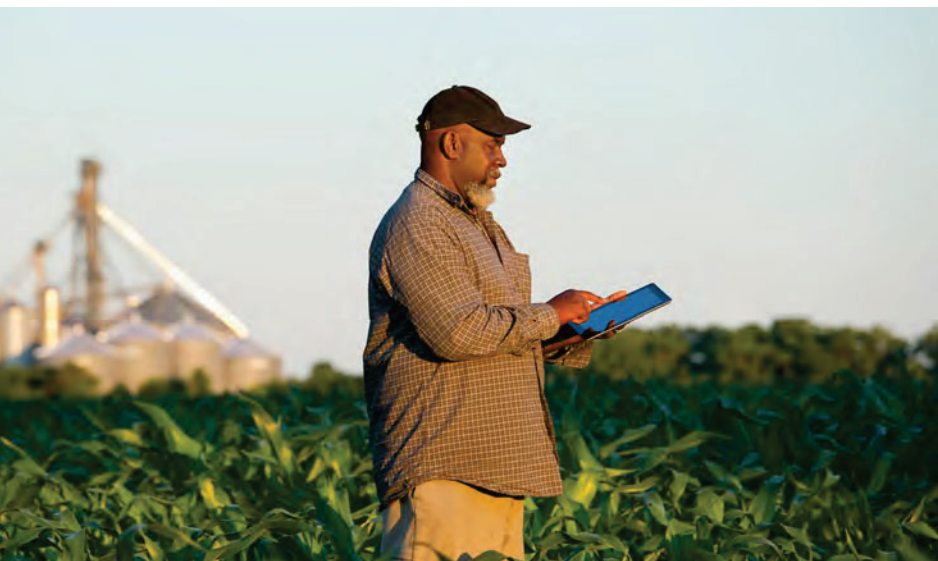


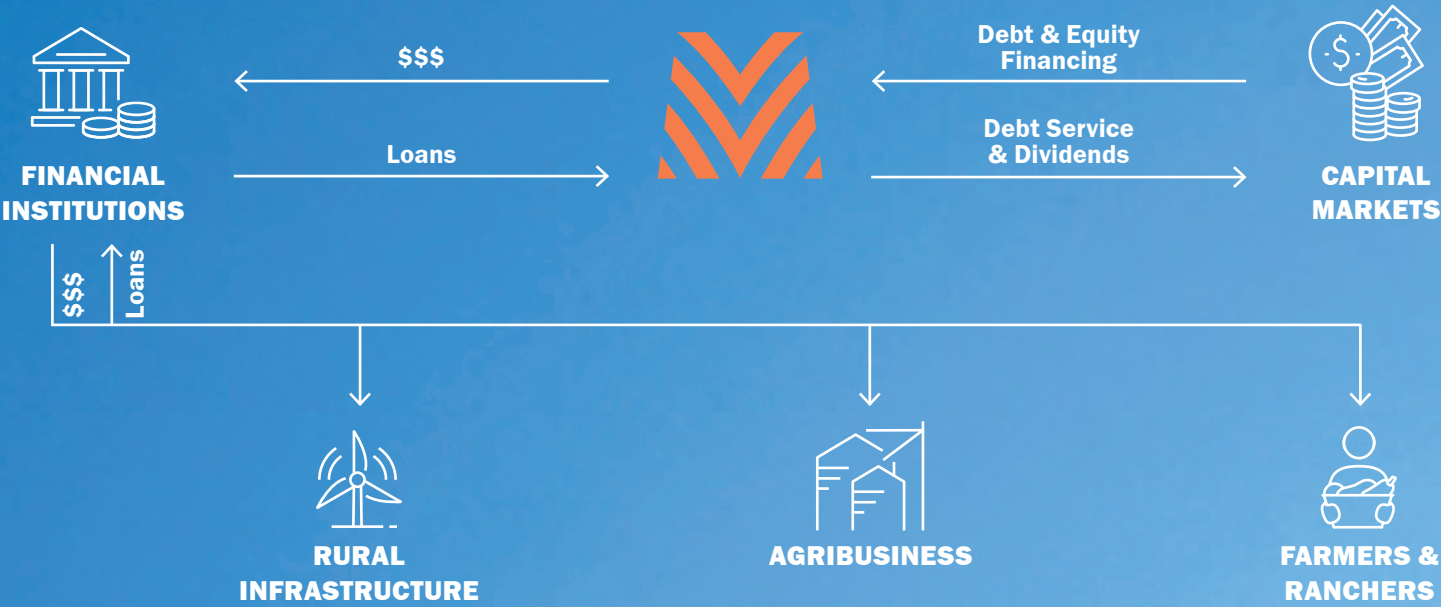
FARMER  AC

America's Growth Partner

2022 ANNUAL REPORT



FARMER MAC'S SECONDARY MARKET ECOSYSTEM



Letter From Our CEO and Chair



BRADFORD T. NORDHOLM

President and
Chief Executive Officer

LOWELL L. JUNKINS

Board Chair

WE ARE AMERICA'S GROWTH PARTNER

It is an honor to once again address all of Farmer Mac's valued stakeholders—our investors, customers, and employees, as well as America's farmers, ranchers, and rural residents—to report on our company's progress and impact. On behalf of the entire company, we are happy to share with you the successes we achieved in 2022, which were bolstered by diverse revenue streams, disciplined asset liability management, and a strong capital position that enabled us to deliver outstanding results even in volatile market conditions. We also want to share our sincere gratitude for all our stakeholders who helped make 2022 a record year for revenue, earnings, net effective spread, and outstanding business volumes in nearly all segments.

Farmer Mac as an organization—from our Board of Directors to our management team to our employees—is composed of people from diverse backgrounds and equipped with a wide array of skills. Yet we are all united by a passion for our **mission to increase the accessibility of financing for American agriculture and rural infrastructure.**

We are proud to work for an organization that has been a champion for and an integral part of this nation's rural economy for 35 years, strengthening, connecting, and powering rural America. Everyone at Farmer Mac shares a drive to innovate, to strive for excellence and integrity in all our work, and to develop strong, lasting relationships within the industries we so proudly serve.

Farmer Mac emphasizes the importance of being a good partner to all our stakeholders. That means thinking about the vital role we play in supporting the rural economy by connecting Wall Street to Main Street while forging strong relationships with our debt and equity investors. It means fostering strong and impactful relationships with our customers—the financial institutions that rely on our secondary market to help provide affordable credit to America’s farmers, ranchers, agribusinesses, and rural infrastructure borrowers. And it means focusing on how our organization can empower our employees, who make all our positive results possible.

“Farmer Mac provides our lending partners with flexible, competitive financing, including long term fixed interest rate options and effective risk management tools.”

We are America’s growth partner, and we strive to always expand and deepen these meaningful relationships. They are central to our strength and thus paramount in maximizing the positive impact of our vital mission to support agricultural production, agribusinesses, and

critical rural infrastructure for rural communities across the nation and for many generations to come.

THE PURPOSE OF OUR WORK

Agriculture and rural infrastructure are the heart of America. Our core business activities and strategic thinking are therefore rooted in our commitment to driving economic opportunity and prosperity by strengthening and connecting rural communities across our country. With a diverse array of products offered through our Agricultural Finance and Rural Infrastructure Finance business lines, Farmer Mac provides our lending partners with flexible, competitive financing, including long term fixed interest rate options and effective risk management tools. As a secondary market provider, we enable these institutions to better serve their farm, ranch, agribusiness, and rural infrastructure customers.

We believe that one key measure of our success is our nationwide impact. Through our network of lenders, Farmer Mac has helped fund loans to over 100,000 borrowers in all 50 states. And across our lines of business, we have extended more than \$81 billion of cumulative financing that lenders have used to help bring increased financial security and opportunities to farmers and ranchers as well as reliable power and broadband to America’s rural communities. These communities help feed the nation and the world—when they prosper, we are all better off for it. Farmer Mac is committed to fostering their





“We are proud to report that we achieved a strong performance in 2022.”

success and helping them to thrive by continuing to serve as a strong partner for rural America for many years to come.

2022: RESILIENCE IN THE FACE OF HEADWINDS

While headwinds like sharply rising interest rates, significant inflation, and war have been impacting the global economy, America's agricultural economy has shown remarkable resilience. In the years leading up to the more volatile market conditions of 2022, Farmer Mac enabled borrowers to lock in billions of dollars in loans at near-record-low interest rates to remove the uncertainty of interest rate fluctuations, helping them to prepare for the future. Heading into 2022, producers were still benefiting from healthy farm incomes and liquidity, seeing revenue rise faster than the cost of inputs, initially fueled by large government payments intended to offset the impact of trade policies and COVID-19 disruptions. More recently, many producers were bolstered by a broad increase in commodity prices that generally more than offset a decline in government payments. Through 2022, increasing investments in rural infrastructure continued to help connect rural communities

with power and bridge the digital divide, while federal and state initiatives bolstered opportunities for renewable energy projects across America. All the while, our secondary market provided continuous access to capital to help rural communities persevere.

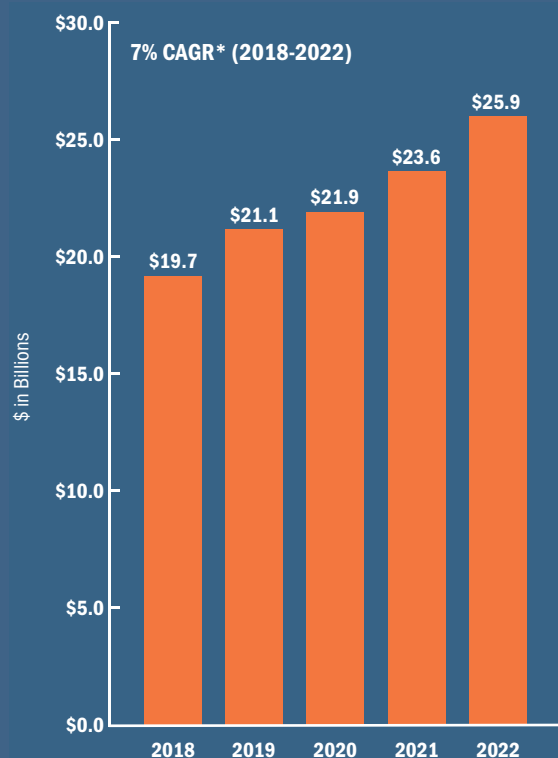
We are heartened to see that our work contributed to rural America charting a steadier course than anticipated through the uncertainties posed by 2022. Farmers, ranchers, agribusinesses, and rural infrastructure providers not only overcame the challenges posed by the last year but found ways to thrive, with many agricultural and infrastructure sectors posting record results. In that same spirit of perseverance, we are proud to report that we also achieved a strong performance in 2022.

Farmer Mac provided \$9.0 billion in liquidity and lending capacity to lenders in 2022, resulting in record business volume of \$25.9 billion at year-end, with record volume across nearly all segments. We also produced record core earnings (a non-GAAP measure) of \$124.3 million in 2022, primarily driven by net effective spread (also a non-GAAP measure) reaching an all-time high of \$255.5 million.

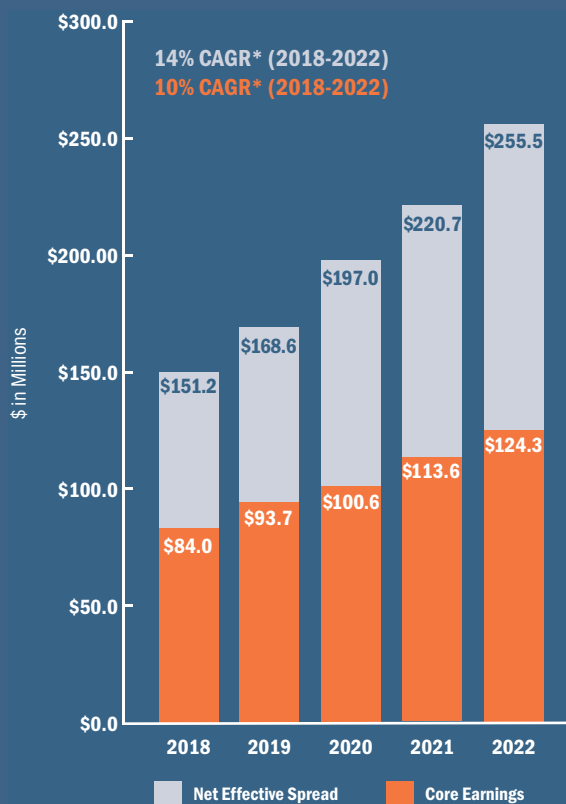
This 16% improvement from 2021 was aided by competitive execution on debt funding and strong and effective asset pricing. Executing debt funding and effectively deploying equity is fundamental to maintaining a consistent margin, providing a reliable liquidity buffer, and delivering corporate returns. Our disciplined asset liability management, forward-looking funding, liquidity strategies, and prudent approach to interest rate risk management have allowed us to maintain and enhance profitability through headwinds and tailwinds alike, providing stability against even the heightened market volatility seen in recent rate cycles.

We ended 2022 with \$1.3 billion of core capital, exceeding regulatory requirements by 64%. In consideration of our strong capital position, the Board of Directors raised our quarterly dividend to \$1.10 per share of common stock for first quarter 2023, reflecting a 16% year-over-year increase and our twelfth consecutive annual increase. The decision to strengthen our capital position through fixed rate perpetual preferred stock issuances over the last few years during the low-rate environment enables us to create more opportunities to enhance shareholder value, bolsters our resiliency through changing credit environments, and supports our ability to drive positive change through our mission.

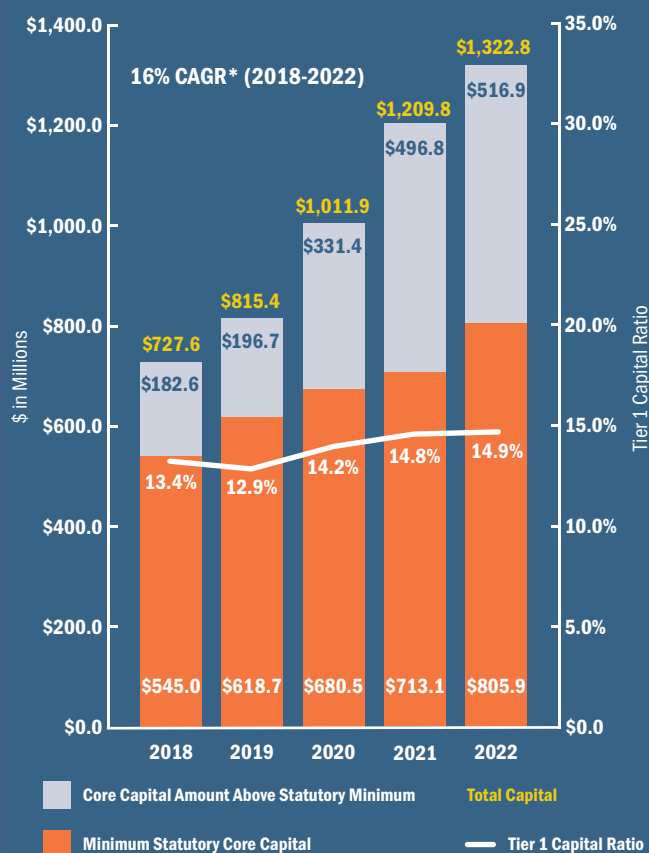
OUTSTANDING BUSINESS VOLUME



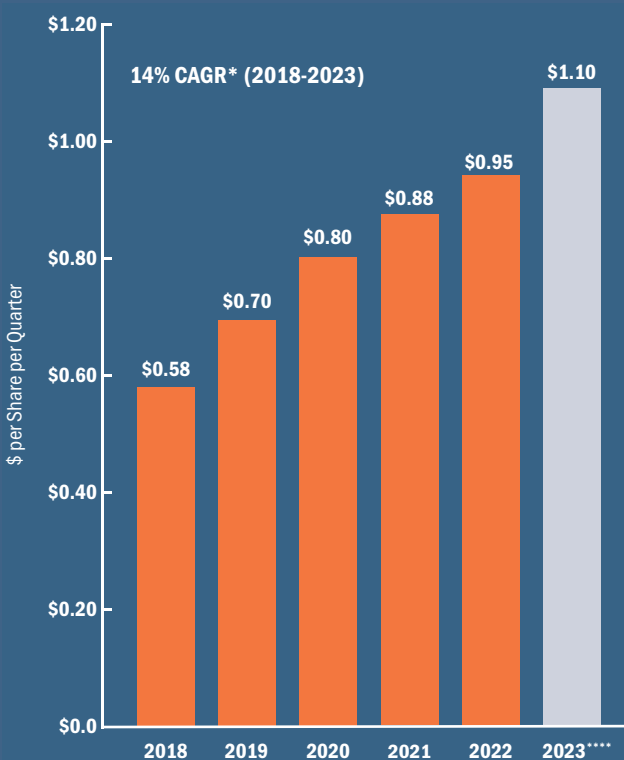
CORE EARNINGS & NET EFFECTIVE SPREAD***



ENHANCED CAPITAL POSITION**



QUARTERLY DIVIDENDS

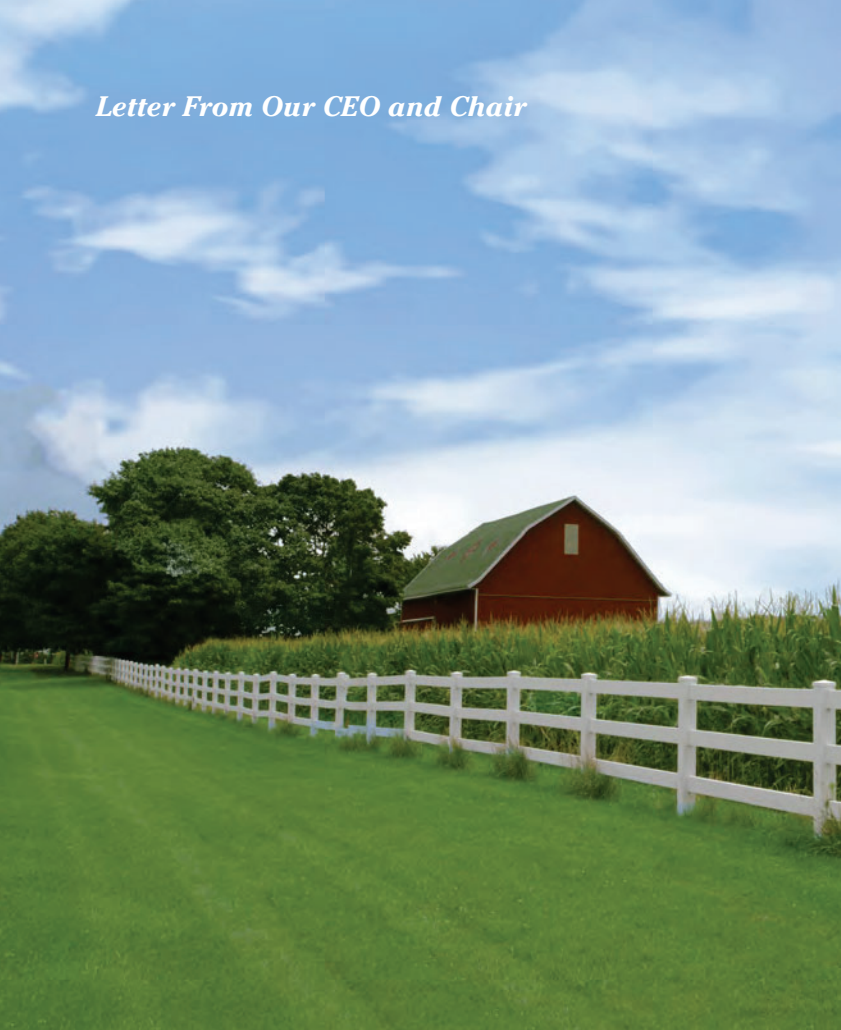


*CAGR is Compound Annual Growth Rate.

**Chart may not sum to total due to rounding.

***Core earnings and net effective spread are non-GAAP measures. For a reconciliation of core earnings to GAAP net income and of net effective spread to GAAP net interest income, please refer to "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Farmer Mac's 2022 Annual Report on Form 10-K filed with the SEC.

