	—	—	9,999	9,999
Total USDA Securities	—	—	9,999	9,999
Financial derivatives	—	7,487	—	7,487
Total Assets at fair value	$ 792,602	$ 1,414,022	$ 6,003,211	$ 8,209,835
Liabilities:				
Financial derivatives	$ 188	$ 19,445	$ —	$ 19,633
Total Liabilities at fair value	$ 188	$ 19,445	$ —	$ 19,633

[1] Level 3 assets represent 32% of total assets and 73% of financial instruments measured at fair value.

There were no significant assets or liabilities measured at fair value on a non-recurring basis as of December 31, 2019 or 2018.

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 both 2019 and 2018, 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 2017, there was one transfer within the 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 security). 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.

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 years ended December 31, 2019 and 2018.

Table 13.2

Level 3 Assets and Liabilities Measured at Fair Value for the Year Ended December 31, 2019

	Beginning Balance	Purchases	Sales	Settlements	Realized and Unrealized Gains included in Income	Unrealized Gains/ (Losses) included in Other Comprehensive Income	Ending Balance
				(in thousands)			
Recurring:							
Assets:							
Investment Securities:							
Available-for-sale:							
Floating rate auction-rate certificates backed by Government guaranteed student loans	$ 18,715	$ —	$ —	$ —	$ —	$ 197	$ 18,912
Total available-for-sale	18,715	—	—	—	—	197	18,912
Farmer Mac Guaranteed Securities:							
Available-for-sale:							
AgVantage	5,974,497	2,033,713	—	(1,020,294)	181,144	(26,035)	7,143,025
Total available-for-sale	5,974,497	2,033,713	—	(1,020,294)	181,144	(26,035)	7,143,025
USDA Securities:							
Available-for-sale	—	57,853	(57,853)	—	—	—	—
Trading	9,999	—	—	(1,412)	326	—	8,913
Total USDA Securities	9,999	57,853	(57,853)	(1,412)	326	—	8,913
Total Assets at fair value	$ 6,003,211	$ 2,091,566	$ (57,853)	$(1,021,706)	$ 181,470	$ (25,838)	$ 7,170,850

Level 3 Assets and Liabilities Measured at Fair Value for the Year Ended December 31, 2018

	Beginning Balance	Cumulative Effect from Change in Hedge Accounting	Purchases	Sales	Settlements	Realized and Unrealized (Losses)/ Gains included in Income	Unrealized Gains/ (Losses) included in Other Comprehensive Income	Ending Balance
					(in thousands)			
Recurring:								
Assets:								
Investment Securities:								
Available-for-sale:								
Floating rate auction-rate certificates backed by Government guaranteed student loans	$ 18,814	$ —	$ —	$ —	$ —	$ —	$ (99)	$ 18,715
Fixed rate GSE guaranteed mortgage-backed securities	4,333	—	—	—	(2,137)	(2,092)	(104)	—
Total available-for-sale	23,147	—	—	—	(2,137)	(2,092)	(203)	18,715
Farmer Mac Guaranteed Securities:								
Available-for-sale:								
AgVantage	5,471,914	487	2,177,546	—	(1,670,402)	21,459	(26,507)	5,974,497
Total available-for-sale	5,471,914	487	2,177,546	—	(1,670,402)	21,459	(26,507)	5,974,497
USDA Securities:								
Available-for-sale	—	—	127,850	(127,850)	—	—	—	—
Trading[(1)]	13,515	—	—	—	(3,597)	81	—	9,999
Total USDA Securities	13,515	—	127,850	(127,850)	(3,597)	81	—	9,999
Total Assets at fair value	$5,508,576	$ 487	$2,305,396	$(127,850)	$(1,676,136)	$ 19,448	$ (26,710)	$6,003,211

(1) Includes unrealized gains of $0.1 million attributable to assets still held as of December 31, 2018 that are recorded in "Gains/(losses) on trading securities."

Level 3 Assets and Liabilities Measured at Fair Value for the Year Ended December 31, 2017

	Beginning Balance	Transfers in	Purchases	Sales	Settlements	Realized and Unrealized Losses included in Income	Unrealized Losses included in Other Comprehensive Income	Ending Balance
					(in thousands)			
Recurring:								
Assets:								
Investment Securities:								
Available-for-sale:								
Floating rate auction-rate certificates backed by Government guaranteed student loans	$ 17,730	$ —	$ —	$ —	$ —	$ —	$ 1,084	$ 18,814
Fixed rate GSE guaranteed mortgage-backed securities	—	$ 7,041	—	—	(444)	—	(2,264)	4,333
Total available-for-sale	17,730	7,041	—	—	(444)	—	(1,180)	23,147
Farmer Mac Guaranteed Securities:								
Available-for-sale:								
AgVantage	4,853,685	—	1,134,132	—	(526,650)	(7,625)	18,372	5,471,914
Total available-for-sale	4,853,685	—	1,134,132	—	(526,650)	(7,625)	18,372	5,471,914
USDA Securities:								
Available-for-sale	—	—	155,744	(155,744)	—	—	—	—
Trading[(1)]	20,388	—	—	—	(6,849)	(24)	—	13,515
Total USDA Securities	20,388	—	155,744	(155,744)	(6,849)	(24)	—	13,515
Total Assets at fair value	$ 4,891,803	$ 7,041	$1,289,876	$(155,744)	$ (533,943)	$ (7,649)	$ 17,192	$5,508,576