****Chart shows dividend paid for first quarter 2023. The level of future quarterly dividends is subject to change.



FARMER AC

INTRODUCING FARM SECURITIES

Directly connecting production
agriculture to Wall Street



DRIVEN BY A CULTURE OF INNOVATION AND GROWTH

Farmer Mac's robust and consistent results spring from a strong, mission-focused culture guided by several strategic priorities. These include prioritizing innovative ways to support our existing customer base, diversifying and expanding our business with new customers, connecting investors to rural America through our securitization initiative, focusing on disciplined asset liability management, and strongly supporting our employees.

A culture of innovation is key to delivering value and building up a best-in-class customer experience for the hundreds of lenders who transact with us every year. We are increasing the scalability and efficiency of our products and services through ongoing digital transformation efforts, with an eye towards expedient credit decisions and refining our loan processing platforms to be faster and easier to use. We are also enhancing our loan servicing capabilities to drive an elevated experience for our valued customers and their farm and ranch borrowers through the full life of their loans. We know our customers continue to put their confidence in Farmer Mac as a consistent growth partner because they trust that we are experts across all the sectors we work in, from farm and ranch operations to agribusinesses to rural utilities, renewable energy, and communications.

We're also focused on diversification as we expand the number of customers and counterparties we do business with across our two lines of business, especially in our Rural Utilities, Renewable Energy, and Corporate AgFinance operating segments. We are forging both new and closer relationships with financial institutions that lend to larger, more complex agribusinesses that span across the food supply chain, as well as with institutional investors that invest in the agricultural asset class. We are also growing our relationships with lenders organized as cooperatives that support customers that invest in critical rural infrastructure such as communications and renewable energy. We see promising opportunities to strengthen our position as a dependable partner for these capital-intensive markets to help meet rural America's ever-increasing need for reliable and affordable power and communications infrastructure.

Our ongoing FARM Series of securitizations help us serve as an important link connecting rural communities to the capital markets while further diversifying our funding. We are proud to serve our customers and investors as the nation's only secondary market provider with an agricultural focus and a truly national scope that issues securities in the debt capital markets. Several customers have shown interest in partnering with Farmer Mac to build securitization products across the

“We know our customers continue to put their confidence in Farmer Mac as a consistent growth partner because they trust that we are experts across all the sectors we work in.”

agriculture and rural infrastructure space to help them achieve their return objectives while also creating a well-received new investment opportunity for institutional investors. Between October 2021 and February 2023, we closed three large FARM Series securitization transactions, demonstrating our commitment to being a regular issuer in the marketplace, developing this capital flow, and providing vital opportunities to leading institutional investors and end borrowers alike.

We must always acknowledge that the positive results we achieve for our company, for our stakeholders, and for rural America begin with and are fueled by our dedicated, driven, and innovative employees, to whom we are deeply committed. We nurture our skilled team from diverse backgrounds and perspectives by offering competitive compensation for their work,

“Farming and ranching are inherently risky professions that require access to adequate and affordable credit to succeed. Farmer Mac works with financial institutions across the country to provide flexible and innovative financial solutions that help American farmers and ranchers meet their credit needs. Farmer Mac’s services strengthen rural America and are critical to maintaining our ability to produce the world’s safest, most affordable, and most abundant supply of food, fuel and fiber.”

SENATOR JOHN BOOZMAN (R-AR)

“For over thirty years, Farmer Mac has been a vital growth partner for agriculture and rural infrastructure in America, supporting the vitality of farmers and ranchers across more than 144 different commodities. As the nation’s secondary market for agricultural credit, Farmer Mac’s broad spectrum of financial solutions strengthens our food systems, connects rural communities, and helps to bridge the digital divide.”

CONGRESSMAN DAVID SCOTT (D-GA)

connecting them with learning and development opportunities, and fostering a strong culture rooted in mutual respect and diversity, equity, and inclusion with the support of our DEI Council. The robust and consistent results that Farmer Mac has achieved are a vivid demonstration of the fact that supporting our motivated and passionate employees isn't just the right thing to do; it is integral to Farmer Mac's ability to serve as a strong growth partner in the rural economy.

OUR VISION FOR THE FUTURE

Strong, lasting relationships and focused, strategic priorities grounded in our mission are essential to our vision for a vibrant future for rural America. As we strive to be a trusted partner to our stakeholders and within our sectors, we aim to listen, learn, and constantly find innovative ways to achieve our goals for our mission, for our customers and their borrowers, and for America's rural communities.

Strong relationships are built on good communication. In 2022, Farmer Mac initiated a multi-phase process to examine and evaluate how we are perceived by our stakeholders, speaking with a wide range of our customers, investors, and employees. In 2023, we plan to incorporate this valuable input into

our strategic initiatives, branding, and communications to more clearly articulate our impact, vision for the future, and how our stakeholder partnerships contribute to a strong and vital rural America.

As we consider the future, one subject that will always be at the forefront is the creation of each farm bill in Congress, including the upcoming 2023 bill. We know that these bills are important in helping to secure the success and livelihood of all of rural America. They not only serve as an important safety net and support our country's production of food, fiber, and fuel, but also help to bolster food security across the country while spurring job growth and economic opportunities in rural communities. While each farm bill is a crucial piece of legislation that we monitor closely, we take a longer view by actively engaging with leaders in Congress to help maximize the positive impact of our activities in fulfillment of our mission within the existing authorities of our charter.

There is always an aspect of uncertainty to the future, and it remains to be seen what the rest of 2023 may bring in terms of interest rates, commodity prices, labor and input prices, and the health of the overall economy. But our vision for the future is clear, and we remain steadfast in our

mission and in supporting our lending partners that serve farmers, ranchers, agribusinesses, and rural infrastructure for the benefit of rural America. With a strong capital position and disciplined asset liability management, we are prepared to serve as a strong growth partner through any economic environment.

At Farmer Mac, we all believe in the purpose of our work. We want to share that enthusiastic belief with our customers, their borrowers, our investors, and indeed with everyone in this country and across the globe, to show that we all benefit from a strong and vital rural America. With our mission as our guiding star, we are excited to see everything we will accomplish together in the years to come.



BRADFORD T. NORDHOLM

President and
Chief Executive Officer



LOWELL L. JUNKINS

Board Chair

Agricultural Finance

Farmer Mac's Agricultural Finance line of business is composed of the Farm & Ranch and Corporate AgFinance operating segments. Across both segments, Farmer Mac provides a secondary market to a diverse customer set, offering a wide range of products and innovative solutions that assist with their capital, liquidity, and portfolio diversification needs. The Agricultural Finance business line helps agricultural lenders and financial institutions support their customers by providing better and more efficient access to financing solutions across American agriculture.

SEGMENT Farm & Ranch

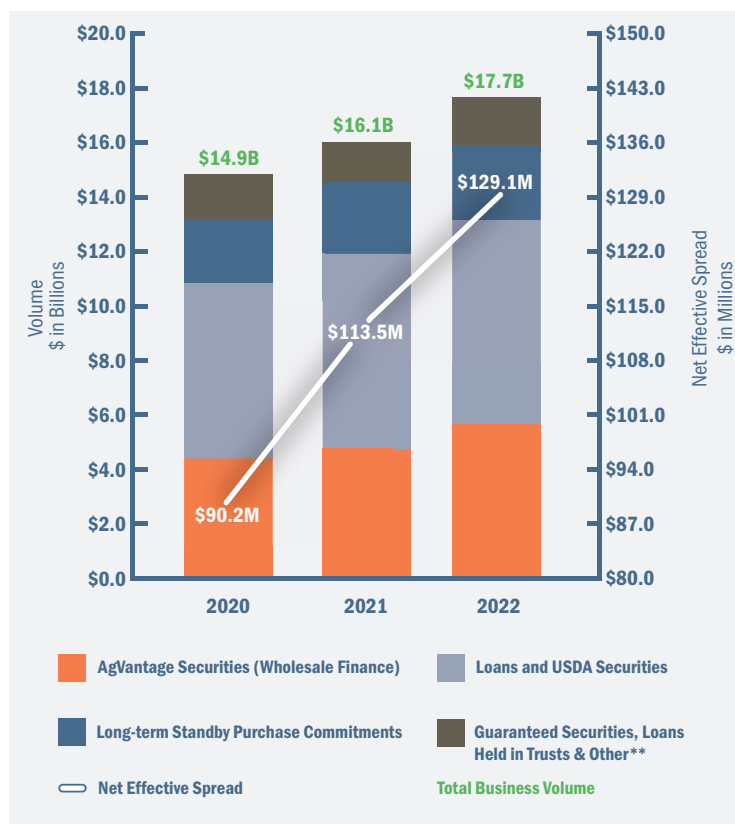
Through its Farm & Ranch operating segment, Farmer Mac works with customers varying from small community banks to large financial institutions and nonbank lenders. Farmer Mac's innovative products and solutions help these customers reduce interest rate risk and credit risk, manage their capital efficiency, and offer more competitive and efficient products and terms to best support their lending initiatives to farmers and ranchers across the country.

Farmer Mac's Farm & Ranch loan purchase and wholesale financing (i.e., AgVantage Securities) products were the predominant drivers of growth in the Agricultural Finance line of business in 2022. Loan purchase volume growth was strong compared to historical performance overall, although it was more modest than in recent years as borrowers adjusted to the significantly higher interest rate environment. Wholesale finance activity was

robust as Farmer Mac provided competitive financing solutions to financial institutions in the face of significant increases in interest rates and credit spreads seen throughout 2022. Looking ahead, we expect

this segment's competitive loan purchase and wholesale pricing options to continue to serve as an attractive source of funding, especially if today's volatile market environment persists.

FARM & RANCH BUSINESS VOLUME & NET EFFECTIVE SPREAD*



*Net effective spread is a non-GAAP measure. For a reconciliation of net effective spread to GAAP net interest income, please refer to "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Farmer Mac's 2022 Annual Report on Form 10-K filed with the SEC.

**"Other" includes IO-FMGS and loans serviced for others.



SEGMENT *Corporate AgFinance*

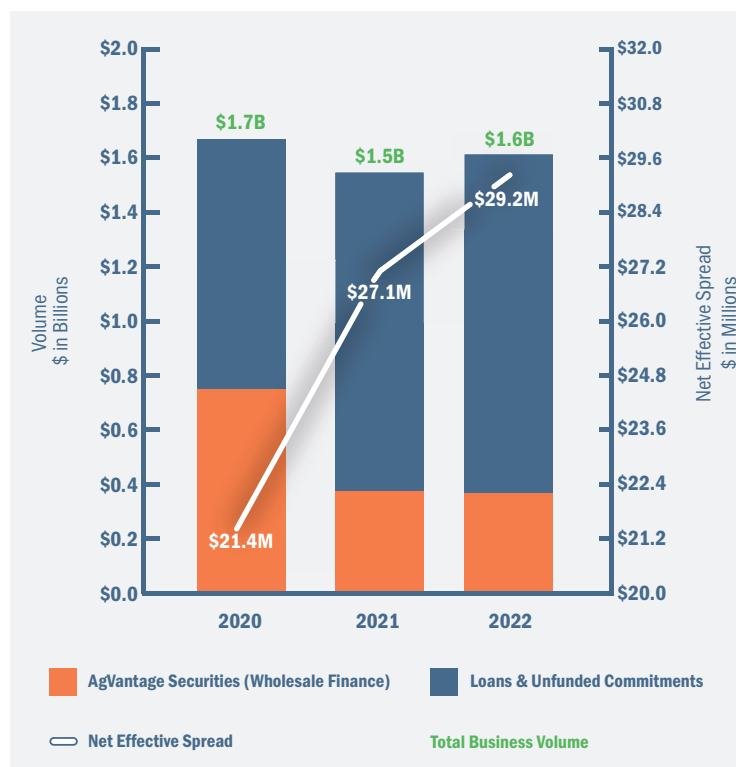
Farmer Mac's Corporate AgFinance operating segment provides financing solutions through a secondary market that reaches across a broad portion of the agricultural supply chain and the institutional investor community. This segment serves a diverse set of customers ranging from community banks and large financial institutions to institutional investors and funds. They turn to Farmer Mac for a reliable source of financial solutions to help finance large, complex agribusinesses, vertically integrated farming operations, and institutional investment vehicles. For these capital-intensive needs, Farmer Mac provides flexible and competitive debt financing solutions tailored to meet borrowers' varied needs, including direct loan purchase, participation in broadly and group syndicated transactions, and wholesale financing.

Persistent market volatility and uncertainty hampered transactions across the agriculture supply chain last year. We were able

to purchase approximately \$330 million of new loans at accretive spreads, which supported a strong increase in revenues for this segment and more than offset the impact of sizable payoffs. While the market continues to grapple with

uncertainty and volatility in 2023, transaction deal flow has increased, and Farmer Mac is prepared to continue to serve the needs of financial institutions and their borrowers across the food supply chain.

CORPORATE AGFINANCE BUSINESS VOLUME & NET EFFECTIVE SPREAD*



*Net effective spread is a non-GAAP measure. For a reconciliation of net effective spread to GAAP net interest income, please refer to "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Farmer Mac's 2022 Annual Report on Form 10-K filed with the SEC.

Rural Infrastructure Finance

Capital-intensive investments are required to deliver reliable electric power and communications services to communities across rural America. Farmer Mac's Rural Utilities and Renewable Energy operating segments help lenders organized as cooperatives finance these important expansion and improvement projects through a secondary market. Farmer Mac saw tremendous growth across Rural Infrastructure Finance in 2022, steadily increasing the extent to which we help to support the vital access to these services that millions of rural residents rely on and helping to connect rural communities.

SEGMENT Rural Utilities

Reliable power and communications infrastructure is crucial in the modern age, but America's rural communities have been historically underserved. In its Rural Utilities operating segment, Farmer Mac offers a wide range of competitively priced, flexible solutions that support the ability of financial institutions organized as cooperatives to provide financing to a variety of rural infrastructure borrowers. This funding is used for electric generation, transmission, and distribution systems as well as broadband projects to deliver safe, affordable, and reliable power and high-speed telecommunications services to homes, farms, businesses, and schools across the country.

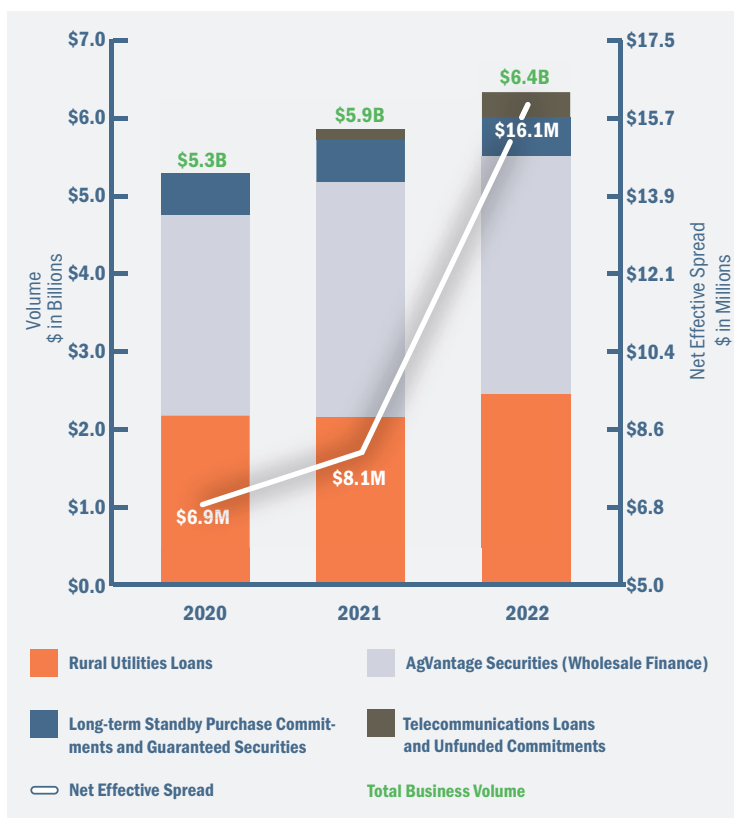
During 2022, the Rural Utilities operating segment saw meaningful growth as borrowers had ongoing financial needs for significant and recurring maintenance and growth plans in an effort to deliver reliable and affordable energy and communications services to

rural communities. Farmer Mac's telecommunications portfolio alone achieved more than \$185 million of growth in 2022, and continued investment in broadband projects could result in future growth. Looking ahead, Farmer Mac

anticipates continued strong demand across its Rural Utilities operating segment and remains focused on providing solutions to cooperative lenders to help finance their borrowers' investments in rural utility infrastructure.



RURAL UTILITIES BUSINESS VOLUME & NET EFFECTIVE SPREAD*



*Net effective spread is a non-GAAP measure. For a reconciliation of net effective spread to GAAP net interest income, please refer to "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Farmer Mac's 2022 Annual Report on Form 10-K filed with the SEC.



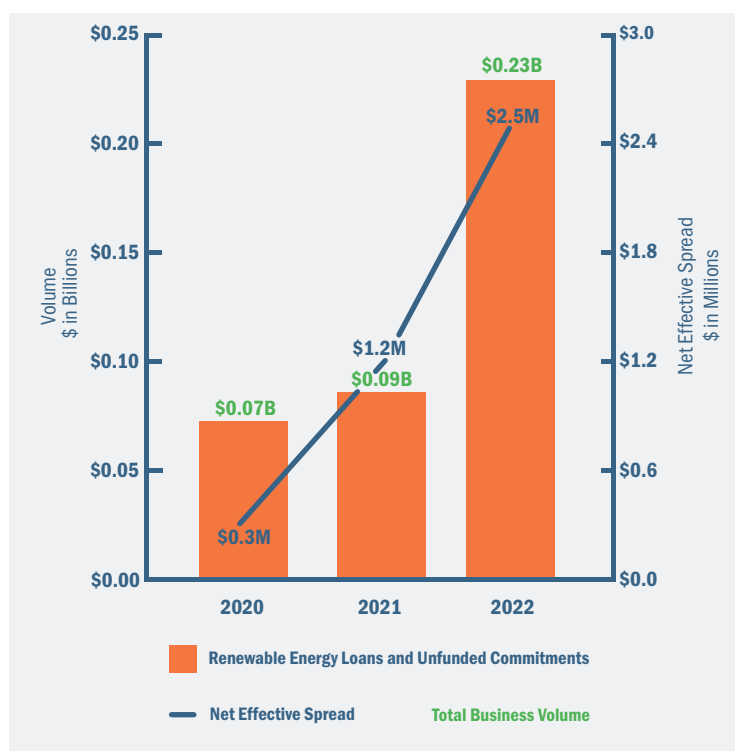
SEGMENT *Renewable Energy*

One pillar in supporting critical energy infrastructure across rural America is the growing and diverse field of renewable energy. Renewable power costs have fallen significantly in recent years with a simultaneous rise in government and corporate interest in renewable infrastructure, heating up this growing market. With its Renewable Energy operating segment, Farmer Mac provides the competitive benefits of a secondary market for financial institutions organized as cooperatives to help finance renewable energy projects generating and distributing energy across rural America.

In 2022, Farmer Mac more than doubled the size of its Renewable Energy portfolio. Looking ahead, the overall market outlook for renewable energy projects is robust, bolstered by continuing federal government support and many state-level plans to increase the production of renewable energy, along with rising corporate and consumer

demand. Farmer Mac will strive to continue to serve as a reliable partner to cooperative lenders in this growing industry to help further the development of critical energy infrastructure and deliver power to rural communities across America.

RENEWABLE ENERGY BUSINESS VOLUME & NET EFFECTIVE SPREAD*



*Net effective spread is a non-GAAP measure. For a reconciliation of net effective spread to GAAP net interest income, please refer to "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Farmer Mac's 2022 Annual Report on Form 10-K filed with the SEC.

More Than Metrics

It all starts with people. Farmer Mac's relentless commitment to rural America springs from a workforce that is passionate about driving positive change. That's why Farmer Mac strives to support our employees and help them to thrive, and why our passion for helping rural America goes above and beyond the work we do in pursuit of our mission.

MAKING MEANINGFUL CHANGE THAT'S ROOTED IN GIVING

We proudly engage in philanthropy as a way to give back to our communities and our country. We focus our efforts on volunteerism that begins in the communities in which we live and work, on providing aid and relief for natural disasters impacting agricultural and rural areas, and on supporting programs aimed at helping small operations and new farmers and ranchers to grow and prosper.

"My elders raised me to believe that the health of our people, our land, and our animals are all interconnected. I plan to use my degree to return to rural and tribal communities in Arizona to uphold our connection with agriculture and support this vital ecosystem. TAF's support means I no longer need to stress about student loan debt as I pursue my veterinary degree so I can help these underserved communities stay on the cutting edge of animal care."

SANTANA NEZ

2022 Tribal Agriculture Fellow



To learn more about TAF, please visit taffellows.org

PROMOTING THE LEGACY OF TRIBAL AGRICULTURE

The mission of the Tribal Agriculture Fellowship program (TAF) is to create opportunities for students to advance their education with the purpose of preserving and promoting the legacy of agriculture in Tribal communities. According to TAF Executive Director Nicole DeVon, "Our non-profit organization works to create sustainable networks and build pathways to pursue further education in

diverse areas of study, such as agribusiness, science, research, and land stewardship. Founded in 2022, TAF recently awarded over \$300,000 in fellowship funding to its first-ever cohort of ten Indigenous students. We thank our founding funders, including Farmer Mac. Their continued generosity has helped TAF grow significantly in our second year to provide eight more students with scholarships that help connect their educational endeavors to community, culture, and identity."

WE ARE ONE FARMER MAC

The positive results Farmer Mac achieves for rural America begin with and are fueled by our employees. Farmer Mac is committed to supporting our talented and driven team by providing competitive benefits and compensation, connecting them with learning and development opportunities, and nurturing a strong, welcoming culture where everyone can bring their best selves to work. Our efforts help make Farmer Mac a top workplace, strengthen our company and our mission achievement, and help drive lasting positive results for rural America.



We are committed to fostering a strong workplace and are proud to be recognized for our efforts on the national stage.



“Farmer Mac is an incredible place to grow personally and professionally and has been nothing short of transformative. The company has fueled my career development since I joined two decades ago as a Junior Loan Administrator, funding my MBA and connecting me to key cross-training opportunities before I stepped into a leadership role. I’m so grateful to work for a company that is making a positive difference in the world through its mission, and that is equally committed to helping its employees achieve their dreams.”

MÁRIO S. MORAIS

Vice President -
Chief Information Security Officer



BOARD OF DIRECTORS

As of April 3, 2023



From Left: Roy Tiarks, Chester Culver, James Engebretsen, Everett Dobrinski, Sara Faivre, Dennis Brack, Richard Davidson, Mitchell Johnson, Lowell Junkins, Todd Ware, LaJuana Wilcher, Charles Stones, Eric McKissack, Robert Sexton, Amy Gales

¹ Presidential Appointee

² Director elected by holders of Class A Common Stock

³ Director elected by holders of Class B Common Stock

LOWELL L. JUNKINS, CHAIR¹

Political Affairs Consultant
Lowell Junkins & Associates
Montrose, Iowa

LAJUANA S. WILCHER, VICE CHAIR¹

Owner – Scuffle Hill Farm
Partner – English, Lucas, Priest & Owsley, LLP
Bowling Green, Kentucky

DENNIS L. BRACK²

Director
Bath State Bank and Bath State Bancorp
Bath, Indiana

CHESTER J. CULVER¹

Founder
Chet Culver Group
West Des Moines, Iowa

RICHARD H. DAVIDSON³

President
Davidson Farms, Inc.
Washington Court House, Ohio

EVERETT M. DOBRINSKI³

Former Owner/Operator
Dobrinski Farm
Makoti, North Dakota

JAMES R. ENGBRETSSEN²

Retired Professor, Finance
Marriott School of Management
Brigham Young University
Provo, Utah

SARA L. FAIVRE¹

Co-Owner and Advisory Partner
Wild Type Ranch
Cameron, Texas

AMY H. GALES³

Retired Executive Vice President
CoBank
Bonita Springs, Florida

MITCHELL A. JOHNSON²

Financial Consultant
Miami, Florida

ERIC T. MCKISSACK²

Former CEO
Channing Capital Management, LLC
Chicago, Illinois

ROBERT G. SEXTON³

President
Oslo Citrus Growers Association
Vero Beach, Florida

CHARLES A. STONES¹

Former President
Kansas Bankers Association
Topeka, Kansas

ROY H. TIARKS³

Owner
Tiarks Family Farm
Council Bluffs, Iowa

TODD P. WARE²

President and Chief Executive Officer
Licking Rural Electrification –
The Energy Cooperative
Newark, Ohio

EXECUTIVE ROUNDTABLE

As of April 3, 2023



BRADFORD T. NORDHOLM

President and
Chief Executive Officer



ZACHARY N. CARPENTER

Executive Vice President –
Chief Business Officer



STEPHEN P. MULLERY

Executive Vice President –
General Counsel and Secretary



APARNA RAMESH

Executive Vice President –
Chief Financial Officer
and Treasurer



BRIAN M. BRINCH

Senior Vice President –
Enterprise Risk Officer



MARC J. CRADY

Senior Vice President –
Chief Credit Officer



SEAN T. DATCHER

Senior Vice President –
Chief Information Officer



ROBERT J. MAINES

Senior Vice President –
Operations



KERRY T. WILLIE

Senior Vice President –
Chief Human
Resources Officer



TODD A. BATTA

Vice President –
Government Affairs



CATHERINE D. BIRR

Chief of Staff



CORPORATE INFORMATION

CORPORATE HEADQUARTERS

1999 K Street, N.W.
Fourth Floor
Washington, DC 20006
Phone: 202.872.7700
800.879.3276
Website: www.farmermac.com

STOCK EXCHANGE

Farmer Mac's Class A voting common stock and Class C non-voting common stock trade on the New York Stock Exchange under the symbols AGM.A and AGM, respectively.



ANNUAL MEETING OF STOCKHOLDERS

Thursday, May 18, 2023, 8:00 a.m. EDT
1999 K Street, N.W.
Fourth Floor, Boardroom
Washington, DC 20006
Dial-In: 888.346.2616
Webcast: www.farmermac.com/investors/events-presentations

Formal notice of the meeting, the proxy statement, and the proxy card are being mailed to each stockholder of record entitled to vote at the meeting simultaneously with the mailing of this Annual Report.

TRANSFER AGENT AND REGISTRAR

American Stock Transfer & Trust Company, LLC
6201 15th Avenue
Brooklyn, NY 11219
Phone: 800.937.5449
Email: help@astfinancial.com
Website: www.astfinancial.com

CERTIFICATION

Farmer Mac has included as Exhibit 31 to its Annual Report on Form 10-K for the fiscal year ended December 31, 2022 filed with the SEC the certifications of the Chief Executive Officer and Chief Financial Officer certifying the quality of Farmer Mac's financial disclosures.

FORM 10-K

Stockholders may obtain, without charge, a copy of Farmer Mac's 2022 Annual Report on Form 10-K, as filed with the SEC on February 24, 2023, from Farmer Mac's website or by contacting Farmer Mac's Secretary at Farmer Mac's Corporate Headquarters.

INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM FOR THE YEAR ENDED DECEMBER 31, 2022

PricewaterhouseCoopers LLP
655 New York Avenue, N.W.
Washington, DC 20001

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

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

For the fiscal year ended December 31, 2022

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



FEDERAL AGRICULTURAL MORTGAGE CORPORATION

(Exact name of registrant as specified in its charter)

Federally chartered instrumentality
of the United States

52-1578738

(State or other jurisdiction of
incorporation or organization)

(I.R.S. employer identification number)

1999 K Street, N.W., 4th Floor,
Washington, DC

20006

(Address of principal executive offices)

(Zip code)

(202) 872-7700

(Registrant's telephone number, including area code)

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

Title of each class	Trading symbol	Exchange on which registered
Class A voting common stock	AGM.A	New York Stock Exchange
Class C non-voting common stock	AGM	New York Stock Exchange
6.000% Fixed-to-Floating Rate Non-Cumulative Preferred Stock, Series C	AGM.PRC	New York Stock Exchange
5.700% Non-Cumulative Preferred Stock, Series D	AGM.PRD	New York Stock Exchange
5.750% Non-Cumulative Preferred Stock, Series E	AGM.PRE	New York Stock Exchange
5.250% Non-Cumulative Preferred Stock, Series F	AGM.PRF	New York Stock Exchange
4.875% Non-Cumulative Preferred Stock, Series G	AGM.PRG	New York Stock Exchange

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

Indicate by check mark 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	<input checked="" type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input type="checkbox"/>	Smaller reporting company	<input type="checkbox"/>
		Emerging growth company	<input type="checkbox"/>

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 has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☒

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 \$958,733,197 as of June 30, 2022, the last business day of the registrant's most recently completed second fiscal quarter, based upon the closing prices for the respective classes on June 30, 2022 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, 2022 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 10, 2023, the registrant had outstanding 1,030,780 shares of Class A voting common stock, 500,301 shares of Class B voting common stock, and 9,270,717 shares of Class C non-voting common stock.

DOCUMENTS INCORPORATED BY REFERENCE

Certain information contained in the registrant's Proxy Statement for the 2023 Annual Meeting of Stockholders is incorporated herein by reference in Part III of this Annual Report on Form 10-K. The Proxy Statement will be filed with the Securities and Exchange Commission within 120 days after the end of the registrant's fiscal year to which this report relates.

Auditor Firm ID: 238 Auditor Name: PricewaterhouseCoopers LLP Auditor Location: Washington DC, USA

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

- prospects for earnings;
- prospects for growth in business volume;
- trends in net interest income and net effective spread;
- trends in portfolio credit quality, delinquencies, substandard assets, credit losses, and provisions for losses;
- assessment of economic and market trends;
- trends in expenses;
- trends in investment securities;
- prospects for asset impairments and allowance for losses;
- changes in capital position;
- future dividend payments; and
- other business and financial matters.

Management's expectations for Farmer Mac's future necessarily involve assumptions, estimates, and the evaluation of risks and uncertainties. Various factors or events, both known and unknown, could cause Farmer Mac's actual results to differ materially from the expectations as expressed or implied by the forward-looking statements, including the factors discussed under "Risk Factors" in Part I, Item 1A of this report, as well as uncertainties about:

- the availability to Farmer Mac of debt and equity financing and, if available, the reasonableness of rates and terms;
- legislative or regulatory developments that could affect Farmer Mac, its sources of business, or agricultural or rural infrastructure industries;
- fluctuations in the fair value of assets held by Farmer Mac and its subsidiaries;
- the level of lender interest in Farmer Mac's products and the secondary market provided by Farmer Mac;
- the general rate of growth in agricultural mortgage and rural infrastructure indebtedness;
- the effect of economic conditions stemming from disruptive global events or otherwise on agricultural mortgage or rural infrastructure lending, borrower repayment capacity, or collateral values, including rapid inflation, fluctuations in interest rates, changes in U.S. trade policies,

fluctuations in export demand for U.S. agricultural products, supply chain disruptions, increases in input costs, labor availability, and volatility in commodity prices;

- the degree to which Farmer Mac is exposed to interest rate risk resulting from fluctuations in Farmer Mac's borrowing costs relative to market indexes;
- developments in the financial markets, including possible investor, analyst, and rating agency reactions to events involving government-sponsored enterprises, including Farmer Mac;
- the effects of the Federal Reserve's efforts to achieve monetary policy normalization and slow inflation; and
- other factors that could hinder agricultural mortgage lending or borrower repayment capacity, including the effects of severe weather and drought, climate change, or fluctuations in agricultural real estate values.

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

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 directly from lenders (including participation interests, syndicated notes, revolving and non-revolving credit facilities, and unfunded commitments to make advances on loans);
- purchasing securities that are issued by lenders and guaranteed by Farmer Mac and that are secured by eligible loans (Farmer Mac refers to these securities as "AgVantage," a registered trademark of Farmer Mac);
- issuing and guaranteeing securities that represent interests in, or obligations secured by, pools of eligible loans (together with AgVantage, Farmer Mac refers to these securities as "Farmer Mac Guaranteed Securities");
- servicing (including as master servicer) eligible loans purchased or securitized by Farmer Mac; 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 of America.

Farmer Mac's two primary 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, 2022, Farmer Mac had \$0.6 billion of discount notes and \$24.4 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 public capital markets and the U.S. agricultural and rural credit markets by attracting additional 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.

Farmer Mac markets a mix of products to lenders who may be in need of capital, liquidity, portfolio diversification, and/or 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 how their use of Farmer Mac's secondary market could further support their origination efforts and drive efficient capital deployment to agricultural communities and rural America. 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 outreach to institutions whose profile may 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 engages in a variety of secondary market activities across its two lines of business, Agricultural Finance and Rural Infrastructure Finance. Within those two lines of business are four segments: Corporate AgFinance, Farm & Ranch, Rural Utilities, and Renewable Energy, as shown in the table below:

	Agricultural Finance		Rural Infrastructure Finance	
	Farm & Ranch	Corporate AgFinance	Rural Utilities	Renewable Energy
Interest-earning assets				
Loans	X	X	X	X
Loans held in securitization trusts ¹	X			
AgVantage Securities ¹	X	X	X	
Interest-only portions of agricultural mortgage-backed securities ("IO") ¹	X			
USDA Securities	X			
Products and services that earn fee income				
LTSPCs	X		X	
Unfunded commitments	X	X	X	X
Structured securitization transactions ¹	X			
Securitized loan servicing	X			
Other Farmer Mac Guaranteed Securities ¹	X		X	

¹ These categories comprise "Farmer Mac Guaranteed Securities."

The loans (and interests in those loans) eligible for Farmer Mac's secondary market activities in each of Farmer Mac's lines of business include:

- For Farmer Mac's Agricultural Finance line of business, mortgage loans secured by first liens on real estate used in agricultural production or processing, including part-time farms and rural housing loans, as well as agricultural and rural development loans guaranteed by the United States Department of Agriculture ("USDA"); and
- For Farmer Mac's Rural Infrastructure Finance line of business, loans by lenders organized as cooperatives to finance electrification and telecommunications systems and renewable energy providers or projects in rural areas.

As of December 31, 2022, the total outstanding business volume in Farmer Mac's two lines of business (Agricultural Finance and Rural Infrastructure Finance) was \$25.9 billion. The following table presents the outstanding balances under Farmer Mac's two lines of business as of December 31, 2022 and 2021:

Lines of Business - Outstanding Business Volume

	On or Off Balance Sheet	As of December 31, 2022	As of December 31, 2021
<i>(in thousands)</i>			
Agricultural Finance:			
Farm & Ranch:			
Loans	On-balance sheet	\$ 5,150,750	\$ 4,775,070
Loans held in consolidated trusts:			
Beneficial interests owned by third-party investors (Pass-Through) ¹	On-balance sheet	914,918	948,623
Beneficial interests owned by third-party investors (Structured) ¹	On-balance sheet	296,658	—
IO-FMGS ²	On-balance sheet	10,622	12,297
USDA Securities	On-balance sheet	2,407,302	2,445,806
AgVantage Securities ¹	On-balance sheet	5,605,000	4,725,000
LTSPCs and unfunded commitments	Off-balance sheet	2,822,309	2,587,154
Other Farmer Mac Guaranteed Securities ³	Off-balance sheet	500,953	578,358
Loans serviced for others	Off-balance sheet	20,280	22,331
Total Farm & Ranch		\$ 17,728,792	\$ 16,094,639
Corporate AgFinance:			
Loans	On-balance sheet	\$ 1,166,253	\$ 1,123,300
AgVantage Securities ¹	On-balance sheet	359,600	367,464
Unfunded commitments	Off-balance sheet	77,654	47,070
Total Corporate AgFinance		\$ 1,603,507	\$ 1,537,834
Total Agricultural Finance		\$ 19,332,299	\$ 17,632,473
Rural Infrastructure Finance:			
Rural Utilities:			
Loans	On-balance sheet	\$ 2,801,696	\$ 2,302,373
AgVantage Securities ¹	On-balance sheet	3,044,156	3,033,262
LTSPCs and unfunded commitments	Off-balance sheet	512,592	556,837
Other Farmer Mac Guaranteed Securities ³	Off-balance sheet	1,169	2,755
Total Rural Utilities		\$ 6,359,613	\$ 5,895,227
Renewable Energy:			
Loans	On-balance sheet	\$ 219,570	\$ 86,763
Unfunded commitments	Off-balance sheet	10,600	—
Total Renewable Energy		\$ 230,170	\$ 86,763
Total Rural Infrastructure Finance		\$ 6,589,783	\$ 5,981,990
Total		\$ 25,922,082	\$ 23,614,463

1. A Farmer Mac Guaranteed Security.

2. An interest-only Farmer Mac Guaranteed Security retained as part of a structured securitization.

3. Other categories of Farmer Mac Guaranteed Securities that were sold by Farmer Mac to third parties.

Agricultural Finance

Farmer Mac provides a secondary market for eligible loans in Farmer Mac's Agricultural Finance line of business by (1) purchasing and retaining eligible loans and securities, (2) guaranteeing the payment of principal and interest on securities that represent interests in, or obligations secured by, pools of eligible loans, (3) servicing (including as master servicer) eligible loans purchased or securitized by Farmer Mac, and (4) issuing LTSPCs for designated eligible loans. 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, servicing fees on securitized loans, and commitment fees earned on loans in LTSPCs and on unfunded loan commitments.

Loan Eligibility

To be eligible for the Agricultural Finance line of business, a loan must either:

- be an agricultural mortgage loan (referred to as "Agricultural Finance mortgage loans") that is
 - secured by a fee simple mortgage or a leasehold mortgage with status as a first lien on agricultural real estate (including part-time farms and rural housing) located within the United States; and
 - 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 that, in each case, has training or farming experience that is sufficient to ensure a reasonable likelihood that the loan will be repaid according to its terms; *or*
- be the guaranteed portion of a loan guaranteed by the USDA under the Consolidated Farm and Rural Development Act (7 U.S.C. § 1921 et seq.) (referred to as "USDA Securities").

Farmer Mac's charter authorizes a maximum loan size (adjusted annually for inflation) for an eligible Agricultural Finance mortgage loan secured by more than 2,000 acres of agricultural real estate. That maximum loan size was \$15.9 million as of December 31, 2022. The charter does not prescribe a maximum loan size or a total borrower exposure for an eligible Agricultural Finance mortgage loan secured by 2,000 acres or less of agricultural real estate. However, 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 loans secured by 2,000 acres or less of agricultural real estate to 10% of Farmer Mac's Tier 1 capital (\$132.3 million as of December 31, 2022). For Agricultural Finance mortgage loans, eligible agricultural real estate consists of one or more parcels of land, which may be improved by permanently affixed buildings or other structures, that (i) is used for the production of one or more agricultural commodities or products and (ii) either consists of a minimum of five acres or generates minimum annual receipts of \$5,000.

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 all Agricultural Finance mortgage loans:

- 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.

Underwriting and Collateral Standards - Farm & Ranch

Farmer Mac experiences direct credit exposure to borrowers on Agricultural Finance mortgage loans in its Farm & Ranch reportable operating segment (referred to as "Farm & Ranch loans") through its loan purchases, unfunded commitments, LTSPCs, and Farmer Mac Guaranteed Securities that represent interests in, or obligations secured by, pools of eligible Farm & Ranch loans but that are not AgVantage securities ("Farm & Ranch Guaranteed Securities"). 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.

Farm & Ranch loans typically are required to meet specific underwriting criteria established by Farmer Mac or demonstrate compensating strengths 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.

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. Farmer Mac purchases nearly all of its USDA Securities through Farmer Mac II LLC, a subsidiary of Farmer Mac that operates substantially all of the business related to Farmer Mac's USDA Securities.

Underwriting and Collateral Standards - Corporate AgFinance

Farmer Mac experiences direct credit exposure to borrowers on Agricultural Finance mortgage loans in Farmer Mac's Corporate AgFinance reportable operating segment (referred to as "Corporate AgFinance loans") through its loan purchases and unfunded commitments. Farmer Mac applies credit underwriting standards and methodologies to help assess exposures to Corporate AgFinance loans, which may include cash flow, leverage, and liquidity assessment, financial metrics analysis, collateral valuation, and other appropriate borrower financial and credit information.