(1) Includes unrealized gains of $0.1 million attributable to assets still held as of December 31, 2017 that are recorded in "Gains/(losses) 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 December 31, 2019 and 2018:

Table 13.3

	As of December 31, 2019			
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	$ 18,912	Indicative bids	Range of broker quotes	96.0% - 96.0% (96.0%)
Farmer Mac Guaranteed Securities:				
AgVantage	$ 7,143,025	Discounted cash flow	Discount rate	2.3% - 5.5% (2.6%)
USDA Securities	$ 8,913	Discounted cash flow	Discount rate	2.3% - 2.6% (2.1%)
			CPR	10% - 21% (19%)

	As of December 31, 2018			
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	$ 18,715	Indicative bids	Range of broker quotes	95.0% - 95.0% (95.0%)
Farmer Mac Guaranteed Securities:				
AgVantage	$ 5,974,497	Discounted cash flow	Discount rate	3.0% - 4.4% (3.3%)
USDA Securities	$ 9,999	Discounted cash flow	Discount rate	3.2% - 5.2% (4.9%)
			CPR	7% - 17% (16%)

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

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

Disclosures on Fair Value of Financial Instruments

The following table sets forth the estimated fair values and carrying values for financial assets, liabilities, and guarantees and commitments as of December 31, 2019 and 2018:

Table 13.4

	As of December 31, 2019		As of December 31, 2018	
	Fair Value	Carrying Amount	Fair Value	Carrying Amount
	(in thousands)			
Financial assets:				
Cash and cash equivalents	$ 604,381	$ 604,381	$ 425,256	$ 425,256
Investment securities	3,005,828	3,004,875	2,263,446	2,262,884
Farmer Mac Guaranteed Securities	8,606,451	8,590,476	8,061,903	8,071,115
USDA Securities	2,294,671	2,241,073	2,113,946	2,176,173
Loans	7,317,091	6,981,440	5,512,781	5,515,052
Financial derivatives	10,519	10,519	7,487	7,487
Guarantee and commitment fees receivable:				
LTSPCs	34,107	35,600	37,461	36,870
Farmer Mac Guaranteed Securities	2,625	2,842	3,424	3,496
Financial liabilities:				
Notes payable:				
Due within one year	10,024,109	10,019,082	7,744,388	7,757,050
Due after one year	9,209,970	9,079,566	8,473,558	8,486,647
Debt securities of consolidated trusts held by third parties	1,663,177	1,616,504	1,501,754	1,528,957
Financial derivatives	27,042	27,042	19,633	19,633
Guarantee and commitment obligations:				
LTSPCs	32,977	34,470	36,471	35,880
Farmer Mac Guaranteed Securities	2,013	2,230	2,731	2,803

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

14. BUSINESS SEGMENT REPORTING

Farmer Mac's operations consist of four operating segments – Farm & Ranch, USDA Guarantees, Rural Utilities, and Institutional Credit. The Institutional Credit segment comprises Farmer Mac's purchases and guarantees of AgVantage securities related to general obligations of lenders that are secured by pools of eligible loans.

Each segment is based on distinct products and distinct business activities. In addition to these four operating segments, a corporate segment is presented. That segment represents activity in Farmer Mac's investment portfolio and other corporate activities. Each operating segment's financial results include directly attributable revenues and expenses. Corporate charges for administrative expenses that are not directly attributable to an operating segment are allocated to each segment based on headcount.

Farmer Mac uses core earnings to measure corporate economic performance and develop financial plans because, in management's view, core earnings is a useful alternative measure in understanding Farmer Mac's economic performance, transaction economics, and business trends. Core earnings principally differs from net income attributable to common stockholders by excluding the effects of fair value fluctuations, which are not expected to have a cumulative net impact on financial condition or results of operations reported in accordance with generally accepted accounting principles if the related financial instruments are held to maturity, as is generally expected. Core earnings also differs from net income attributable to common stockholders 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. This corporate economic performance measure may not be comparable to similarly labeled measures disclosed by other companies.

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

The financial information presented below reflects the accounts of Farmer Mac and its subsidiaries on a consolidated basis. Accordingly, the core earnings for Farmer Mac's reportable operating segments will differ from the stand-alone financial statements of Farmer Mac's subsidiaries. These differences will be due to various factors, including the exclusion of unrealized gains and losses related to fair value changes of trading assets and financial derivatives, as well as the allocation of certain expenses such as dividends and interest expense related to the issuance of capital and the issuance of indebtedness managed at the corporate level. The allocation of general and administrative expenses that are not directly attributable to an operating segment may also result in differences.

The following tables present core earnings for Farmer Mac's operating segments and a reconciliation to consolidated net income for the years ended December 31, 2019, 2018, and 2017:

Table 14.1

Core Earnings by Business Segment

For the Year Ended December 31, 2019

	Farm & Ranch	USDA Guarantees	Rural Utilities	Institutional Credit	Corporate	Reconciling Adjustments	Consolidated Net Income
				(in thousands)			
Net interest income	$ 65,098	$ 17,470	$ 10,459	$ 69,039	$ 11,069	$ —	$ 173,135
Less: reconciling adjustments[(1)(2)(3)]	(9,471)	(732)	6,143	520	(987)	4,527	—
Net effective spread	55,627	16,738	16,602	69,559	10,082	4,527	—
Guarantee and commitment fees[(2)]	18,593	958	1,412	372	—	(7,669)	13,666
Other income/(expense)[(3)]	1,397	174	38	—	166	5,501	7,276
Non-interest income/(loss)	19,990	1,132	1,450	372	166	(2,168)	20,942
Provision for loan losses	(3,504)	—	—	—	—	—	(3,504)
Release of reserve for losses	3	—	—	—	—	—	3
Other non-interest expense	(19,375)	(5,757)	(3,898)	(8,390)	(14,505)	—	(51,925)
Non-interest expense[(4)]	(19,372)	(5,757)	(3,898)	(8,390)	(14,505)	—	(51,922)
Core earnings before income taxes	52,741	12,113	14,154	61,541	(4,257)	2,359 [(5)]	138,651
Income tax (expense)/benefit	(11,076)	(2,545)	(2,972)	(12,924)	907	(495)	(29,105)
Core earnings before preferred stock dividends	41,665	9,568	11,182	48,617	(3,350)	1,864 [(5)]	109,546
Preferred stock dividends	—	—	—	—	(13,940)	—	(13,940)
Loss on retirement of preferred stock	—	—	—	—	—	(1,956)	(1,956)
Segment core earnings/(losses)	$ 41,665	$ 9,568	$ 11,182	$ 48,617	$ (17,290)	$ (92) [(5)]	$ 93,650
Total assets at carrying value	$ 5,408,302	$ 2,311,932	$ 1,717,405	$ 8,606,912	$ 3,664,823	$ —	$ 21,709,374
Total on- and off-balance sheet program assets at principal balance	$ 7,776,950	$ 2,620,175	$ 2,280,571	$ 8,440,246	$ —	$ —	$ 21,117,942

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

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

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

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

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

Core Earnings by Business Segment

For the Year Ended December 31, 2018

	Farm & Ranch	USDA Guarantees	Rural Utilities	Institutional Credit	Corporate	Reconciling Adjustments	Consolidated Net Income
				(in thousands)			
Net interest income	$ 62,951	$ 20,554	$ 12,505	$ 69,321	$ 9,105	$ —	$ 174,436
Less: reconciling adjustments[(1)(2)(3)]	(9,889)	(2,499)	(922)	(7,884)	(2,047)	23,241	—
Net effective spread	53,062	18,055	11,583	61,437	7,058	23,241	—
Guarantee and commitment fees[(2)]	17,976	797	1,599	360	—	(6,756)	13,976
Other income/(expense)[(3)]	1,371	20	33	—	(913)	(2,747)	(2,236)
Non-interest income/(loss)	19,347	817	1,632	360	(913)	(9,503)	11,740
Provision for loan losses	(238)	—	—	—	—	—	(238)
Provision for reserve for losses	(97)	—	—	—	—	—	(97)
Other non-interest expense	(19,026)	(5,309)	(3,062)	(8,011)	(14,411)	—	(49,819)
Non-interest expense[(4)]	(19,123)	(5,309)	(3,062)	(8,011)	(14,411)	—	(49,916)
Core earnings before income taxes	53,048	13,563	10,153	53,786	(8,266)	13,738 (5)	136,022
Income tax (expense)/benefit	(11,140)	(2,848)	(2,133)	(11,295)	2,361	(2,887)	(27,942)
Core earnings before preferred stock dividends	41,908	10,715	8,020	42,491	(5,905)	10,851 (5)	108,080
Preferred stock dividends	—	—	—	—	(13,182)	—	(13,182)
Segment core earnings/(losses)	$ 41,908	$ 10,715	$ 8,020	$ 42,491	$ (19,087)	$ 10,851 (5)	$ 94,898
Total assets at carrying value	$4,701,736	$ 2,240,906	$ 945,282	$ 8,089,410	$ 2,716,994	$ —	$ 18,694,328
Total on- and off-balance sheet program assets at principal balance	$7,233,972	$ 2,515,620	$1,592,115	$ 8,382,817	$ —	$ —	$ 19,724,524