Corporate AgFinance loans tend to be larger and more complex farming operations than Farm & Ranch loans (generally more than \$10 million) and typically are loans made to agribusinesses focused on agriculture production, food and fiber processing, and other supply chain production. Thus, Corporate AgFinance loans often have a different credit risk profile than Farm & Ranch loans. Farmer Mac has implemented methodologies and parameters to help assess credit risk and has established specific underwriting criteria for Corporate AgFinance loans based on the sector, borrower construct, and transaction complexity. Due to the larger loan sizes and different credit risk profiles, Farmer Mac thoroughly analyzes each prospective Corporate AgFinance loan, including assessing the borrower's leverage, cash flows, liquidity, and revenue and margin trends, as well as evaluating the borrower's suppliers, customers, market share, and competition. Any underlying weaknesses are assessed and analyzed in conjunction with any compensating strengths. Corporate AgFinance loans also typically require ongoing monitoring of reporting requirements and financial and non-financial covenants. Farmer Mac relies on the experience of internal underwriters with the expertise to analyze large, complex farming operations and agribusiness loans, along with collateral valuation contractors, and legal counsel to perform the necessary diligence to assess the overall credit risk and loan structures of these transactions.

Lenders

Farmer Mac approves lenders into its network of Farm & Ranch loan sellers based on an assessment of the lender's credit profile, which may include factors such as the institution's credit rating, origination history, or financial profile. Most lenders that participate in Farmer Mac's secondary market for Farm & Ranch loans meet prescribed criteria that Farmer Mac establishes for loan-selling counterparties, 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 Farm & Ranch loans and service those loans in accordance with Farmer Mac's requirements either through the lender's own staff or through contractors and originators, as well as have appropriate internal controls, policies, and procedures;
- maintain a minimum amount of net liquidity or appropriate credit enhancements; 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.

Any lender authorized by the USDA to obtain a USDA guarantee on a loan may participate in Farmer Mac's secondary market for USDA Securities.

Farmer Mac purchases Corporate AgFinance loans and unfunded commitments from a diverse set of lenders that support financing of the agriculture sector. Lenders may be existing Farm & Ranch lenders that have larger, more complex borrowers in their territories, as well as larger financial and non-bank institutions, such as national and regional banks, insurance companies, Farm Credit System institutions, and other non-traditional lending organizations, that structure and originate transactions for larger, more complex farming operations and agribusinesses.

Farmer Mac evaluates each lender that originates Corporate AgFinance loans to assess the experience and capabilities of the lender's ability to originate, structure, distribute, and monitor Corporate AgFinance transactions. In many instances, Farmer Mac will purchase loans and unfunded commitments from lenders that structure and arrange large, syndicated transactions involving numerous lenders that are necessary to support the larger transaction loan size. In these cases, Farmer Mac typically assesses each arranger's capabilities and experience in arranging syndicated loans. Because Corporate AgFinance loans are typically offered to Farmer Mac without or with few representations and warranties, Farmer Mac places a greater emphasis on underwriting and legal documentation due diligence in connection with its purchase of these loans to mitigate risks associated with the transaction, including loan documentation, borrower eligibility, and loan data.

Loan Servicing

During 2021, Farmer Mac began servicing a sizeable portion of the Agricultural Finance mortgage loan and USDA Securities portfolios through a strategic acquisition of loan servicing rights along with experienced servicing personnel and an operational servicing platform. Farmer Mac also continues to contract with other institutions to undertake most of the servicing responsibilities for the remaining portion of its Agricultural Finance mortgage 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. For Farm & Ranch loans for which the servicer is not the originating lender, 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.

For Farmer Mac's USDA Securities, 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 of that loan), and to remain mortgagee and/or secured party of record, if applicable. 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.

Other Products - Agricultural Finance

AgVantage Securities

Under the AgVantage securities product line, Farmer Mac guarantees and purchases securities issued by lenders and other financial institutions (including financial funds and real estate investment funds) that are secured by pools of eligible loans. Typically, Farmer Mac retains AgVantage securities in its portfolio. Most of the AgVantage securities in Farmer Mac's Agricultural Finance line of business are securities issued by agricultural lenders that are secured by pools of Farm & Ranch loans. The AgVantage securities in the Agricultural Finance line of business also include securities issued by other financial institutions (including financial funds and institutional real estate investors) secured by mortgage loans that generally have different credit profiles, structural characteristics, and loan terms than typical Farm & Ranch loans. The loans serving as collateral for these AgVantage securities require a more comprehensive underwriting that more closely approximates Farmer Mac's underwriting for Corporate AgFinance loans.

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 and loan underwriting standards. 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 generally required to remove from the pool of pledged collateral any loan that becomes and remains delinquent in the payment of principal or interest and to replace the delinquent loan with another eligible loan that is current in payment or to pay down the AgVantage securities to maintain the minimum required collateralization level.

For AgVantage securities secured by loans eligible for Farmer Mac's Agricultural Finance 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 Agricultural Finance mortgage loans currently ranges from 103% to 125%. The required collateralization level is determined based on credit factors related to the issuer and the credit profile of the loans serving as collateral, 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 eligible Agricultural Finance mortgage 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.

Guarantees

Farmer Mac offers two credit enhancement alternatives to direct loan purchases for Farm & Ranch loans 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 LTSPCs and Farm & Ranch Guaranteed Securities, the lender effectively transfers the credit risk on their eligible loans because, through Farmer Mac's commitment to purchase the loan (in the case of LTSPCs) or Farmer Mac's guarantee (in the case of Farm & Ranch Guaranteed Securities), Farmer Mac assumes the ultimate credit risk of borrower defaults on the related loans.

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 and are serviced by the holders of those loans in accordance with those lenders' servicing procedures, which Farmer Mac reviews before entering into those transactions. 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 cash or 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 held by a trust or other entity. Farmer Mac guarantees principal and interest payments on the securities in the event of a payment shortfall due to default and either retains these securities or arranges for their sale to third parties. As consideration for its assumption of credit risk on the assets underlying the Farm & Ranch Guaranteed Securities, Farmer Mac receives guarantee fees based on the outstanding principal balance of the securities it guarantees. Some Farm & Ranch Guaranteed Securities transactions include a smaller, subordinate tranche of securities issued to third parties that are not guaranteed by Farmer Mac, which helps to offset Farmer Mac's credit risk on these transactions.

Farmer Mac is obligated under its guarantee on the securities to make payments to investors of interest and principal (including balloon payments), 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.

From time to time, Farmer Mac issues and guarantees securities backed by USDA Securities that it has purchased and also guarantees securities issued by Farmer Mac II LLC backed by USDA Securities that it has purchased. 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.

Rural Infrastructure Finance

Farmer Mac's charter authorizes the purchase of, and guarantee of securities backed by, loans for electric (including renewable electric energy) or telecommunications 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 refers to eligible loans made to an electric distribution facility, an electric generation and transmission facility, or a telecommunications facility as "Rural Utilities loans" and refers to eligible loans made to renewable electric energy facilities as "Renewable Energy loans."

Farmer Mac's Rural Infrastructure Finance line of business encompasses purchases of Rural Utilities loans and Renewable Energy loans and guarantees of securities backed by those loans, as well as LTSPCs for pools of eligible Rural Utilities loans. The vast majority of Farmer Mac's business to date under the Rural Infrastructure Finance line of business has involved Rural Utilities loans made to electric facilities (primarily electric distribution cooperatives and electric generation and transmission cooperatives). During 2022, Farmer Mac purchased \$231.0 million of loans and loan commitments to telecommunications companies that provide wireless, cable, fiber transport, and broadband services to rural America as part of its strategic initiative to provide further support for the telecommunications industry. Also during 2022,

Farmer Mac purchased \$147.3 million of Renewable Energy loans as part of its strategic initiative to support rural renewable energy projects.

Underwriting and Collateral Standards

Farmer Mac's charter does not specify minimum underwriting criteria for eligible Rural Utilities or Renewable Energy 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 Infrastructure Finance 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 and Renewable Energy loans and are designed to assess the creditworthiness of the borrower, as well as the risk to Farmer Mac.

For Rural Utilities loans, 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 will result 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. 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.

For a Renewable Energy loan, Farmer Mac has direct credit exposure to the related standalone renewable energy project. These projects are typically financed on a non-recourse or limited recourse basis and underwritten on a projection basis with significant reliance placed on assumptions used in each project's analysis. Farmer Mac has implemented methodologies and parameters to assess credit risk and has established specific underwriting criteria based on the project and transaction construct and complexity. Farmer Mac thoroughly analyzes each prospective Renewable Energy loan. Farmer Mac performs quantitative assessments typically focused on projected debt service requirements, term and amortization review, interest rate sensitivity, and collateral analysis. Farmer Mac also performs qualitative assessments typically focused on the project sponsor's credentials and experience, off-take (cash flow) considerations, and concentration and other market considerations. Farmer Mac also typically undertakes a review of the project contracts and agreements for each Renewable Energy loan. Renewable Energy loans are typically secured by a first lien on the borrower's project assets, an assignment of the project contracts and agreements, a land or leasehold interest, and in certain cases, a pledge of the equity interests in the borrower entity. Farmer Mac's enforcement rights in any collateral securing a Renewable Energy loan may be subject to tax equity interests in the borrower's renewable energy project.

Lenders and Loan Servicing

Farmer Mac's charter requires loans in Farmer Mac's Rural Infrastructure Finance line of business to involve a lender organized as a cooperative. Farmer Mac does not directly service the Rural Utilities or Renewable Energy loans held in its portfolio. Typically, these loans are serviced by the lender or other organization designated by Farmer Mac that has experience in servicing loans to utilities and renewable energy providers and in the context of project finance, as applicable.

Other Products - Rural Infrastructure Finance

AgVantage Securities

Farmer Mac's portfolio of AgVantage securities in its Rural Infrastructure Finance line of business includes securities issued by cooperative lenders that are secured by pools of Rural Utilities loans. For these AgVantage securities, Farmer Mac requires:

- the counterparty issuing the general obligation to have a credit rating from a nationally-recognized statistical rating organization ("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 Rural Utilities borrowers on which Farmer Mac assumes direct credit exposure also apply to loans made to Rural Utilities borrowers that secure the AgVantage securities. 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).

COMPETITION

Farmer Mac is the only federally-chartered corporation established to provide a secondary market for agricultural mortgage loans, rural infrastructure loans, and USDA Securities, but faces competition from other entities that purchase, retain, securitize, or provide financing for the types of assets eligible for Farmer Mac's secondary market activities. These entities include 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 that 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. The relative competitiveness of Farmer Mac's loan rates and Farmer Mac's ability to develop business with lending institutions are affected by many factors, including:

- the overall supply of capital available to agricultural and rural infrastructure borrowers;
- the types and variety of products offered by Farmer Mac's competitors to meet the needs of Farmer Mac's customer base;
- changes in the levels of available capital and liquidity of lending institutions;
- the existence of alternative sources of funding and credit enhancement for lending institutions;
- the rate of growth in the market for eligible loans; and
- demand for Farmer Mac's products.

Because Farmer Mac's charter limits Farmer Mac's business to secondary-market activities, Farmer Mac's competitive position is affected by the willingness of originators to offer eligible loans for sale in the secondary market or to utilize Farmer Mac for funding syndicated or participated loans. The charter's limits on loan size for some Agricultural Finance mortgage loans, as well as the types of loans that are eligible for Farmer Mac's lines of business, also affect Farmer Mac's competitive position. For more information on government regulation of Farmer Mac, see "Business—Government Regulation of Farmer Mac."

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, as described below. 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.

- Presidential appointments. Five members of Farmer Mac's 15-member 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 with no set term.
- 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, so shares of this class are freely transferable. Farmer Mac uses Class C non-voting common stock for awards of equity-based compensation to officers, directors, and selected employees as part of the company's compensation programs. Holders of the Class C non-voting 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.

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 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"), 5.750% Non-Cumulative Preferred Stock, Series E ("Series E Preferred Stock"), 5.250% Non-Cumulative Preferred Stock, Series F ("Series F Preferred Stock"), 4.875% Non-Cumulative Preferred Stock, Series G ("Series G 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 sell Agricultural Finance mortgage loans to Farmer Mac. 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."

HUMAN CAPITAL

As of December 31, 2022, Farmer Mac employed 158 people, with 23 new employees hired during the year resulting in a net increase of 5 employees (3%) compared to year-end 2021. Farmer Mac primarily employs full-time employees to meet its business needs as it grows and evolves while supplementing human capital needs with part-time employees (including interns) and independent contractors and consultants as needed.

Farmer Mac has experienced a geographic evolution in its workforce during the last three years and now employs personnel in 26 states across the United States. This represents a 73% increase in geographic diversity (by state) since the start of the COVID-19 pandemic. As of December 31, 2022, 89 full-time employees were located in the Washington, D.C. area, 27 full-time employees were located in the Johnston, Iowa area, and 42 full-time employees worked on a fully remote basis in other parts of the United States.

Workplace Culture

The COVID-19 pandemic continues to motivate many organizations, including Farmer Mac, to focus on how and where people work and to reassess physical workspace needs. In 2022, Farmer Mac advanced its philosophy about how and where its employees should work, moving toward a "Presence with Purpose"

model. This hybrid work approach, which is grounded in the three core principles of community, collaboration, and communication, relies on managers and leaders to consider their unique team circumstances and determine an appropriate cadence for purposeful in-person presence. This has allowed leadership to leverage the collaborative benefits that cannot be fully replicated remotely while still being flexible with the unique needs of each team and employee. To ensure continuity in regular communication, Farmer Mac has continued to reinforce employees' access to secure digital meeting platforms, and its senior executive team has continued to lead regular meetings of all employees to share pertinent information on Farmer Mac's business and operations and to provide a forum for discussing issues. Farmer Mac was recognized in 2022 by Top Workplaces USA for Cultural Excellence in the categories of Innovation, Employee Appreciation, Leadership, and Compensation & Benefits.

Compensation & Benefits

As a financial services organization, Farmer Mac must attract and retain a highly skilled workforce in an often competitive employment environment. We use traditional methods to attract and retain talent, such as competitive salaries and benefits that include:

- a robust paid time off program (up to 5 weeks of vacation, 2 weeks of sick leave, 11 paid holidays, 12 weeks pregnancy leave, and 4 weeks parental leave);
- a group health plan with all premiums paid by Farmer Mac;
- a 401(k) plan that provides for both voluntary employee contributions and employer contributions at the levels described in Note 11 to the consolidated financial statements;
- group term life insurance and long-term disability insurance with all premiums paid by Farmer Mac;
- pre-tax dependent care reimbursement;
- partially-funded health savings accounts;
- access to group rates for legal services insurance, additional life insurance, and pet insurance; and
- professional and career development opportunities and programs.

Talent Acquisition and Development

Farmer Mac is committed to the professional and career development of all employees. "Farmer Mac LEARN" is a program that Farmer Mac launched in 2022 to provide a comprehensive suite of learning and development services to maximize the learning effectiveness in the business. Farmer Mac LEARN includes online modules focused on new employee onboarding, business training, competency development, leadership development, and career development. During 2022, strategic focus was placed on new employee onboarding and leadership development, including specialized programs and online courses in each category. In addition to Farmer Mac LEARN, Farmer Mac made investments in multiple digital learning platforms in 2022 and continues to offer an education assistance plan for employees with at least one year of full-time employment.

As part of its workforce strategy, Farmer Mac is building intern and talent pipelines through partnership with academic institutions, community organizations, and business partners. Farmer Mac also places strategic focus on succession planning, and detailed succession plans are crafted in partnership with key leaders in the business to identify and develop high potential leaders to promote career readiness for expanded responsibilities and roles in Farmer Mac.

Farmer Mac experienced a 12.3% turnover rate in 2022, which was up from 7.3% in 2021, largely a result of a highly-competitive employment market.

Philanthropy

Farmer Mac's mission to serve agricultural and rural communities, as well as philanthropic activities undertaken in support of its mission, provide Farmer Mac an advantage in its effort to attract and retain talent. Farmer Mac's philanthropic philosophy centers on supporting agriculture and rural communities and supporting the next generation of farmers and ranchers and financial professionals, including in the communities where our employees live.

Code of Business Conduct and Ethics

Farmer Mac's onboarding program includes a mandatory compliance session for every new hire and contract consultant within their first week. All employees also take annual training on and recertification of our Code of Business Conduct and Ethics, which encompasses the following core principles: (1) promoting a safe workplace and a respectful and inclusive culture, (2) conducting business lawfully, fairly, and objectively, (3) communicating responsibly and protecting information, (4) conducting business diligently and being a good corporate citizen, and (5) how to report actual or suspected misconduct. Farmer Mac's Code of Business Conduct and Ethics was refreshed in May 2022 while maintaining this principles-based approach. Our Code of Business Conduct and Ethics is available at www.farmermac.com and is not incorporated by reference into this report.

Diversity, Equity, and Inclusion

Farmer Mac's diversity, equity, and inclusion ("DEI") council was formed in late 2020 at the direction of Farmer Mac's board of directors and senior executives. The DEI council consists of 12 rotating Farmer Mac employees with the assistance of outside DEI consultants. In 2022, Farmer Mac continued to strengthen its focus on DEI efforts within Farmer Mac's workforce by executing its multiyear strategic plan with a focus during 2022 on enterprise-wide education.

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 acquired through foreclosure (known as "real estate owned" or "REO"), 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, 2022, this reserve against losses arising from Farmer Mac's guarantee activities was \$119.6 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 expected 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, which includes 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(h), Note 8, and Note 12 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 supply of liquidity. 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 medium-term 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 0.5 years to 25.0 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 Farmer Mac'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, 2022, 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
- 9,270,265 shares of Class C non-voting common stock.

During first quarter 2020, Farmer Mac repurchased approximately 4,000 shares of Class C non-voting common stock at a cost of approximately \$0.2 million under a share repurchase program that Farmer Mac's board of directors approved in 2015 and modified in 2019. Shortly after these repurchases were completed, Farmer Mac indefinitely suspended its share repurchase program in an effort to preserve capital and liquidity in view of market volatility and uncertainty caused by the COVID-19 pandemic. In March 2021, Farmer Mac's board of directors reinstated the share repurchase program on its previous terms (with a remaining authorization of up to \$9.8 million in stock repurchases) and recently extended the expiration date of the program to March 2025. As of December 31, 2022, Farmer Mac had repurchased approximately 673,000 shares of Class C non-voting common stock at a cost of approximately \$19.8 million under the share repurchase program since 2015.

The following table presents the dividends declared on Farmer Mac's common stock during and after 2022:

Date Dividend Declared	Per Share Amount	For Holders Of Record As Of	Date Paid
February 24, 2022	\$0.95	March 16, 2022	March 31, 2022
May 18, 2022	\$0.95	June 15, 2022	June 30, 2022
August 10, 2022	\$0.95	September 15, 2022	September 30, 2022
November 9, 2022	\$0.95	December 15, 2022	December 31, 2022
February 22, 2023	\$1.10	March 16, 2023	*

* The dividend declared on February 22, 2023 is scheduled to be paid on March 31, 2023.

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, 2022, the following shares of Farmer Mac preferred stock were outstanding:

- 3,000,000 shares of Series C Preferred Stock, all of which were issued in June 2014;
- 4,000,000 shares of Series D Preferred Stock, all of which were issued in May 2019;
- 3,180,000 shares of Series E Preferred Stock, all of which were issued in May 2020;
- 4,800,000 shares of Series F Preferred Stock, all of which were issued in August 2020; and
- 5,000,000 shares of Series G Preferred Stock, all of which were issued in May 2021.

The Series C Preferred Stock, Series D Preferred Stock, Series E Preferred Stock, Series F Preferred Stock, and Series G Preferred Stock, (collectively, "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 more 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 D Preferred Stock, Series E Preferred Stock, Series F Preferred Stock, and Series G Preferred Stock pay an annual dividend rate fixed at 5.700%, 5.750%, 5.250%, and 4.875%, 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 C Preferred Stock, Series D Preferred Stock, Series E Preferred Stock, Series F Preferred Stock, and Series G 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 C Preferred Stock on and any time after July 18, 2024, the Series D Preferred Stock on and after July 17, 2024, the Series E Preferred Stock on and after July 17, 2025, the Series F Preferred Stock on and after October 17, 2025, and the Series G Preferred Stock on and any time after July 17, 2026, all at a price equal to the then-applicable liquidation preference. Any redemption date for the Series D, Series E, Series F, or Series G Preferred Stock must be a scheduled quarterly dividend payment date. 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 C Preferred Stock during and after 2022:

Date Dividend Declared	Per Share Amount	For Period Beginning	For Period Ending	Date Paid
February 24, 2022	\$0.3750	January 18, 2022	April 17, 2022	April 17, 2022
May 18, 2022	\$0.3750	April 18, 2022	July 17, 2022	July 17, 2022
August 10, 2022	\$0.3750	July 18, 2022	October 17, 2022	October 17, 2022
November 9, 2022	\$0.3750	October 18, 2022	January 17, 2023	January 17, 2023
February 22, 2023	\$0.3750	January 18, 2023	April 17, 2023	*

* The dividend declared on February 22, 2023 is scheduled to be paid on April 17, 2023.

The following table presents the dividends declared and paid on Series D Preferred Stock during and after 2022:

Date Dividend Declared	Per Share Amount	For Period Beginning	For Period Ending	Date Paid
February 24, 2022	\$0.35625	January 18, 2022	April 17, 2022	April 17, 2022
May 18, 2022	\$0.35625	April 18, 2022	July 17, 2022	July 17, 2022
August 10, 2022	\$0.35625	July 18, 2022	October 17, 2022	October 17, 2022
November 9, 2022	\$0.35625	October 18, 2022	January 17, 2023	January 17, 2023
February 22, 2023	\$0.35625	January 18, 2023	April 17, 2023	*

* The dividend declared on February 22, 2023 is scheduled to be paid on April 17, 2023.

The following table presents the dividends declared and paid on Series E Preferred Stock during and after 2022:

Date Dividend Declared	Per Share Amount	For Period Beginning	For Period Ending	Date Paid
February 24, 2022	\$0.359375	January 18, 2022	April 17, 2022	April 17, 2022
May 18, 2022	\$0.359375	April 18, 2022	July 17, 2022	July 17, 2022
August 10, 2022	\$0.359375	July 18, 2022	October 17, 2022	October 17, 2022
November 9, 2022	\$0.359375	October 18, 2022	January 17, 2023	January 17, 2023
February 22, 2023	\$0.359375	January 18, 2023	April 17, 2023	*

* The dividend declared on February 22, 2023 is scheduled to be paid on April 17, 2023.

The following table presents the dividends declared and paid on Series F Preferred Stock during and after 2022:

Date Dividend Declared	Per Share Amount	For Period Beginning	For Period Ending	Date Paid
February 24, 2022	\$0.3281250	January 18, 2022	April 17, 2022	April 17, 2022
May 18, 2022	\$0.3281250	April 18, 2022	July 17, 2022	July 17, 2022
August 10, 2022	\$0.3281250	July 18, 2022	October 17, 2022	October 17, 2022
November 9, 2022	\$0.3281250	October 18, 2022	January 17, 2023	January 17, 2023
February 22, 2023	\$0.3281250	January 18, 2023	April 17, 2023	*

* The dividend declared on February 22, 2023 is scheduled to be paid on April 17, 2023.

The following table presents the dividends declared and paid on Series G Preferred Stock during and after 2022:

Date Dividend Declared	Per Share Amount	For Period Beginning	For Period Ending	Date Paid
February 24, 2022	\$0.3046875	January 18, 2022	April 17, 2022	April 17, 2022
May 18, 2022	\$0.3046875	April 18, 2022	July 17, 2022	July 17, 2022
August 10, 2022	\$0.3046875	July 18, 2022	October 17, 2022	October 17, 2022
November 9, 2022	\$0.3046875	October 18, 2022	January 17, 2023	January 17, 2023
February 22, 2023	\$0.3046875	January 18, 2023	April 17, 2023	*

* The dividend declared on February 22, 2023 is scheduled to be paid on April 17, 2023.

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 to fulfill 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 \$119.6 million as of December 31, 2022); 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, 2022, 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, 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 authorize Farmer Mac to purchase, and guarantee securities backed by, USDA Securities;
- 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 agricultural mortgage 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

General Requirements. Farmer Mac's charter establishes three capital standards for Farmer Mac:

- Statutory minimum capital requirement. 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.
- Statutory critical capital requirement. Farmer Mac's critical capital level is an amount of core capital equal to 50% of the total minimum capital requirement at that time.
- Risk-based capital. 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, 2022 was \$204.2 million, and Farmer Mac's regulatory capital of \$1.3 billion exceeded that amount by approximately \$1.1 billion. 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, 2022, 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 Agricultural Finance and Rural Infrastructure Finance 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, 2022, Farmer Mac's Tier 1 capital ratio was 14.9%. 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.

Liquidity Requirements

Liquidity Reserve Requirement and Supplemental Liquidity. Farmer Mac's Liquidity and Investment Regulations require that Farmer Mac maintain at all times a liquidity reserve sufficient to fund at least

90 days of the principal portion of maturing obligations and other borrowings. Farmer Mac may also maintain supplemental liquidity to fund obligations and borrowings maturing after 90 days. The investments that Farmer Mac holds as its liquidity reserve and as supplemental liquidity must consist of unencumbered and readily marketable assets that are diversified in accordance with categories prescribed by FCA, including limitations on asset class, dollar amount, issuer concentration, and credit quality. Farmer Mac must report, in writing, to OSMO no later than the next business day following the discovery of any breach of Farmer Mac's minimum liquidity reserve requirement.

Liquidity Management. Under the Liquidity and Investment Regulations, Farmer Mac must develop and approve annually a liquidity policy that outlines Farmer Mac's purpose and objectives for liquidity reserves, diversification requirements for liquidity reserves, target liquidity levels, maximum investment amounts as a percentage of Farmer Mac's program assets, exception parameters (and approval requirements), delegations of investment authority, and reporting requirements to Farmer Mac's board of directors and to OSMO. The regulations also require Farmer Mac to develop a liability maturity management plan and a contingency funding plan, each of which must be reviewed and approved annually by Farmer Mac's board of directors.

See "Management's Discussion and Analysis of Financial Condition and Results of Operations—Liquidity and Capital Resources" for more information about Farmer Mac's liquidity and "Management's Discussion and Analysis of Financial Condition and Results of Operations—Risk Management—Credit Risk—Other Investments" for more information about Farmer Mac's eligible investments.

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, rural infrastructure industries, access to the capital markets, the regulatory environment, the level of prevailing interest rates and overall market conditions. The following risk factors should be considered along with "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Item 7 of this report, 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, or results of operations could be materially and adversely affected. Farmer Mac undertakes no obligation to update or revise this risk factor discussion, unless required by applicable law.

Credit and Counterparty Risk

Economic stress caused by disruptive global events, such as the continuing COVID-19 pandemic, geopolitical instability, and natural or human-caused disasters, may materially and adversely affect Farmer Mac's business, operations, operating results, financial condition, liquidity, or capital levels and may heighten other risk factors in this report.

In a tightly-linked global economy, recent or continuing disruptive global events have contributed and may continue to contribute to economic stress on America's agricultural producers and rural infrastructure by disrupting or transforming markets, systems, or resources that America's farmers, ranchers, and rural service providers rely on to remain profitable. This includes supply chain disruptions that prevent producers from accessing critical resources or that inhibit exports, inflationary effects that put downward pressure on demand for agricultural products or that may increase production expenses, and rising interest rates that may increase the risk that Farmer Mac's borrowers may default on their loans. For example, the COVID-19 pandemic, the conflict between Russia and Ukraine, and natural disasters have all contributed to recent or current economic stress on producers and service providers in rural America. Depending on the severity and frequency of these types of disruptive events, as well as the capability of governments and global markets to effectively mitigate the resulting negative effects, a prolonged period of economic stress, including a broader economic downturn or recession, could ensue from these events, which could increase stress on Farmer Mac's borrowers and their ability to remain profitable and make payments on their loans.

Farmer Mac assumes the ultimate credit risk of borrower defaults on its agricultural mortgage and rural infrastructure 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 value of the available collateral does not cover Farmer Mac's exposure, and could materially and adversely affect Farmer Mac's business, operations, operating results, financial condition, liquidity, or capital levels. The occurrence of these disruptive events and resulting negative economic effects may also heighten other risk factors described in this report.

Climate change and the occurrence of weather-related events, or other natural or environmental disasters could have a material adverse effect on Farmer Mac's business, operating results, or financial condition.

In addition to the general risks posed by adverse weather conditions, Farmer Mac's exposure to credit risk and the market value of loan collateral is potentially subject to risks associated with the long-term effects of climate change, as farmers and ranchers face increasing, as well as increasingly-severe, weather incidents. The U.S. experienced 18 separate billion-dollar weather disasters in 2022, tied for the third-highest level in the 40 years tracked by the National Oceanic and Atmospheric Administration behind only 2020 (22) and 2021 (20). Many climatologists predict increases in average temperatures, more extreme temperatures, and increases in volatile weather over time. These physical changes may prompt changes in regulations or consumer preferences, which in turn could have negative consequences for the business models of borrowers, such as increasing costs, reducing the value of assets, and increasing operating expenses. For example, in 2022, "exceptional drought" or "extreme drought" conditions, the two most severe drought classifications, covered significant areas of the western and midwestern states, and more than half of the continental United States experienced abnormally dry conditions or worse. The effects of climate change could make some agricultural properties less suitable for farming or for other alternative uses. Extended periods of drought and dryness can reduce agricultural productivity, cause lasting damage to permanent crops like fruit and tree nuts, and result in producers leaving some fields fallow due to lack of water. These and other effects of climate change could have an adverse impact on farming operations and the value of loan collateral, which could have a material adverse effect on Farmer Mac's business, operating results, or financial condition.

Other external factors outside of Farmer Mac's or borrowers' control may impair 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.

Other external factors beyond Farmer Mac's or borrowers' control could impair borrowers' profitability, such as volatility in demand for agricultural products or electricity in rural areas; variability in borrowers' input costs; protracted regional, domestic, or global economic stress (whether due to disruptive global events or otherwise); 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 value and profitability of a farming, agribusiness 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. A significant number of defaults, or a single default from a large borrower exposure, stemming from one or more of these factors could have a material adverse effect on Farmer Mac's financial condition, results of operations, liquidity, or capital levels.

Specialized or highly improved collateral securing loans in Farmer Mac's portfolio could increase the probability of loss on those loans in the event of default, which could have a material adverse effect on Farmer Mac's financial condition, results of operations, liquidity, or capital levels.

Farmer Mac's credit risk may also increase due to decline in the collateral values securing the loans in Farmer Mac's portfolio. Specialized or highly improved collateral, such as storage and processing facilities or permanent plantings, increase the risk of undercollateralization in a default scenario because producers requiring specialized or highly improved collateral are generally less able to adapt their operations or

switch functional production when faced with adverse conditions. Highly improved properties also face higher risk of loss in a default scenario, as the pool of potential purchasers in a sale or foreclosure action may be smaller for a highly improved property than for a property that is adaptable to multiple uses. The farming of permanent plantings generally involves more risk than farming of annual row crops because permanent plantings generally require more time and capital to plant and permanent plantings are more expensive to replace in the event of disease, drought, mismanagement, catastrophic condition (such as wildfire), or adverse weather conditions. In the event that a borrower defaults, and Farmer Mac must foreclose, on a loan secured by property that is specialized or highly improved, Farmer Mac has experienced and may in the future experience losses if the value of the property has dropped significantly since origination or if there is a limited pool of potential purchasers willing to purchase the property at the price necessary for Farmer Mac to recoup its investment. If this occurs across a large number of loans or across loans with large principal balances, in the aggregate this could have a material adverse effect on Farmer Mac's financial condition, results of operations, liquidity, or capital levels.

Concentrations in Farmer Mac's loan or investments portfolios, or to one or more borrowers or counterparties, may increase Farmer Mac's exposure to credit risk, which could materially and adversely affect its business, operating results, and financial condition.

Farmer Mac's exposure to credit risk may increase due to concentrations in its loan portfolio, which can include concentrated exposure to particular commodities, geographic regions, or collateral types, as well as concentrations in processing and manufacturing segments of agricultural supply chains. Widespread weakening in the financial condition of borrowers within a particular geographic region, that produce particular commodities or rely on particular collateral, or that engage in processes or production that is dependent on a fluid supply chain could negatively affect Farmer Mac's financial condition if sufficient diversity in these areas does not successfully mitigate concentration risk.

Farmer Mac's exposure to credit risk may also increase due to concentrated exposure to a particular borrower or counterparty. 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. As of December 31, 2022, \$8.0 billion of the \$9.0 billion of AgVantage securities outstanding had been issued by only 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's exposure to credit risk may also increase due to concentrated exposure to one or more investment types or counterparties in the investment portfolio Farmer Mac maintains for liquidity. This investment portfolio consists primarily of cash and cash equivalents, U.S. Treasury securities, investment securities guaranteed by U.S. Government agencies and GSEs, and asset-backed securities backed primarily by U.S. Government-guaranteed loans. 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, 2022, Farmer Mac held at fair value \$3.2 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 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, 2022, Farmer Mac had \$3.9 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, 2022, Farmer Mac held cash, cash equivalents, and other investment securities with a fair value of \$5.5 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 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. These events could have a negative effect on Farmer Mac's operations and liquidity and could expose Farmer Mac to more interest rate risk, which could materially and adversely affect its business, operating results, and financial condition. As of December 31, 2022, the aggregate notional balance of Farmer Mac's cleared swaps was \$19.5 billion, and the aggregate notional balance of Farmer Mac's non-cleared swaps was \$4.4 billion.

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 debt or equity 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 infrastructure loans due to regional, domestic, or global economic conditions; and
- expanded funding alternatives available to agricultural and rural infrastructure 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 continued access to the U.S. financial markets at favorable rates and terms to remain adequately capitalized through the issuance of equity and with adequate access to liquidity through the issuance of debt securities. The issuance of debt securities is Farmer Mac's primary source for repaying or refinancing existing debt and to fund contingent liabilities, as needed. 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, liquidity, or financial condition could be adversely affected.

The loss of business from key business counterparties or customers, including AgVantage counterparties, could weaken Farmer Mac's business and decrease 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 few business counterparties. This concentration of business could potentially result in increased variability in Farmer Mac's business as existing assets pay down or mature and the status and needs of Farmer Mac's customers evolve. In 2022, ten institutions generated approximately 71% of loan purchase volume in the Agricultural Finance line of business. As of December 31, 2022, approximately 88.2% of the \$9.0 billion outstanding principal amount of AgVantage securities (of which \$2.0 billion and \$1.1 billion will be maturing in 2023 and 2024, respectively) were issued by three institutions. As of December 31, 2022, transactions with two

institutions represented nearly all of the business volume under Farmer Mac's Rural Infrastructure Finance 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 decrease Farmer Mac's revenues and profitability. Farmer Mac may be unable 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 Farmer Mac's secondary market, which could adversely affect Farmer Mac's business and decrease its revenues and profits.

Farmer Mac's efforts to balance fulfilling its 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 infrastructure loans, and the guaranteed portions of USDA-guaranteed loans. In pursuing this mission, Farmer Mac's secondary market activities are designed to:

- increase the accessibility of financing 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 of 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, these activities could 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 or lower returns to satisfy its mission, 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 few institutions. Four financial institutions hold approximately 53% of Farmer Mac's Class A voting common stock, with 31% held by one institution. Five FCS institutions hold approximately 97% of Farmer Mac's Class B voting common stock (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 few institutions, these institutions influence 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.

Operational Risk

The inadequacy or failure of Farmer Mac's operational systems, cybersecurity program, internal controls or processes, or infrastructure, or those of third parties, could have a material adverse effect on Farmer Mac's business, operating results, 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 includes the risk of loss to Farmer Mac resulting from:

- inadequate or failed internal processes, systems, cybersecurity program, or infrastructure;
- Farmer Mac's inability to successfully implement enhancements to any of these or migrate to new systems or infrastructure;
- failed execution, including based on human error;
- inadequate or failed internal controls or processes to detect or prevent fraud or other violations of law or regulations; 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 program, or infrastructure could lead to a significant disruption in its business operations; unauthorized access to or acquisition, destruction, alteration, release, theft, or loss of confidential, proprietary, or personal data; fraud, extortion; financial and economic loss or costs; errors in its financial statements; impairment of its liquidity; harm to its employees, customers, or vendors; liability or service interruptions to its customers; loss of customers or vendors; violation of data protection laws and other litigation and legal risk; 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 third parties provide. Yet 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. 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 may be impacted in the same manner as inadequacies or failures in Farmer Mac's own internal processes, personnel, systems, cybersecurity program, or infrastructure.

Farmer Mac's internal loan servicing function and reliance on third-party servicers could expose Farmer Mac to operational risks that could adversely affect its business, operating results, or financial condition.

Effective and reliable loan servicing is essential for Farmer Mac to successfully operate its business. During third quarter 2021, Farmer Mac expanded its internal loan servicing function through a strategic acquisition that included the loan servicing rights for a sizeable portion of Farmer Mac's Agricultural Finance mortgage loan and USDA Securities portfolios, as well as experienced servicing personnel and an

operational servicing platform. This strategic acquisition has required Farmer Mac to implement processes and controls for a business function that Farmer Mac has previously not operated and still has limited experience executing and managing. Farmer Mac also continues to rely on experienced third-party servicers to service the portion of Farmer Mac's Agricultural Finance mortgage loan portfolio not serviced directly by Farmer Mac. Although Farmer Mac has established servicing standards and requirements to which these third-party servicers are required by contract to adhere and on which they must report to Farmer Mac, Farmer Mac does not manage the processes and controls of these third-party servicers. The ineffective implementation, operation, or oversight of one or more of the servicing processes or controls employed by Farmer Mac or any of its third-party servicers could expose Farmer Mac to operational risk that could adversely affect Farmer Mac's business, operating results, or financial condition.

A deficiency, failure, interruption, or breach in Farmer Mac's or our service providers' technology and information systems, infrastructure, or cybersecurity program, including the occurrence of successful cyber-attacks, 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 technology and information systems, including from third parties, for the secure collection, processing, transmission, and storage of confidential, proprietary, and personal information in its information systems (and those of third parties) to conduct and manage its business operations. These technology and information systems encompass an integrated set of hardware, software, infrastructure, and personnel organized to facilitate the planning, control, coordination, operations, and decision-making processes within Farmer Mac. As the importance and complexity of Farmer Mac's technology and information systems has increased, and as new technologies are developed that are used by its customers, Farmer Mac, or its service providers to support its business and operations, so too have the risks posed to Farmer Mac's information systems and data from cybersecurity attacks that threaten the confidentiality, integrity, or availability of Farmer Mac's information technology assets and resources and its data. Like many other financial institutions, Farmer Mac and its service providers face regular attacks by threat actors attempting to gain unauthorized access to, or disrupt, its information systems and access or acquire its data, including from organized criminal groups, hackers, nation states, activists, insiders, and other unauthorized third parties. These threats come from a variety of different sources, including cyber-attacks, computer viruses, malware, exploits of system and network vulnerabilities, human error, phishing, ransomware, and distributed denial of service attacks. The methods used to gain unauthorized access to or disrupt its information systems and data, or those of its service providers, are evolving. We are not always able to prevent or recognize attacks, and we may be unable to implement effective preventive measures or proactively address these threats until after a cybersecurity event has been discovered. Moreover, any employees or agents of Farmer Mac's (or its third-party customers or vendors) who have authorized access to confidential, proprietary, or personal information could also intentionally, inadvertently, or erroneously disseminate the information to unauthorized third parties.

Although Farmer Mac has implemented what we believe is an appropriate information security program with cybersecurity procedures, policies, practices, and controls, Farmer Mac may be unable to prevent unauthorized access to its information technology assets or data, which could lead to a significant disruption to its business operations; unauthorized access to or acquisition, destruction, alteration, release, theft, or loss of confidential, proprietary, or personal data; fraud, extortion; financial and economic loss or costs; errors in its financial statements; impairment of its liquidity; harm to its employees, customers, or vendors; liability or service interruptions to its customers; loss of customers or vendors; violation of data protection laws and other litigation and legal risk; increased regulatory or legislative scrutiny; or

reputational damage. Also, the risk of unauthorized access to confidential, proprietary, or personal information through information system breaches or inadvertent dissemination may be heightened in a remote-working environment, which is currently more prevalent at Farmer Mac.