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

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

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

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

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

Core Earnings by Business Segment

For the Year Ended December 31, 2017

	Farm & Ranch	USDA Guarantees	Rural Utilities	Institutional Credit	Corporate	Reconciling Adjustments		Consolidated Net Income
				(in thousands)				
Net interest income	$ 54,290	$ 21,106	$ 11,598	$ 59,842	$ 10,811	$ —		$ 157,647
Less: reconciling adjustments[(1)(2)(3)]	(8,922)	(2,287)	(539)	(3,505)	(1,091)	16,344		—
Net effective spread	45,368	18,819	11,059	56,337	9,720	16,344		—
Guarantee and commitment fees[(2)]	17,175	456	1,914	805	—	(6,236)		14,114
Other income[(3)(4)]	2,449	43	20	—	171	715		3,398
Non-interest income/(loss)	19,624	499	1,934	805	171	(5,521)		17,512
Provision for loan losses	(1,708)	—	—	—	—	—		(1,708)
Provision for reserve for losses	(50)	—	—	—	—	—		(50)
Other non-interest expense	(16,554)	(4,384)	(2,430)	(6,439)	(12,908)	—		(42,715)
Non-interest expense[(5)]	(16,604)	(4,384)	(2,430)	(6,439)	(12,908)	—		(42,765)
Core earnings before income taxes	46,680	14,934	10,563	50,703	(3,017)	10,823	(6)	130,686
Income tax (expense)/benefit	(16,338)	(5,227)	(3,696)	(17,746)	1,792	(5,154)		(46,369)
Core earnings before preferred stock dividends and attribution of income to non-controlling interest	30,342	9,707	6,867	32,957	(1,225)	5,669	(6)	84,317
Preferred stock dividends	—	—	—	—	(13,182)	—		(13,182)
Non-controlling interest	—	—	—	—	165	—		165
Segment core earnings/(losses)	$ 30,342	$ 9,707	$ 6,867	$ 32,957	$ (14,242)	$ 5,669	(6)	$ 71,300
Total assets at carrying value	$4,274,693	$ 2,195,189	$1,088,986	$ 7,627,749	$ 2,605,657	$ —		$ 17,792,274
Total on- and off-balance sheet program assets at principal balance	$6,867,586	$ 2,352,214	$1,882,633	$ 7,904,878	—	—		$ 19,007,311

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

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

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

(4) Includes 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 employee headcount.

(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.

15. QUARTERLY FINANCIAL INFORMATION (UNAUDITED)

Table 15.1

	2019 Quarter Ended			
	Dec. 31	Sept. 30	June 30	Mar. 31
	(in thousands, except per share amounts)			
Interest income:				
Interest income	$ 162,954	$ 161,496	$ 165,128	$ 155,515
Interest expense	113,584	121,384	122,074	114,916
Net interest income	49,370	40,112	43,054	40,599
(Provision for)/release of loan losses	(2,430)	(760)	(578)	264
Net interest income after (provision for)/release of loan losses	46,940	39,352	42,476	40,863
Non-interest income:				
Guarantee and commitment fees	3,401	3,349	3,403	3,513
Gains/(losses) on financial derivatives	4,089	(7,360)	8,913	(360)
Gains on trading assets	172	49	61	44
Losses on sale of available-for-sale securities	(236)	—	—	—
Other income	526	530	355	493
Non-interest income	7,952	(3,432)	12,732	3,690
Non-interest expense	13,651	13,458	12,052	12,761
Income before income taxes	41,241	22,462	43,156	31,792
Income tax expense	8,743	4,629	9,111	6,622
Net income	32,498	17,833	34,045	25,170
Preferred stock dividends	(3,432)	(3,427)	(3,785)	(3,296)
Loss on retirement of preferred stock	—	—	(1,956)	—
Net income attributable to common stockholders	$ 29,066	$ 14,406	$ 28,304	$ 21,874
Earnings per common share:				
Basic earnings per common share	$ 2.72	$ 1.34	$ 2.65	$ 2.05
Diluted earnings per common share	$ 2.70	$ 1.33	$ 2.63	$ 2.03

	2018 Quarter Ended			
	Dec. 31	Sept. 30	June 30	Mar. 31
	(in thousands, except per share amounts)			
Interest income:				
Interest income	$ 146,453	$ 142,615	$ 135,670	$ 119,546
Interest expense	104,237	97,557	91,737	76,317
Net interest income	42,216	45,058	43,933	43,229
(Provision for)/release of loan losses	(146)	(99)	(424)	431
Net interest income after (provision for)/release of loan losses	42,070	44,959	43,509	43,660
Non-interest income/(loss):				
Guarantee and commitment fees	3,506	3,490	3,481	3,499
(Losses)/gains on financial derivatives	(2,999)	628	2,534	(3,850)
Gains/(losses) on trading assets	57	(3)	11	16
(Losses)/gains on sale of real estate owned	—	(41)	34	—
Other income	118	365	320	574
Non-interest income	682	4,439	6,380	239
Non-interest expense	13,703	11,650	12,921	11,642
Income before income taxes	29,049	37,748	36,968	32,257
Income tax expense	6,193	7,979	7,332	6,438
Net income	22,856	29,769	29,636	25,819
Preferred stock dividends	(3,296)	(3,295)	(3,296)	(3,295)
Net income attributable to common stockholders	$ 19,560	$ 26,474	$ 26,340	$ 22,524
Earnings per common share:				
Basic earnings per common share	$ 1.84	$ 2.48	$ 2.47	$ 2.12
Diluted earnings per common share	$ 1.82	$ 2.46	$ 2.45	$ 2.10