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 that support Farmer Mac's business and operations. Farmer Mac depends on these third parties to collect, process, transmit, and store a variety of confidential, proprietary, or personal information, including sensitive financial information. Just as Farmer Mac is subject to numerous cyber-attacks from a variety of actors, so too are these third parties. Farmer Mac requires third parties who collect, process, or store confidential, proprietary, or personal data to adhere to security policies, processes, and controls. However, the control systems, cybersecurity program, infrastructure, and personnel associated with third parties with which we do business or obtain services are beyond our control. Farmer Mac is aware of cyber-attacks and incidents involving its third party service providers in the past, and although Farmer Mac has not experienced a material loss of data or disruption of its operations due to a breach of third party systems, unauthorized access to a third party service provider's information technology assets or data may significantly impact Farmer Mac's operations in the same manner as incidents on its own systems.

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 risks 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.

Farmer Mac's efforts to expand product offerings and services to its customers exposes Farmer Mac to operational risk that could materially and adversely affect its business, operating results, or financial condition.

As the needs of Farmer Mac's customer base and rural America evolve, Farmer Mac seeks to respond by offering new products and services to meet these needs. As Farmer Mac expands its product offerings and services, it is exposed to operational risk in implementing these new products and services. New products and services may require new operational processes, which often require new internal controls to manage new risks that these new processes present. If these controls are insufficient or ineffective to manage the risks inherent in these new processes, or if there is human error in executing these new controls either due

to their novelty or otherwise, Farmer Mac could face financial loss, reputational damage, or regulatory enforcement, which could materially and adversely affect Farmer Mac's business, operating results, or financial condition.

Market Risk

Farmer Mac is exposed to interest rate risk that could materially and adversely affect its 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 debt together with financial derivatives that have similar duration and convexity characteristics to help mitigate impacts from interest rate changes across the yield curve. 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. In addition, rapid changes in interest rates could have a negative effect on Farmer Mac's net interest income across quarters. For example, during 2022, Farmer Mac benefited from higher nominal interest rates in its investment portfolio; however, if those nominal interest rates decline, Farmer Mac may earn less interest income on its investments in future periods. During 2022, the Federal Reserve rapidly increased the target range for the federal funds rate by 4.25% over the course of the year in an effort to combat rising inflation. This pace has created and, if the Federal Reserve continues to raise interest rates, may continue to create or may exacerbate periods of market volatility that could adversely affect Farmer Mac's ability to manage interest rate risk, which could have a material adverse effect on Farmer Mac's operating results or financial condition. See "Management's Discussion and Analysis—Risk Management—Interest Rate Risk" for more information on Farmer Mac's management of interest rate risk.

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" or the Secured Overnight Financing Rate known as "SOFR") will increase from the time the initial funding was issued and the time the liabilities are re-funded. This repricing risk arises from a funding strategy whereby Farmer Mac issues floating rate debt across a variety of maturities to fund floating or synthetically floating rate assets that on average may have longer maturities. A significant increase in the difference between Farmer Mac's funding cost relative to the benchmark index, including LIBOR and SOFR, may 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 adversely affect 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 2022 and 2021, Farmer Mac recorded a gain of \$13.5 million and a loss of \$1.4 million, respectively, from changes in the fair values of its financial derivatives as a result of movements in interest rates during those years. Farmer Mac recorded gains of \$5.8 million and losses of \$0.3 million in 2022 and 2021, 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, 2022, Farmer Mac posted \$144.7 million of cash and \$204.0 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.

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 ("UKFCA"), which regulates U.S. Dollar LIBOR ("LIBOR"), announced that it would no longer persuade or compel banks to submit rates for the calculation of LIBOR after 2021 and would support the LIBOR indexes through 2021 to allow for a transition to any alternative reference rates. In November 2020, the UKFCA and the ICE Benchmark Administration, which administers LIBOR, announced that most tenors of LIBOR would continue to be published through June 2023. These announcements indicate that the continuation of LIBOR in its current form will be discontinued after June 2023. Farmer Mac continues to evaluate the potential effect on its business of the replacement of the LIBOR benchmark interest rate, including evaluation of the recently enacted Adjustable Interest Rate (LIBOR) Act and implementing rules, and using replacement benchmark interest rates such as SOFR. As of December 31, 2022, Farmer Mac held \$2.9 billion of floating rate assets in its lines of business and its investment portfolio, had issued \$0.2 billion of floating rate debt, and had entered into \$10.5 billion notional amount of interest rate swaps, each of which resets 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 toward SOFR or another alternative benchmark interest rate may be complicated and may introduce additional re-funding and repricing risk for Farmer Mac. If SOFR or other 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, 2022, Farmer Mac's assets and liabilities recorded at fair value included financial instruments valued at \$7.6 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 27.9% of total assets and 61.5% of financial instruments measured at fair value as of December 31, 2022. See "Management's Discussion and Analysis—Critical Accounting Estimates—Fair Value Measurement" for more information about 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, which was effective for Farmer Mac on January 1, 2020, that required entities to measure credit losses based on an "expected credit loss" approach rather than an "incurred loss" approach previously 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(r) 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, liquidity 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. And 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, liquidity 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 remain volatile. For example, the trading price of the Class C stock ranged from \$90.38 per share to \$130.61 per share during 2022. The trading price may fluctuate in response to various factors, including short sales, hedging, the presence or absence of a share repurchase program, stock market influences in general that are unrelated to Farmer Mac's operating performance (including COVID-19), or sales of significant amounts of the stock by large holders. Farmer Mac typically grants equity awards each year that are based on the Class C stock, including grants that vest over time or upon the achievement of specified performance goals. Sales of stock acquired upon vesting or the exercise of equity awards by Farmer Mac's officers, directors, or employees, whether under an established trading plan or otherwise, could adversely affect the trading price of the Class C stock. All of these factors may be exacerbated during periods of low trading volume for Farmer Mac's Class C stock, which averaged 31,995 shares daily during 2022, 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 counterparties are subject to comprehensive government regulation, and unanticipated changes to those laws and regulations could adversely affect Farmer Mac's business, operating results, reputation, or financial condition.

Farmer Mac was established under a statutory charter that the U.S. Congress may amend at any time and is regulated by various government agencies, including the FCA and the SEC. 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 more 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. 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's capital requirements may 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. 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;
- 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.

Farmer Mac is a GSE with a statutory charter that may be amended by Congress at any time, and is also regulated by government agencies, including the FCA and the SEC. Although Farmer Mac is not aware of any pending legislative or regulatory proposals that would materially impact its business or operations, Farmer Mac's ability to effectively conduct its business is subject to risks and uncertainties related to political developments that could affect Farmer Mac or GSEs generally. These political risks and uncertainties may be heightened under a new Congress or Presidential administration. Farmer Mac cannot predict whether or when legislative or regulatory initiatives 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 related industries to run its business operations successfully. If Farmer Mac cannot 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. 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 another office location at 9169 Northpark Drive, Johnston, Iowa 50131, under an amended lease that began on October 1, 2017 and ends on August 31, 2027. 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 6, 2023, Farmer Mac had 851 registered owners of the Class A voting common stock, 75 registered owners of the Class B voting common stock, and 807 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 23, 2021, Farmer Mac's board of directors declared a dividend of \$0.88 per share on Farmer Mac's common stock payable for first quarter 2021. That dividend was paid quarterly through fourth quarter 2021. On February 24, 2022, Farmer Mac's board of directors declared a dividend of \$0.95 per share on Farmer Mac's common stock payable for first quarter 2022. That dividend was paid quarterly through fourth quarter 2022. On February 22, 2023, Farmer Mac's board of directors declared a dividend of \$1.10 per share on Farmer Mac's common stock payable for first quarter 2023. See "Business—Financing—Equity Issuance" for more information on Farmer Mac's common stock.

The quarterly dividend of \$1.10 per share on all three classes of common stock for first quarter 2023 represents an increase of \$0.15 per common share, or 16%, over the quarterly dividend payout in 2022 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 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.

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

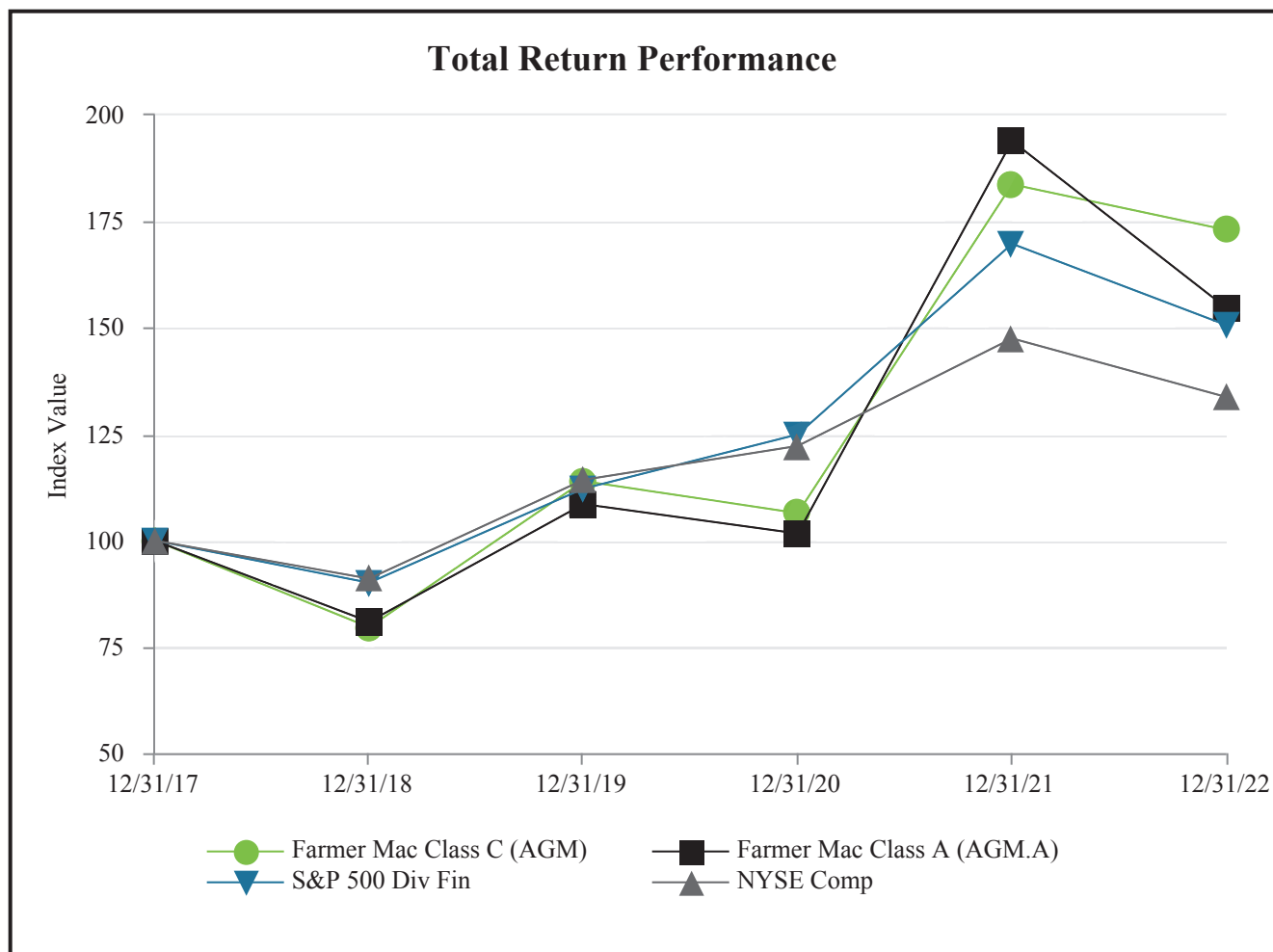
preferred stock. Applicable FCA regulations also require Farmer Mac to provide FCA with 15 days' advance notice of certain capital distributions. Farmer Mac's ability to declare and pay dividends could be restricted if it were to fail to comply with applicable capital requirements. See Note 9 to the 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 14, 2023. 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 2022 that was not registered under the Securities Act and not otherwise reported on a Current Report on Form 8-K:

- In October 2022, 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 515 shares of Class C non-voting common stock to the six 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 \$99.14 per share, which was the closing price of the Class C non-voting common stock on September 30, 2022, 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, 2017 to December 31, 2022. The graph assumes that \$100 was invested on December 31, 2017 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. [Reserved].

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

The objective of this section of the report is to provide a discussion and analysis, from management's perspective, of the material information necessary to assess Farmer Mac's financial condition and results of operations for the year ended December 31, 2022. Financial information included in this report is consolidated to include the accounts of Farmer Mac and its two subsidiaries – Farmer Mac Mortgage Securities Corporation and Farmer Mac II LLC. This discussion and analysis of financial condition and results of operations should be read together with Farmer Mac's consolidated financial statements and the related notes to the consolidated financial statements for the fiscal years ended December 31, 2022, 2021, and 2020.

Overview

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

During 2022:

- we provided \$9.0 billion in liquidity and lending capacity to lenders serving rural America;
- we closed our second structured securitization transaction involving approximately \$300 million of agricultural mortgage loans;
- we maintained uninterrupted access to the debt capital markets and a strong capital position; and
- we maintained strong liquidity in our investment portfolio well above regulatory requirements.

Farmer Mac's performance during 2022, described in more detail below, reflects the success of our continued focus on pursuing new channels and innovative ways to further our mission to increase the accessibility of financing for American agriculture and rural infrastructure. Despite ongoing macroeconomic concerns and potential headwinds such as deteriorating macroeconomic conditions, inflation, rising interest rates, and war in Ukraine, Farmer Mac delivered solid financial results. These financial results in 2022 reflected a variety of factors, including: (1) the resilience of the farm economy, as producers have benefited from healthy farm incomes and liquidity from relatively high commodity prices resulting from heightened demand, with revenues rising faster than the costs of inputs; (2) an increase in Farmer Mac's outstanding business volume at higher spreads while credit quality improved; (3) Farmer Mac's disciplined approach to interest rate risk management that helps to protect earnings from the effects of interest rate volatility and are accretive to Farmer Mac during periods of rising interest rates; and (4) Farmer Mac's effective funding strategies that resulted in advantageous funding during 2022, which have also benefited from the rising interest rate environment in the current period. The discussion below of Farmer Mac's financial information includes "non-GAAP measures," which are measures of financial performance not presented in accordance with generally accepted accounting principles in the United

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

Net Income and Core Earnings

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

Table 1

	For the Years Ended December 31,		
	2022	2021	2020
	<i>(in thousands)</i>		
Net income attributable to common stockholders	\$ 150,979	\$ 111,412	\$ 94,904
Core earnings	124,314	113,570	100,612

The \$39.6 million year-over-year increase in net income attributable to common stockholders was due to a \$38.7 million after-tax increase in net interest income and a \$17.6 million after-tax increase in the fair value of undesignated financial derivatives. These factors were partially offset by a \$5.2 million after-tax decrease related to the non-recurrence of the gain on the sale of mortgage loans that occurred in the prior period, a \$6.6 million increase in operating expenses, a \$2.5 million increase in preferred stock dividends, and a \$2.4 million increase in our provision for credit losses.

The \$16.5 million increase in net income attributable to common stockholders for 2021 compared to 2020 was due to a \$20.6 million after-tax increase in net interest income, a net change in our (release)/provision for credit losses of \$8.1 million after tax, and a \$5.2 million after-tax gain on sale of mortgage loans. These factors were partially offset by a \$9.5 million after-tax increase in operating expenses, a \$6.9 million increase in preferred stock dividends, and a \$1.1 million after-tax decrease in the fair value of undesignated financial derivatives.

The \$10.7 million year-over-year increase in core earnings was due to a \$27.5 million after-tax increase in net effective spread. This factor was partially offset by a \$5.2 million after-tax decrease related to the non-recurrence of the gain on the sale of mortgage loans that occurred in the prior period, a \$6.6 million increase in operating expenses, a \$2.5 million increase in preferred stock dividends, and a \$2.4 million increase in our provision for credit losses.

The \$13.0 million increase in core earnings for 2021 compared to 2020 was due to a \$18.7 million after-tax increase in net effective spread, a net change in our (release)/provision for credit losses of \$8.1 million after tax, and a \$5.2 million after-tax gain on sale of mortgage loans. These factors were partially offset by a \$9.5 million after-tax increase in operating expenses, a \$6.9 million increase in preferred stock dividends, a \$1.3 million after-tax decrease in guarantee fees, and a \$0.8 million after-tax decrease in other income.

For more information about net income attributable to common stockholders, the composition of core earnings, and a reconciliation of net income attributable to common stockholders to core earnings, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Results of

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

Net Interest Income and Net Effective Spread

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

Table 2

	For the Years Ended December 31,		
	2022	2021	2020
	<i>(in thousands)</i>		
Net interest income	\$ 270,940	\$ 221,951	\$ 195,848
Net interest yield %	1.04 %	0.94 %	0.87 %
Net effective spread	\$ 255,529	\$ 220,668	\$ 196,956
Net effective spread %	1.02 %	0.98 %	0.93 %

The \$49.0 million year-over-year increase in net interest income was primarily attributable to a \$21.9 million increase from net new business volume and a \$21.4 million decrease in funding costs, due to increasing yields on interest-earning assets on our short-term investments that are funded by non-interest bearing excess equity, and a \$6.1 million increase in the fair value of designated financial derivatives. In percentage terms, the year-over-year 0.10% increase was primarily attributable to a decrease of 0.08% in funding costs and an increase of 0.02% in net fair value changes from financial derivatives designated in hedge accounting relationships (designated financial derivatives).

The \$26.1 million increase in net interest income for 2021 compared to 2020 was primarily due to a \$16.7 million increase related to net new business volume, a \$6.9 million decrease in funding costs, and a \$3.6 million increase in the fair value of derivatives designated in fair value hedge accounting relationships (designated financial derivatives). In percentage terms, the 0.07% increase was primarily attributable to an increase of 0.04% in net new business volume, an increase of 0.02% in net fair value changes from designated financial derivatives, and a decrease of 0.01% in funding costs.

The \$34.9 million year-over-year increase in net effective spread in dollars was primarily due to a \$23.6 million increase from net new business volume, a \$7.7 million decrease in non-GAAP funding costs, due to increasing yields on interest-earning assets on our short-term investments that are funded by non-interest bearing excess equity, a \$2.4 million increase in net servicing revenue, and a \$0.9 million increase in cash-basis interest income. In percentage terms, the year-over-year increase of 0.04% was primarily attributable to a decrease of 0.03% in non-GAAP funding costs and an increase of 0.01% in cash-basis interest income.

The \$23.7 million increase in net effective spread in dollars for 2021 compared to 2020 was primarily due to an increase of \$16.7 million from net new business volume and a \$6.3 million decrease in non-GAAP funding costs. In percentage terms, the year-over-year increase of 0.05% was primarily attributable to an increase of 0.04% in net new business volume and a decrease of 0.01% in non-GAAP funding costs.

For more information about Farmer Mac's use of net effective spread as a financial measure, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Use of Non-GAAP Measures." For a reconciliation of net interest income to net effective spread, see Table 10 in "Management's Discussion and Analysis of Financial Condition and Results of Operations—Results of Operations—Net Interest Income."

Business Volume

Our outstanding business volume was \$25.9 billion as of December 31, 2022, a net increase of \$2.3 billion from December 31, 2021 after taking into account all new business, maturities, sales, and paydowns on existing assets. The net increase was primarily attributable to net increases of \$1.7 billion in the Agricultural Finance line of business and \$0.6 billion in the Rural Infrastructure Finance line of business.