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

Item 9A. Controls and Procedures

Management's Evaluation of Disclosure Controls and Procedures. Farmer Mac maintains disclosure controls and procedures designed to ensure that information required to be disclosed in its periodic filings under the Securities Exchange Act of 1934 ("Exchange Act"), including this Annual Report on Form 10-K, is recorded, processed, summarized, and reported on a timely basis. These disclosure controls and procedures include controls and procedures designed to ensure that information required to be disclosed under the Exchange Act is accumulated and communicated to Farmer Mac's management on a timely basis to allow decisions about required disclosure. Management, including Farmer Mac's Chief Executive Officer and Chief Financial Officer, has evaluated the effectiveness of the design and operation of Farmer Mac's disclosure controls and procedures (as defined under Rules 13a-15(e) and 15d-15(e) of the Exchange Act) as of December 31, 2019.

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 December 31, 2019.

Management's Report on Internal Control Over Financial Reporting. See "Financial Statements—Management's Report on Internal Control Over Financial Reporting" in Item 8 of this Annual Report on Form 10-K.

Attestation Report of Independent Registered Public Accounting Firm. See "Financial Statements—Report of Independent Registered Public Accounting Firm" in Item 8 of this Annual Report on Form 10-K.

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 December 31, 2019 that have materially affected, or are reasonably likely to materially affect, Farmer Mac's internal control over financial reporting.

Item 9B. Other Information

(a) None.

(b) None.

PART III

Item 10. Directors, Executive Officers, and Corporate Governance

The information required by this Item is incorporated by reference to Farmer Mac's definitive proxy statement to be filed on or about April 6, 2020.

Item 11. Executive Compensation

The information required by this Item is incorporated by reference to Farmer Mac's definitive proxy statement to be filed on or about April 6, 2020.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

The information required by this Item is incorporated by reference to Farmer Mac's definitive proxy statement to be filed on or about April 6, 2020.

Item 13. Certain Relationships and Related Transactions and Director Independence

The information required by this Item is incorporated by reference to Farmer Mac's definitive proxy statement to be filed on or about April 6, 2020.

Item 14. Principal Accountant Fees and Services

The information required by this Item is incorporated by reference to Farmer Mac's definitive proxy statement to be filed on or about April 6, 2020.

PART IV

Item 15. Exhibits and Financial Statement Schedules

a. (1) Financial Statements.

Refer to Item 8 above.

(2) Financial Statement Schedules.

There are no schedules because 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.

b. Exhibits

*	3.1	—	Title VIII of the Farm Credit Act of 1971, as most recently amended by the Agricultural Improvement Act of 2018 (Previously filed as Exhibit 3.1 to Form 10-K filed February 21, 2019).
*	3.2	—	Amended and Restated By-Laws of the Registrant (Previously filed as Exhibit 3.1 to Form 8-K filed May 9, 2019).
*	4.1	—	Specimen Certificate for Farmer Mac Class A Voting Common Stock (Previously filed as Exhibit 4.1 to Form 10-Q filed May 15, 2003).
*	4.2	—	Specimen Certificate for Farmer Mac Class B Voting Common Stock (Previously filed as Exhibit 4.2 to Form 10-Q filed May 15, 2003).
*	4.3	—	Specimen Certificate for Farmer Mac Class C Non-Voting Common Stock (Previously filed as Exhibit 4.3 to Form 10-Q filed May 15, 2003).
*	4.4	—	Specimen Certificate for 5.875% Non-Cumulative Preferred Stock, Series A (Previously filed as Exhibit 4.4.1 to Form 10-Q filed May 9, 2013).
*	4.4.1	—	Certificate of Designation of Terms and Conditions of 5.875% Non-Cumulative Preferred Stock, Series A (Previously filed as Exhibit 4.1 to Form 8-A filed January 17, 2013).
*	4.5	—	Specimen Certificate for 6.000% Fixed-to-Floating Rate Non-Cumulative Preferred Stock, Series C (Previously filed as Exhibit 4.6 to Form 10-Q filed August 11, 2014).
*	4.5.1	—	Certificate of Designation of Terms and Conditions of 6.000% Fixed-to-Floating Rate Non-Cumulative Preferred Stock, Series C (Previously filed as Exhibit 4.1 to Form 8-A filed June 20, 2014).
*	4.6	—	Specimen Certificate for 5.700% Non-Cumulative Preferred Stock, Series D (Previously filed as Exhibit 4.7 to Form 10-Q filed August 1, 2019).
*	4.6.1	—	Certificate of Designation of Terms and Conditions of 5.700% Non-Cumulative Preferred Stock, Series D (Previously filed as Exhibit 4.1 to Form 8-A filed May 13, 2019).
**	4.7	—	Description of the Registrant's securities that are registered under Section 12 of the Securities Exchange Act of 1934.
†*	10.1	—	Employment Agreement dated as of October 15, 2018 between Bradford T. Nordholm and the Registrant (Previously filed as Exhibit 10.1 to Form 8-K filed October 1, 2018).
†*	10.2	—	Amended and Restated 2008 Omnibus Incentive Plan (Previously filed as Exhibit 10.2 to Form 10-Q filed August 9, 2018).
†*	10.2.1	—	Form of SARs Award Agreement under the 2008 Omnibus Incentive Plan for grants made prior to April 1, 2012 (Previously filed as Exhibit 10 to Form 8-K filed June 11, 2008).
†*	10.2.2	—	Form of SARs Award Agreement under the 2008 Omnibus Incentive Plan for grants made from April 1, 2012 to March 31, 2013 (Previously filed as Exhibit 10.1 to Form 8-K filed April 6, 2012).
†*	10.2.3	—	Form of SARs Award Agreement under the 2008 Omnibus Incentive Plan for grants made from April 1, 2013 to March 31, 2015 (Previously filed as Exhibit 10.1 to Form 8-K filed April 5, 2013).
†*	10.2.4	—	Form of SARs Award Agreement under the 2008 Omnibus Incentive Plan for grants made on or after April 1, 2015 (Previously filed as Exhibit 10.1 to Form 8-K filed on April 3, 2015).
†*	10.2.5	—	Form of Restricted Stock Agreement (Officers) under the 2008 Omnibus Incentive Plan for grants made prior to April 1, 2012 (Previously filed as Exhibit 10.1 to Form 8-K filed June 10, 2009).

†*	10.2.6	—	Form of Restricted Stock Agreement (Officers) under the 2008 Omnibus Incentive Plan for grants made from April 1, 2012 to March 31, 2013 (Previously filed as Exhibit 10.2 to Form 8-K filed April 6, 2012).
†*	10.2.7	—	Form of Restricted Stock Agreement (Directors) under the 2008 Omnibus Incentive Plan (Previously filed as Exhibit 10.3 to Form 8-K filed April 6, 2012).
†*	10.2.8	—	Form of Time-Based Restricted Stock Award Agreement for grants made to non-directors from April 1, 2013 to March 31, 2015 (Previously filed as Exhibit 10.2 to Form 8-K filed April 5, 2013).
†*	10.2.9	—	Form of Time-Based Restricted Stock Award Agreement for grants made to non-directors on or after April 1, 2015 (Previously filed as Exhibit 10.3 to Form 8-K filed on April 3, 2015).
†*	10.2.10	—	Form of Performance-Based Restricted Stock Award Agreement for grants made to non-directors from April 1, 2013 to March 31, 2015 (Previously filed as Exhibit 10.2 to Form 8-K filed April 5, 2013).
†*	10.2.11	—	Form of Performance-Based Restricted Stock Award Agreement for grants made to non-directors on or after April 1, 2015 (Previously filed as Exhibit 10.2 to Form 8-K filed on April 3, 2015).
†*	10.3	—	Federal Agricultural Mortgage Corporation Amended and Restated Executive Officer Severance Plan (Previously filed as Exhibit 10.1 to Form 8-K filed November 3, 2016).
†*	10.4	—	Form of Participation Agreement to the Federal Agricultural Mortgage Corporation Amended and Restated Executive Officer Severance Plan (Previously filed as Exhibit 10.2 to Form 8-K filed November 3, 2016).
†*	10.5	—	Nonqualified Deferred Compensation Plan (effective May 1, 2017) (Previously filed as Exhibit 10.2 to Form 10-Q filed May 10, 2017)
†*	10.6	—	Adoption Agreement of the Nonqualified Deferred Compensation Plan (effective May 1, 2017) (Previously filed as Exhibit 10.3 to Form 10-Q filed May 10, 2017)
†*	10.7	—	Form of Indemnification Agreement for Directors (Previously filed as Exhibit 10.1 to Form 8-K filed April 9, 2008).
†**	10.8	—	Description of compensation agreement between the Registrant and its directors, effective January 1, 2020.
*#	10.9	—	Amended and Restated Master Central Servicing Agreement between Zions First National Bank and the Registrant, dated as of May 1, 2004 (Previously filed as Exhibit 10.11.2 to Form 10-Q filed August 9, 2004).
*#	10.9.1	—	Amendment No. 1 to Amended and Restated Master Central Servicing Agreement between Zions First National Bank and the Registrant, dated as of June 1, 2009 (Previously filed as Exhibit 10.11.1 to Form 10-Q filed August 10, 2009).
*#	10.9.2	—	Amendment No. 2 to Amended and Restated Master Central Servicing Agreement between Zions First National Bank and the Registrant, dated as of August 25, 2010 (Previously filed as Exhibit 10.11.2 to Form 10-Q filed November 9, 2010).
*#	10.10	—	Loan Closing File Review Agreement between Zions First National Bank and the Registrant, dated as of May 1, 2004 (Previously filed as Exhibit 10.12 to Form 10-Q filed November 9, 2005).
*	10.11	—	Sublease Agreement between Mayer Brown LLP and the Registrant, dated as of December 6, 2010 (Previously filed as Exhibit 10.43 to Form 10-K/A filed June 1, 2011).
*	10.12	—	Master Trust, Sale and Servicing Agreement between CFC Advantage, LLC, National Rural Utilities Cooperative Finance Corporation, U.S. Bank National Association, and the Registrant, dated as of October 20, 2006 (Previously filed as Exhibit 10.22 to Form 10-Q filed August 9, 2010).
*	10.13	—	Registration Rights Agreement Series 2007-1 between CFC Advantage, LLC, National Rural Utilities Cooperative Finance Corporation, and the Registrant, dated as of February 15, 2007 (Previously filed as Exhibit 10.23 to Form 10-Q filed August 9, 2010).
*	10.14	—	Registration Rights Agreement Series 2007-2 between CFC Advantage, LLC, National Rural Utilities Cooperative Finance Corporation, and the Registrant, dated as of August 10, 2007 (Previously filed as Exhibit 10.24 to Form 10-Q filed August 9, 2010).
*	10.15	—	Amended and Restated Note Purchase Agreement between Farmer Mac Mortgage Securities Corporation, National Rural Utilities Cooperative Finance Corporation, and the Registrant, dated as of March 24, 2011 (Previously filed as Exhibit 10.22 to Form 10-Q filed May 10, 2011).
*	10.15.1	—	Amended and Restated First Supplemental Note Purchase Agreement between Farmer Mac Mortgage Securities Corporation, National Rural Utilities Cooperative Finance Corporation, and the Registrant, dated as of January 8, 2015 (Previously filed as Exhibit 10.1 to Form 8-K filed January 13, 2015).