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

Capital

Table 3

	As of	
	December 31, 2022	December 31, 2021
	<i>(in thousands)</i>	
Core capital	\$ 1,322,801	\$ 1,209,847
Capital in excess of minimum capital level required	516,882	496,771

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

Credit Quality

The following table presents Agricultural Finance on- and off-balance sheet substandard assets, in dollars and as a percentage of the respective portfolio as of December 31, 2022 and 2021:

Table 4

	On-Balance Sheet		Off-Balance Sheet	
	Substandard Assets	% of Portfolio	Substandard Assets	% of Portfolio
	<i>(dollars in thousands)</i>			
December 31, 2022	\$ 169,667	2.3 %	\$ 39,733	1.2 %
December 31, 2021	185,758	2.7 %	60,922	2.1 %
Increase/(decrease) from prior year-ending	\$ (16,091)	(0.4)%	\$ (21,189)	(0.9)%

The decrease of \$16.1 million in on-balance sheet substandard assets during 2022 was primarily driven by credit upgrades in crops, livestock, and permanent plantings, and was partially offset by credit downgrades in agricultural storage and processing and part-time farms. The on-balance sheet Agricultural Finance portfolio grew by \$681.6 million, which when combined with the net credit upgrades caused the percentage of substandard assets to decrease. The \$21.2 million decrease in substandard assets in our off-balance sheet portfolios during 2022 was primarily due to credit upgrades in crops, livestock, and

permanent plantings, and was partially offset by credit downgrades in part-time farms. The off-balance sheet Agricultural Finance portfolio grew by \$188.3 million, which when combined with the net credit upgrades caused the percentage of substandard assets to decrease.

There were no substandard assets in the Rural Infrastructure Finance portfolio as of December 31, 2022 and one loan classified as substandard in that portfolio as of December 31, 2021.

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

The following table presents 90-day delinquencies for the on- and off-balance sheet Agricultural Finance portfolios, in dollars and as a percentage of the respective balance sheet category as of December 31, 2022 and 2021:

Table 5

	On-Balance Sheet		Off-Balance Sheet	
	90-Day Delinquencies	% of Portfolio	90-Day Delinquencies	% of Portfolio
	<i>(dollars in thousands)</i>			
December 31, 2022	\$ 39,681	0.53 %	\$ 3,817	0.12 %
December 31, 2021	43,710	0.64 %	3,597	0.12 %
Increase/(decrease) from prior year-ending	\$ (4,029)	(0.11)%	\$ 220	— %

On-balance sheet Agricultural Finance assets 90 or more days delinquent decreased in crops and livestock, and was partially offset by increases in agricultural storage and processing, part-time farms, and permanent plantings. Off-balance sheet Agricultural Finance assets 90 days or more delinquent increased in part-time farms and livestock, and was partially offset by decreases in crops and permanent plantings. The top ten borrower exposures over 90 days delinquent in either the on- or off-balance sheet Agricultural Finance portfolio represented over half of the aggregate 90-day delinquencies as of December 31, 2022.

As of both December 31, 2022 and 2021, there were no 90-day delinquencies in Farmer Mac's portfolio of Rural Infrastructure Finance loan purchases and loans underlying LTSPCs.

For more information about Farmer Mac's credit metrics, including 90-day delinquencies, the total allowance for losses, and substandard assets, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Risk Management—Credit Risk—Loans and Guarantees."

Critical Accounting 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. Farmer Mac considers an accounting estimate made in accordance with GAAP to be critical when it involves a significant level of estimation uncertainty and it has had or is likely to have a material impact on our financial condition or results of operations.

The accounting estimate that Farmer Mac considers to be critical in the preparation of its consolidated financial statements is the estimation of the fair value of AgVantage Securities that are classified as available for sale (AgVantage AFS). Farmer Mac considers the fair value of AgVantage AFS to be a critical estimate due to the significance of the periodic measurement of mark-to-market adjustments relative to the company's total assets, comprehensive income, and equity. Farmer Mac also considers the fair value of AgVantage AFS to be a critical accounting estimate because Farmer Mac applies a discount rate in calculating the net present value of future expected cash flows that is both significant to the estimate of their fair value and unobservable in the market. Farmer Mac relies upon this significant unobservable input to estimate the fair value of AgVantage AFS because there are no observable transactions in these securities in the market.

The fair value of AgVantage AFS had accumulated unrealized gains in the amount of \$2.1 million and \$212.9 million as of December 31, 2022 and 2021, respectively. See Note 5 to the consolidated financial statements – Farmer Mac Guaranteed Securities and USDA Securities for more information.

Farmer Mac applies discount rates that are commensurate with the risks involved to estimate the fair value measurement of AgVantage AFS. As of December 31, 2022, Farmer Mac applied discount rates that ranged from 4.7% to 6.1% (with a weighted average of 5.1%), As of December 31, 2021, Farmer Mac applied discount rates that ranged from 0.9% to 2.1% (with a weighted average of 1.7%).

Use of different discount rates than those selected by Farmer Mac may result in materially different estimates of fair value for AgVantage AFS. Farmer Mac selects the discount rate for each AgVantage AFS security by analyzing credit default swap levels and the long-term credit outlook of Farmer Mac's major counterparties and estimating an appropriate credit spread relative to U.S. Treasury yields. The periodic measurement of fair value and underlying discount rate methodology is subject to Farmer Mac's internal controls and review by management. As of December 31, 2022, a 0.50% increase in the discount rates used to determine the fair value of AgVantage AFS would decrease the overall GAAP carrying value by approximately 1.98%. See Note 13 to the consolidated financial statements – Fair Value Disclosures for more information.

For a description of Farmer Mac's accounting policy for fair value measurements, see Note 2(n) to the consolidated financial statements – Significant Accounting Policies, Fair Value Measurements.

Use of Non-GAAP Measures

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

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

Core Earnings and Core Earnings Per Share

The main difference between core earnings and core earnings per share (non-GAAP measures) and net income attributable to common stockholders and earnings per common share (GAAP measures) is that those non-GAAP measures exclude the effects of fair value fluctuations. These fluctuations are not expected to have a cumulative net impact on Farmer Mac's financial condition or results of operations reported in accordance with GAAP if the related financial instruments are held to maturity, as is expected. Another difference is that these two non-GAAP measures exclude specified infrequent or unusual transactions that we believe are not indicative of future operating results and that may not reflect the trends and economic financial performance of Farmer Mac's core business. For example, we have excluded from core earnings and core earnings per share any losses on retirement of preferred stock. For a reconciliation of Farmer Mac's net income attributable to common stockholders to core earnings and of earnings per common share to core earnings per share, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Results of Operations."

Net Effective Spread

Farmer Mac uses net effective spread to measure the net spread Farmer Mac earns between its interest-earning assets and the related net funding costs of these assets. As further explained below, net effective spread differs from net interest income and net interest yield by excluding certain items from net interest income and net interest yield and including certain other items that net interest income and net interest yield do not contain.

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

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

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

For a reconciliation of net interest income and net interest yield to net effective spread, see Table 10 in "Management's Discussion and Analysis of Financial Condition and Results of Operations—Results of Operations—Net Interest Income."

Results of Operations

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

Table 6

Reconciliation of Net Income Attributable to Common Stockholders to Core Earnings

	For the Years Ended December 31,		
	2022	2021	2020
	<i>(in thousands, except per share amounts)</i>		
Net income attributable to common stockholders	\$ 150,979	\$ 111,412	\$ 94,904
Less reconciling items:			
Gains/(losses) on undesignated financial derivatives due to fair value changes (see Table 13)	13,495	(1,431)	(1,701)
Gains/(losses) on hedging activities due to fair value changes	5,343	(1,810)	(4,759)
Unrealized (losses)/gains on trading securities	(917)	(115)	51
Net effects of amortization of premiums/discounts and deferred gains on assets consolidated at fair value	39	130	58
Net effects of terminations or net settlements on financial derivatives	15,794	494	1,236
Issuance costs on the retirement of preferred stock	—	—	(1,667)
Income tax effect related to reconciling items	(7,089)	574	1,074
Sub-total	26,665	(2,158)	(5,708)
Core earnings	<u>\$ 124,314</u>	<u>\$ 113,570</u>	<u>\$ 100,612</u>
Composition of Core Earnings:			
Revenues:			
Net effective spread ⁽¹⁾	\$ 255,529	\$ 220,668	\$ 196,956
Guarantee and commitment fees ⁽²⁾	18,144	17,533	19,150
Gains on sale of mortgage loans	—	6,539	—
Other ⁽³⁾	1,684	1,680	2,687
Total revenues	275,357	246,420	218,793
Credit related expense (GAAP):			
Provision for/(release of) losses	806	(2,187)	8,055
REO operating expenses	819	—	—
Gains on sale of REO	—	—	(463)
Total credit related expense	1,625	(2,187)	7,592
Operating expenses (GAAP):			
Compensation and employee benefits	48,766	42,847	36,502
General and administrative	29,772	27,507	21,976
Regulatory fees	3,269	3,062	2,925
Total operating expenses	81,807	73,416	61,403
Net earnings	191,925	175,191	149,798
Income tax expense ⁽⁴⁾	40,446	36,944	31,381
Preferred stock dividends (GAAP)	27,165	24,677	17,805
Core earnings	<u>\$ 124,314</u>	<u>\$ 113,570</u>	<u>\$ 100,612</u>
Core earnings per share:			
Basic	\$ 11.52	\$ 10.56	\$ 9.38
Diluted	\$ 11.42	\$ 10.47	\$ 9.33
Weighted-average shares:			
Basic	10,791	10,758	10,728
Diluted	10,883	10,846	10,786

- (1) Net effective spread is a non-GAAP measure. See "Management's Discussion and Analysis of Financial Condition and Results of Operations—Use of Non-GAAP Measures—Net Effective Spread" for an explanation of net effective spread. See Table 10 for a reconciliation of net interest income to net effective spread.
- (2) Includes interest income and interest expense related to consolidated trusts owned by third parties reclassified from net interest income to guarantee and commitment fees to reflect management's view that the net interest income Farmer Mac earns is effectively a guarantee fee on the consolidated Farmer Mac Guaranteed Securities.
- (3) Reflects reconciling adjustments for the reclassification to exclude expenses related to interest rate swaps not designated as hedges and terminations or net settlements on financial derivatives, and reconciling adjustments to exclude fair value adjustments on financial derivatives and trading assets and the recognition of deferred gains over the estimated lives of certain Farmer Mac Guaranteed Securities and USDA Securities.
- (4) Includes the tax impact of non-GAAP reconciling items between net income attributable to common stockholders and core earnings.

Table 7

Reconciliation of GAAP Basic Earnings Per Share to Core Earnings - Basic Earnings Per Share				
	For the Years Ended December 31,			
	2022	2021	2020	
	(in thousands, except per share amounts)			
GAAP - Basic EPS	\$ 14.00	\$ 10.36	\$ 8.85	
Less reconciling items:				
Gains/(losses) on undesignated financial derivatives due to fair value changes (see Table 13)	1.25	(0.13)	(0.16)	
Gains/(losses) on hedging activities due to fair value changes	0.50	(0.17)	(0.44)	
Unrealized losses on trading securities	(0.08)	(0.01)	—	
Net effects of amortization of premiums/discounts and deferred gains on assets consolidated at fair value	—	0.01	0.01	
Net effects of terminations or net settlements on financial derivatives	1.47	0.04	0.12	
Issuance costs on the retirement of preferred stock	—	—	(0.16)	
Income tax effect related to reconciling items	(0.66)	0.06	0.10	
Sub-total	2.48	(0.20)	(0.53)	
Core Earnings - Basic EPS	\$ 11.52	\$ 10.56	\$ 9.38	
Shares used in per share calculation (GAAP and Core Earnings)	10,791	10,758	10,728	

Reconciliation of GAAP Diluted Earnings Per Share to Core Earnings - Diluted Earnings Per Share				
	For the Years Ended December 31,			
	2022	2021	2020	
	(in thousands, except per share amounts)			
GAAP - Diluted EPS	\$ 13.87	\$ 10.27	\$ 8.80	
Less reconciling items:				
Gains/(losses) on undesignated financial derivatives due to fair value changes (see Table 13)	1.24	(0.13)	(0.16)	
Gains/(losses) on hedging activities due to fair value changes	0.49	(0.17)	(0.44)	
Unrealized losses on trading securities	(0.08)	(0.01)	—	
Net effects of amortization of premiums/discounts and deferred gains on assets consolidated at fair value	—	0.01	0.01	
Net effects of terminations or net settlements on financial derivatives	1.45	0.05	0.11	
Issuance costs on the retirement of preferred stock	—	—	(0.15)	
Income tax effect related to reconciling items	(0.65)	0.05	0.10	
Sub-total	2.45	(0.20)	(0.53)	
Core Earnings - Diluted EPS	\$ 11.42	\$ 10.47	\$ 9.33	
Shares used in per share calculation (GAAP and Core Earnings)	10,883	10,846	10,786	

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

1. Gains/(losses) on financial derivatives due to fair value changes are presented by two reconciling items in Table 6 above: (a) Gains/(losses) on undesignated financial derivatives due to fair value changes; and (b) Gains/(losses) on hedging activities due to fair value changes.
2. Unrealized (losses)/gains on trading securities. The unrealized (losses)/gains on trading securities are reported on Farmer Mac's consolidated statements of operations, which represent changes during the period in fair values for trading assets remaining on Farmer Mac's balance sheet as of the end of the reporting period.
3. The net effects of amortization of premiums/discounts and deferred gains on assets consolidated at fair value. The amount of this non-GAAP reconciling item is the recorded amount of premium, discount, or deferred gain amortization during the reporting period on those assets for which the premium, discount, or deferred gain was based on the application of an accounting principle (e.g., consolidation of variable interest entities) rather than on a cash transaction (e.g., a purchase price premium or discount).
4. The net effects of terminations or net settlements on financial derivatives. These terminations or net settlements relate to:
 - Forward contracts on the debt of other GSEs and futures contracts on U.S. Treasury securities. These contracts are used as a short-term economic hedge of the issuance of debt. For GAAP purposes, realized gains or losses on settlements of these contracts are reported in the consolidated statements of operations in the period in which they occur. For core earnings purposes, these realized gains or losses are deferred and amortized as net yield adjustments over the term of the related debt, which generally ranges from 3 to 15 years.
5. The recognition of deferred issuance costs on the retirement of the Series A Preferred Stock in 2020 has been excluded from core earnings because they are not frequently occurring transactions, nor are they indicative of future operating results. This is consistent with Farmer Mac's previous treatment of deferred issuance costs associated with the retirement of preferred stock. The next eligible preferred stock redemption date is in 2024.

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, 2022, 2021, and 2020. The average balance of non-accruing loans is included in the average balance of loans, Farmer Mac Guaranteed Securities, and USDA Securities presented, though the related income is accounted for on a cash basis. Therefore, as the average balance of non-accruing loans and the income received increases or decreases, the net interest income and yield will fluctuate accordingly. The average balance of loans in consolidated trusts with beneficial interests owned by third parties is disclosed in the net effect of consolidated trusts and is not included in the average balances of interest-earning assets and interest-bearing liabilities. The interest income and expense associated with these trusts are shown in the net effect of consolidated trusts.

Table 8

	For the Year Ended								
	December 31, 2022			December 31, 2021			December 31, 2020		
	Average Balance	Income/Expense	Average Rate	Average Balance	Income/Expense	Average Rate	Average Balance	Income/Expense	Average Rate
<i>(dollars in thousands)</i>									
Interest-earning assets:									
Cash and investments	\$ 5,236,118	\$ 82,659	1.58 %	\$ 4,726,552	\$ 18,660	0.39 %	\$ 4,180,158	\$ 42,144	1.01 %
Loans, Farmer Mac Guaranteed Securities and USDA Securities ⁽¹⁾	19,882,489	602,537	3.03 %	17,838,238	368,330	2.06 %	16,950,819	412,556	2.43 %
Total interest-earning assets	25,118,607	685,196	2.73 %	22,564,790	386,990	1.72 %	21,130,977	454,700	2.15 %
Funding:									
Notes payable due within one year	2,876,452	48,481	1.69 %	3,779,689	3,820	0.10 %	3,937,104	24,242	0.62 %
Notes payable due after one year ⁽²⁾	20,987,990	370,014	1.76 %	18,004,757	166,083	0.92 %	16,869,918	241,211	1.43 %
Total interest-bearing liabilities ⁽³⁾	23,864,442	418,495	1.75 %	21,784,446	169,903	0.78 %	20,807,022	265,453	1.28 %
Net non-interest-bearing funding	1,254,165	—	—	780,344	—	—	323,955	—	—
Total funding	25,118,607	418,495	1.67 %	22,564,790	169,903	0.75 %	21,130,977	265,453	1.26 %
Net interest income/yield prior to consolidation of certain trusts	25,118,607	266,701	1.06 %	22,564,790	217,087	0.96 %	21,130,977	189,247	0.90 %
Net effect of consolidated trusts ⁽⁴⁾	850,916	4,239	0.50 %	1,049,521	4,864	0.46 %	1,396,850	6,601	0.47 %
Net interest income/yield	<u>\$ 25,969,523</u>	<u>\$ 270,940</u>	1.04 %	<u>\$ 23,614,311</u>	<u>\$ 221,951</u>	0.94 %	<u>\$ 22,527,827</u>	<u>\$ 195,848</u>	0.87 %

⁽¹⁾ Excludes interest income of \$31.7 million, \$39.0 million, and \$54.1 million in 2022, 2021, and 2020, 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 \$27.4 million, \$34.1 million, and \$47.5 million in 2022, 2021, and 2020, respectively, related to consolidated trusts with beneficial interests owned by third parties.

⁽⁴⁾ Includes the effect of consolidated trusts with beneficial interests owned by third parties.

The \$49.0 million year-over-year increase in net interest income was primarily attributable to a \$21.9 million increase from net new business volume, a \$21.4 million decrease in funding costs due to increasing yields on interest-earning assets on our short-term investments that are funded by non-interest bearing excess equity, and a \$6.1 million increase in the fair value of designated financial derivatives. In percentage terms, the year-over-year 0.10% increase was primarily attributable to a decrease of 0.08% in funding costs and an increase of 0.02% in net fair value changes from financial derivatives designated in hedge accounting relationships (designated financial derivatives).

The \$26.1 million increase in net interest income for 2021 compared to 2020 was primarily due to a \$16.7 million increase related to net new business volume, a \$6.9 million decrease in funding costs, and a \$3.6 million increase in the fair value of derivatives designated in fair value hedge accounting relationships (designated financial derivatives). In percentage terms, the 0.07% increase was primarily attributable to an increase of 0.04% in net new business volume, an increase of 0.02% in net fair value changes from designated financial derivatives, and a decrease of 0.01% in funding costs.

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

Table 9

	2022 vs. 2021			2021 vs. 2020		
	Increase/(Decrease) Due to			Increase/(Decrease) Due to		
	Rate	Volume	Total	Rate	Volume	Total
<i>(in thousands)</i>						
Income from interest-earning assets:						
Cash and investments	\$ 61,778	\$ 2,221	\$ 63,999	\$ (28,400)	\$ 4,916	\$ (23,484)
Loans, Farmer Mac Guaranteed Securities and USDA Securities	188,111	46,096	234,207	(64,984)	20,758	(44,226)
Total	249,889	48,317	298,206	(93,384)	25,674	(67,710)
Expense from other interest-bearing liabilities	230,931	17,661	248,592	(107,497)	11,947	(95,550)
Change in net interest income prior to consolidation of certain trusts ⁽¹⁾	\$ 18,958	\$ 30,656	\$ 49,614	\$ 14,113	\$ 13,727	\$ 27,840

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

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

Table 10

	For the Years Ended December 31,					
	2022		2021		2020	
	Dollars	Yield	Dollars	Yield	Dollars	Yield
<i>(dollars in thousands)</i>						
Net interest income/yield	\$ 270,940	1.04 %	\$ 221,951	0.94 %	\$ 195,848	0.87 %
Net effects of consolidated trusts	(4,239)	0.02 %	(4,864)	0.02 %	(6,601)	0.02 %
Expense related to undesignated financial derivatives	(7,756)	(0.03)%	2,841	0.01 %	3,468	0.02 %
Amortization of premiums/discounts on assets consolidated at fair value	(24)	— %	(45)	— %	197	— %
Amortization of losses due to terminations or net settlements on financial derivatives	2,413	0.01 %	446	— %	120	— %
Fair value changes on fair value hedge relationships	(5,805)	(0.02)%	339	0.01 %	3,924	0.02 %
Net effective spread	\$ 255,529	1.02 %	\$ 220,668	0.98 %	\$ 196,956	0.93 %

The \$34.9 million year-over-year increase in net effective spread in dollars was primarily due to a \$23.6 million increase from net new business volume, a \$7.7 million decrease in non-GAAP funding costs due to increasing yields on interest-earning assets on our short-term investments that are funded by non-interest bearing excess equity, a \$2.4 million increase in net servicing revenue, and a \$0.9 million increase in cash-basis interest income. In percentage terms, the year-over-year increase of 0.04% was primarily attributable to an decrease of 0.03% in non-GAAP funding costs and an increase of 0.01% in cash-basis interest income.