*	10.15.2	—	Second Amended and Restated First Supplemental Note Purchase Agreement between Farmer Mac Mortgage Securities Corporation, National Rural Utilities Cooperative Finance Corporation, and the Registrant, dated as of February 26, 2018 (Previously filed as Exhibit 10.1 to Form 10-Q filed May 10, 2018).
*	10.16	—	Setoff Rights Letter Agreement between National Rural Utilities Cooperative Finance Corporation, Farmer Mac Mortgage Securities Corporation, and the Registrant, dated as of March 24, 2011 (Previously filed as Exhibit 10.24 to Form 10-Q filed May 10, 2011).
*	10.17	—	Amended and Restated Master Sale and Servicing Agreement between National Rural Utilities Cooperative Finance Corporation and the Registrant, dated as of August 12, 2011 (Previously filed as Exhibit 10.26 to Form 10-Q filed November 9, 2011).
*	10.18	—	Amendment No. 1 to Amended and Restated Master Sale and Servicing Agreement between National Rural Utilities Cooperative Finance Corporation and the Registrant, dated as of November 28, 2016 (Previously filed as Exhibit 10.17 to Form 10-K filed March 9, 2017).
*#	10.19	—	Credit Support Agreement between National Rural Utilities Cooperative Finance Corporation and the Registrant, dated as of September 1, 2009 (Previously filed as Exhibit 10.38 to Form 10-Q filed August 9, 2010).
*	10.20	—	Indenture between National Rural Utilities Cooperative Finance Corporation, U.S. Bank National Association, and the Registrant, dated as of September 1, 2009 (Previously filed as Exhibit 10.39 to Form 10-Q filed August 9, 2010).
*	10.21	—	Master Note Purchase Agreement between Farmer Mac Mortgage Securities Corporation, National Rural Utilities Cooperative Finance Corporation, and the Registrant, dated as of July 31, 2015 (Previously filed as Exhibit 10.1 to Form 10-Q filed November 9, 2015).
*#	10.22	—	Amended and Restated First Supplemental Note Purchase Agreement between Farmer Mac Mortgage Securities Corporation, National Rural Utilities Cooperative Finance Corporation, and the Registrant, dated as of March 15, 2016 (Previously filed as Exhibit 10.1 to Form 10-Q filed May 10, 2016).
*#	10.23	—	Second Supplemental Note Purchase Agreement between Farmer Mac Mortgage Securities Corporation, National Rural Utilities Cooperative Finance Corporation, and the Registrant, dated as of July 31, 2018 (Previously filed as Exhibit 10.1 to Form 10-Q filed November 8, 2018).
*	10.24	—	Second Amended, Restated and Consolidated Pledge Agreement between Farmer Mac Mortgage Securities Corporation, National Rural Utilities Cooperative Finance Corporation, U.S. Bank National Association, and the Registrant, dated as of July 31, 2015 (Previously filed as Exhibit 10.3 to Form 10-Q filed November 9, 2015).
*	10.25	—	Long Term Standby Commitment to Purchase between National Rural Utilities Cooperative Finance Corporation and the Registrant, dated as of August 31, 2015 (Previously filed as Exhibit 10.4 to Form 10-Q filed November 9, 2015).
*	10.26	—	Amendment No. 1 to Long Term Standby Commitment to Purchase between National Rural Utilities Cooperative Finance Corporation and the Registrant, dated as of May 31, 2016 (Previously filed as Exhibit 10.1 to Form 10-Q filed August 9, 2016).
*	10.27	—	Loan Participation Servicing Agreement between National Rural Utilities Cooperative Finance Corporation, National Cooperative Services Corporation, and the Registrant, dated as of September 26, 2019 (Previously filed as Exhibit 10 to Form 8-K filed October 9, 2019).
*	10.28	—	Master Non-Recourse Loan Participation Agreement between CoBank, ACB, CoBank, FCB, and the Registrant, dated as of February 13, 2019 (Previously filed as Exhibit 10.1 to Form 8-K filed February 20, 2019).
*	10.29	—	Loan Participation and Servicing Agreement between CoBank, ACB and the Registrant, dated as of February 13, 2019 (Previously filed as Exhibit 10.2 to Form 8-K filed February 20, 2019).
*	21	—	List of the Registrant's subsidiaries (Previously filed as Exhibit 21 to Form 10-K filed March 8, 2018).
**	31.1	—	Certification of Registrant's principal executive officer relating to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2019, 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 Annual Report on Form 10-K for the year ended December 31, 2019, 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 Annual Report on Form 10-K for the year ended December 31, 2019, pursuant to 18 U.S.C. § 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.

**	101.INS	—	Inline XBRL Instance Document - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document
**	101.SCH	—	Inline XBRL Taxonomy Extension Schema
**	101.CAL	—	Inline XBRL Taxonomy Extension Calculation
**	101.DEF	—	Inline XBRL Taxonomy Extension Definition
**	101.LAB	—	Inline XBRL Taxonomy Extension Label
**	101.PRE	—	Inline XBRL Taxonomy Extension Presentation
**	104	—	Cover Page Inline Interactive Data File - the cover page interactive data file does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document included as Exhibit 101

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

Item 16. Form 10-K Summary

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

FEDERAL AGRICULTURAL MORTGAGE CORPORATION

/s/ Bradford T. Nordholm	February 25, 2020
By: Bradford T. Nordholm President and Chief Executive Officer (Principal Executive Officer)	Date

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the Registrant and in the capacities and on the dates indicated.

Name	Title	Date
/s/ LaJuana S. Wilcher LaJuana S. Wilcher	Chair of the Board and Director	February 25, 2020
/s/ Bradford T. Nordholm Bradford T. Nordholm	President and Chief Executive Officer (Principal Executive Officer)	February 25, 2020
/s/ Aparna Ramesh Aparna Ramesh	Executive Vice President – Chief Financial Officer and Treasurer (Principal Financial Officer)	February 25, 2020
/s/ Gregory N. Ramsey Gregory N. Ramsey	Vice President – Controller (Principal Accounting Officer)	February 25, 2020

Name	Title	Date
/s/ Dennis L. Brack Dennis L. Brack	Director	February 25, 2020
/s/ Richard H. Davidson Richard H. Davidson	Director	February 25, 2020
/s/ Everett M. Dobrinski Everett M. Dobrinski	Director	February 25, 2020
/s/ James R. Engebretsen James R. Engebretsen	Director	February 25, 2020
/s/ Sara L. Faivre Sara L. Faivre	Director	February 25, 2020
/s/ Thomas W. Hill Thomas W. Hill	Director	February 25, 2020
/s/ Mitchell A. Johnson Mitchell A. Johnson	Director	February 25, 2020
/s/ Lowell L. Junkins Lowell L. Junkins	Director	February 25, 2020
/s/ Clark B. Maxwell Clark B. Maxwell	Director	February 25, 2020
/s/ Robert G. Sexton Robert G. Sexton	Director	February 25, 2020
/s/ Daniel L. Shaw Daniel L. Shaw	Director	February 25, 2020
/s/ Bruce J. Sherrick Bruce J. Sherrick	Director	February 25, 2020
/s/ Myles J. Watts Myles J. Watts	Director	February 25, 2020
/s/ Todd P. Ware Todd P. Ware	Director	February 25, 2020