For 2021 compared to 2020, the \$23.7 million year-over-year increase in net effective spread in dollars was primarily due to an increase of \$16.7 million from net new business volume and a \$6.3 million decrease in non-GAAP funding costs. In percentage terms, the increase of 0.05% was primarily attributable to an increase of 0.04% in net new business volume and a decrease of 0.01% in non-GAAP funding costs.

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.

Provision for and Release of Allowance for Losses and Reserve for Losses. The following table summarizes the components of Farmer Mac's total allowance for losses for the three-year period ended December 31, 2022:

Table 11

	Allowance for Losses	Reserve for Losses	Total Allowance for Losses
	<i>(in thousands)</i>		
Balance as of December 31, 2019	\$ 10,454	\$ 2,164	\$ 12,618
Cumulative effect adjustment from adoption of current expected credit loss standard	1,793	863	2,656
Adjusted Beginning Balance	\$ 12,247	\$ 3,027	\$ 15,274
Provision for losses	7,810	250	8,060
Charge-offs	(5,759)	—	(5,759)
Balance as of December 31, 2020	\$ 14,298	\$ 3,277	\$ 17,575
Release of losses	(860)	(1,327)	(2,187)
Recovery	1,054	—	1,054
Balance as of December 31, 2021	\$ 14,492	\$ 1,950	\$ 16,442
Provision for/(release of) losses	1,323	(517)	806
Charge-offs	(84)	—	(84)
Balance as of December 31, 2022	\$ 15,731	\$ 1,433	\$ 17,164

See Notes 8 and 12 to the consolidated financial statements and "Management's Discussion and Analysis of Financial Condition and Results of Operations—Risk Management—Credit Risk—Loans and Guarantees."

During 2022, we recorded a \$0.8 million provision to the allowance primarily as a result of one agricultural storage and processing loan that received a risk rating downgrade during the year, due to the borrower's ongoing bankruptcy.

Guarantee Fees. The following table presents guarantee and commitment fees, which compensate Farmer Mac for assuming the credit risk on loans underlying off-balance sheet Farmer Mac Guaranteed Securities and LTSPCs, for the years ended December 31, 2022, 2021, and 2020:

Table 12

	For the Years Ended December 31,		
	2022	2021	2020
	(dollars in thousands)		
Contractual guarantee fees	\$ 14,235	\$ 12,669	\$ 12,549
Guarantee obligation amortization	5,913	7,257	—
Guarantee asset fair value changes	(7,108)	(7,257)	—
Guarantee fee income	<u>\$ 13,040</u>	<u>\$ 12,669</u>	<u>\$ 12,549</u>

Guarantee and commitment fees increased for the year ended December 31, 2022 compared to 2021, which was due to increases in the average outstanding balance of LTSPCs during the period. As adjusted for the core earnings presentation, guarantee and commitment fees were \$18.1 million for the year ended December 31, 2022, compared to \$17.5 million and \$19.2 million for the years ended December 31, 2021 and 2020, 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 those consolidated Farmer Mac Guaranteed Securities. Additionally, Farmer Mac has excluded guarantee asset fair value changes, because these fluctuations are not expected to have a cumulative net impact on Farmer Mac's financial condition or results of operations if Farmer Mac fulfills its guarantee obligation throughout the term of the guaranteed securities, as is expected.

For more information about net income attributable to common stockholders, the composition of core earnings, and a reconciliation of net income attributable to common stockholders to core earnings, see Table 6 in "Management's Discussion and Analysis of Financial Condition and Results of Operations—Results of Operations." For more information about the non-GAAP measures Farmer Mac uses, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Use of Non-GAAP Measures."

Gains on financial derivatives. The components of gains and losses on financial derivatives for the years ended December 31, 2022, 2021, and 2020 are summarized in the following table:

Table 13

	For the Years Ended December 31,		
	2022	2021	2020
	(dollars in thousands)		
Gains/(losses) due to fair value changes	\$ 13,495	\$ (1,431)	\$ (1,701)
Accrual of contractual payments	(7,756)	2,841	3,468
Gains/(losses) due to terminations or net settlements	16,892	(1,086)	(23)
Gains on financial derivatives	<u>\$ 22,631</u>	<u>\$ 324</u>	<u>\$ 1,744</u>

These changes in fair value are primarily the result of fluctuations in long-term interest rates. The accrual of periodic cash settlements for interest paid or received from Farmer Mac's interest rate swaps that are undesignated financial derivatives is shown as expense related to financial derivatives. Payments or receipts to terminate undesignated derivative positions or net cash settled forward sales contracts on the debt of other GSEs and undesignated U.S. Treasury security futures and initial cash payments received

upon the inception of certain undesignated swaps are included in "Gains/(losses) due to terminations or net settlements" in the table above.

Gains on Sale of Mortgage Loans

Table 14

	For the Years Ended December 31,		
	2022	2021	2020
	(in thousands)		
Gains on sale of mortgage loans	\$ —	\$ 6,539	\$ —

In 2021, Farmer Mac executed a structured securitization of Farm & Ranch loans that was treated as an off-balance sheet transaction, which resulted in a gain of \$6.5 million.

Operating Expenses. The components of operating expenses for the years ended December 31, 2022, 2021, and 2020 are summarized in the following table:

Table 15

	For the Years Ended December 31,		
	2022	2021	2020
	(dollars in thousands)		
Compensation and employee benefits	\$ 48,766	\$ 42,847	\$ 36,502
General and administrative	29,772	27,507	21,976
Regulatory fees	3,269	3,062	2,925
Total Operating Expenses	<u>\$ 81,807</u>	<u>\$ 73,416</u>	<u>\$ 61,403</u>

Compensation and Employee Benefits. The increase in compensation and employee benefits expenses for 2022 compared to 2021 was due to increased headcount (full year impact of 32 net new hires in 2021 and 5 net new hires in 2022) and increased executive stock compensation. The increase in compensation and employee benefits expenses for 2021 compared to 2020 was due to increased headcount. We hired 32 net new employees in 2021, including ten new employees in connection with the strategic acquisition of loan servicing rights in third quarter 2021.

General and Administrative Expenses (G&A). The increase in G&A expenses for 2022 compared to 2021 was primarily due to increased spending on software licenses and information technology and other consultants to support growth and strategic initiatives. During 2021, we entered into a transition services agreement in connection with the strategic acquisition of loan servicing rights in third quarter 2021. Under that agreement, we paid \$1.25 million to the seller of the servicing rights in installments through December 31, 2022 for continuing transition assistance.

Income Tax Expense. The following table presents income tax expense and the effective income tax rate for the years ended December 31, 2022, 2021, and 2020:

Table 16

	For the Years Ended December 31,		
	2022	2021	2020
	<i>(dollars in thousands)</i>		
Income tax expense	\$ 47,535	\$ 36,372	\$ 30,307
Effective tax rate	21.1 %	21.1 %	20.9 %

Business Volume.

The following table sets forth the net growth or decrease in Farmer Mac's lines of business for the years ended December 31, 2022 and 2021:

Table 17

Net New Business Volume				
		For the Year Ended		
		December 31, 2022	December 31, 2021	
		On or Off Balance Sheet	Net Growth/ (Decrease)	Net Growth/ (Decrease)
(in thousands)				
Agricultural Finance:				
Farm & Ranch:				
Loans	On-balance sheet	\$ 375,680	\$ 795,216	
Loans held in consolidated trusts:				
Beneficial interests owned by third-party investors (Pass-Through) ¹	On-balance sheet	(33,705)	(338,422)	
Beneficial interests owned by third-party investors (Structured) ¹	On-balance sheet	296,658	—	
IO-FMGS ²	On-balance sheet	(1,675)	12,297	
USDA Securities	On-balance sheet	(38,504)	(41,614)	
AgVantage Securities ¹	On-balance sheet	880,000	300,000	
LTSPCs and unfunded commitments	Off-balance sheet	235,155	272,189	
Other Farmer Mac Guaranteed Securities ³	Off-balance sheet	(77,405)	199,748	
Loans serviced for others	Off-balance sheet	(2,051)	22,331	
Total Farm & Ranch		\$ 1,634,153	\$ 1,221,745	
Corporate AgFinance:				
Loans	On-balance sheet	\$ 42,953	\$ 213,761	
AgVantage Securities ¹	On-balance sheet	(7,864)	(376,646)	
Unfunded commitments	Off-balance sheet	30,584	36,604	
Total Corporate AgFinance		\$ 65,673	\$ (126,281)	
Total Agricultural Finance		\$ 1,699,826	\$ 1,095,464	
Rural Infrastructure Finance:				
Rural Utilities:				
Loans	On-balance sheet	\$ 499,323	\$ 114,996	
AgVantage Securities ¹	On-balance sheet	10,894	467,425	
LTSPCs and unfunded commitments	Off-balance sheet	(44,245)	412	
Other Farmer Mac Guaranteed Securities ³	Off-balance sheet	(1,586)	(1,657)	
Total Rural Utilities		\$ 464,386	\$ 581,176	
Renewable Energy:				
Loans	On-balance sheet	\$ 132,807	\$ 13,728	
Unfunded commitments	Off-balance sheet	10,600	—	
Total Renewable Energy		\$ 143,407	\$ 13,728	
Total Rural Infrastructure Finance		\$ 607,793	\$ 594,904	
Total		\$ 2,307,619	\$ 1,690,368	

1 Categories of Farmer Mac Guaranteed Securities.

2 An interest-only Farmer Mac Guaranteed Security retained as part of a structured securitization.

3 Other categories of Farmer Mac Guaranteed Securities that were sold by Farmer Mac to third parties.

Farmer Mac's outstanding business volume was \$25.9 billion as of December 31, 2022, a net increase of \$2.3 billion from December 31, 2021 after taking into account all new business, maturities, sales, and paydowns on existing assets.

The \$1.6 billion net increase in Farm & Ranch during 2022 resulted from \$6.9 billion of new purchases, commitments, and guarantees, mostly offset by \$5.3 billion of scheduled maturities and repayments. Farmer Mac purchased a total of \$1.4 billion in loans, which was primarily driven by improved borrower economics albeit navigating a substantially higher interest rate environment. The \$1.4 billion in gross Farm & Ranch loan purchases was partially offset by \$1.1 billion in scheduled maturities and repayments.

Farmer Mac also purchased a total of \$4.2 billion in Farm & Ranch AgVantage Securities during 2022, which primarily reflected the refinancing of maturing securities as well as financial counterparties seeking to add longer-term AgVantage securities to manage their asset-liability maturity profile given recent increases in credit spreads and interest rates. The \$4.2 billion in gross purchases was partially offset by \$3.3 billion in scheduled maturities. Of the AgVantage Securities that were acquired during 2022 and were still outstanding as of December 31, 2022, \$470.0 million will mature by June 30, 2023 and an additional \$600.0 million will mature by December 31, 2023.

The \$65.7 million net increase in Corporate AgFinance during 2022 resulted from \$546.6 million of new purchases and commitments, which was partially offset by \$480.9 million of scheduled maturities, repayments, and sales. Farmer Mac purchased a total of \$328.9 million in loans, which was partially offset by \$276.9 million in scheduled maturities and repayments. The increase in loan purchases was primarily due to Farmer Mac's continued focus to support loans to larger and more complex agribusinesses focused on food and fiber processing and other food supply chain production.

The \$464.4 million net increase in Rural Utilities during 2022 resulted from \$1.4 billion of new purchases, commitments, and guarantees, which was partially offset by \$927.8 million of scheduled maturities and repayments. Farmer Mac purchased a total of \$670.0 million in AgVantage Securities, \$231.0 million in telecommunications loans, and \$449.5 million in electric distribution and generation and transmission loans. The \$680.5 million in loan purchases was partially offset by \$181.2 million in scheduled maturities and repayments. The net increase in loan purchases primarily reflected borrowers' normal-course capital expenditures related to maintaining and upgrading utility infrastructure as well as investments in broadband infrastructure, and Farmer Mac's continued focus to support telecommunications investment in rural America.

The \$143.4 million net increase in Renewable Energy during 2022 primarily reflects \$182.3 million in loan purchases and unfunded commitments, partially offset by \$38.9 million in repayments.

Farmer Mac's outstanding business volume was \$23.6 billion as of December 31, 2021, a net increase of \$1.7 billion from December 31, 2020 after taking into account all new business, scheduled maturities, and paydowns on existing assets.

The \$1.2 billion net increase in Farm & Ranch was comprised of \$5.9 billion of new purchases and guarantees, partially offset by \$4.7 billion of scheduled maturities, repayments, and sales. Farmer Mac purchased a total of \$2.1 billion in loans, which was primarily driven by farm real estate acquisitions due to improved borrower economics as well as a continued competitive interest rate environment resulting in demand for long-term financing solutions. The \$2.1 billion in gross Farm & Ranch loan purchases was partially offset by \$1.3 billion in scheduled maturities, repayments, and sales, including the sale of \$299.4 million of agricultural mortgage loans through Farmer Mac's newly-designed structured securitization executed in the fourth quarter. The securitization resulted in \$289.5 million in Farmer Mac Guaranteed Securities backed by the sold loans.

Farmer Mac also purchased a total of \$2.2 billion in AgVantage Securities, which primarily reflected the refinancing of maturing securities as well as financial counterparties seeking additional short-term, low-cost securities to manage their asset-liability maturity profile. The \$2.2 billion in gross purchases was partially offset by \$1.9 billion in scheduled maturities. While the short-term nature of the AgVantage securities added during 2021 may create volatility in AgVantage volumes, Farmer Mac does not anticipate a material impact to its net effective spread given the low-cost nature of these securities due to the short maturity profile.

Farmer Mac entered into \$788.3 million of new LTSPCs, which was offset by \$516.1 million of maturities on existing LTSPCs. The new volume in LTSPCs during 2021 was driven primarily by Farm Credit System institutions seeking credit risk management solutions to address increasing commodity and borrower hold limits resulting from strong loan growth in their regional portfolios.

The \$126.3 million net decrease in Corporate AgFinance was comprised of \$880.2 million of new loan and AgVantage security purchases, which was offset by \$1.0 billion of scheduled maturities, repayments, and sales. Farmer Mac purchased a total of \$314.9 million in AgVantage Securities, which was offset by \$691.6 million in scheduled maturities and repayments. This net decrease in AgVantage Securities was primarily due to improved borrower economics that reduced the demand for higher priced institutional financing, counterparties diversifying wholesale funding sources, and competitive funding availability for institutional counterparties.

Farmer Mac purchased a total of \$509.1 million in Corporate AgFinance loans in furtherance of Farmer Mac's strategic initiative to support larger and more complex farming operations, agribusinesses focused on agriculture production, food and fiber processing, and other supply chain production. The \$509.1 million in gross purchases was partially offset by \$295.4 million in scheduled maturities and repayments.

The \$581.2 million net increase in Rural Utilities was comprised of \$1.8 billion of new purchases and guarantees, which was partially offset by \$1.2 billion of scheduled maturities and repayments. Farmer Mac purchased a total of \$1.5 billion in AgVantage Securities which was partially offset by \$982.6 million in scheduled maturities. The net increase in AgVantage Securities of \$467.4 million was a result of a key counterparty proactively managing its capital structure as well as Farmer Mac's ability to offer competitively priced financing structures.

Farmer Mac purchased a total of \$313.4 million in Rural Utilities loans, which was fueled by a competitive interest rate environment resulting in demand for long-term financing solutions for planned maintenance, capital expenditures, and refinancing higher cost debt. The \$313.4 million in loan purchases was partially offset by \$198.4 million in scheduled maturities and repayments.

The \$13.7 million net increase in Renewable Energy was comprised of \$43.6 million of new loan purchases, which was partially offset by \$29.9 million of repayments.

The level and composition of Farmer Mac's outstanding business volume is based on the relationship between new business, loan sales, scheduled maturities, and repayments on existing assets from year to year. This relationship in turn depends on a variety of factors both internal and external to Farmer Mac. The external factors include general market forces, competition, and our counterparties' liquidity needs, access to alternative funding, desired products, and assessment of strategic factors. The internal factors include our assessment of profitability, mission fulfillment, credit risk, and customer relationships. For more information about potential growth opportunities in Farmer Mac's lines of business, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Outlook" in this report.

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

Table 18

	For the Years Ended December 31,		
	2022	2021	2020
	<i>(dollars in thousands)</i>		
AgVantage securities	\$ 4,990,483	\$ 3,919,907	\$ 1,298,751
Structured securitization transactions (not consolidated)	—	289,519	—
Loans securitized and held in consolidated trusts with beneficial interests owned by third parties	460,588	113,175	165,054
Total Farmer Mac Guaranteed Securities Issuances	<u>\$ 5,451,071</u>	<u>\$ 4,322,601</u>	<u>\$ 1,463,805</u>

Farmer Mac either retains the loans it purchases or securitizes them and retains or sells Farmer Mac Guaranteed Securities backed by those loans. During 2022, Farmer Mac executed its second structured securitization transaction, whereby it sold and securitized agricultural mortgage loans resulting in \$297.7 million of Farmer Mac Guaranteed Securities. In this transaction, Farmer Mac transferred selected loans to a depositor which then deposited the loans into a trust, at which time the loans became assets of the trust. Farmer Mac concluded that it was the primary beneficiary of the trust because Farmer Mac controls the trust in its role as Master Servicer. Therefore, Farmer Mac consolidates the assets and liabilities of the trust for this structured securitization. Farmer Mac does not consider the assets held by the related securitization trust to be available to satisfy the claims of the creditors of Farmer Mac and/or the depositor.

During 2022 and 2021, Farmer Mac realized no gains or losses from the securitization of loans that it holds in consolidated trusts. Farmer Mac consolidates these loans and presents them as "Loans held for investment in consolidated trusts, at amortized cost" on the consolidated balance sheets.

During 2021, Farmer Mac realized \$5.2 million gain after tax from the sale of Farmer Mac Guaranteed Securities in its structured securitization transaction.

During 2022 and 2021, Farmer Mac realized no gains or losses from the issuance of Farmer Mac Guaranteed USDA Securities or AgVantage Securities.

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

Table 19

Outstanding Business Volume					
		As of December 31,			
		On or Off Balance Sheet	2022	2021	2020
			(in thousands)		
Agricultural Finance:					
Farm & Ranch:					
Loans	On-balance sheet	\$ 5,150,750	\$ 4,775,070	\$ 3,979,854	
Loans held in consolidated trusts:					
Beneficial interests owned by third-party investors (Pass-Through) ¹	On-balance sheet	914,918	948,623	1,287,045	
Beneficial interests owned by third-party investors (Structured) ¹	On-balance sheet	296,658	—		
IO-FMGS ²	On-balance sheet	10,622	12,297	—	
USDA Securities	On-balance sheet	2,407,302	2,445,806	2,487,420	
AgVantage Securities ¹	On-balance sheet	5,605,000	4,725,000	4,425,000	
LTSPCs and unfunded commitments	Off-balance sheet	2,822,309	2,587,154	2,314,965	
Other Farmer Mac Guaranteed Securities ³	Off-balance sheet	500,953	578,358	378,610	
Loans serviced for others	Off-balance sheet	20,280	22,331	—	
Total Farm & Ranch		\$ 17,728,792	\$ 16,094,639	\$ 14,872,894	
Corporate AgFinance:					
Loans	On-balance sheet	\$ 1,166,253	\$ 1,123,300	\$ 909,539	
AgVantage Securities ¹	On-balance sheet	359,600	367,464	744,110	
Unfunded commitments	Off-balance sheet	77,654	47,070	10,466	
Total Corporate AgFinance		\$ 1,603,507	\$ 1,537,834	\$ 1,664,115	
Total Agricultural Finance		\$ 19,332,299	\$ 17,632,473	\$ 16,537,009	
Rural Infrastructure Finance:					
Rural Utilities:					
Loans	On-balance sheet	\$ 2,801,696	\$ 2,302,373	\$ 2,187,377	
AgVantage Securities ¹	On-balance sheet	3,044,156	3,033,262	2,565,837	
LTSPCs and unfunded commitments	Off-balance sheet	512,592	556,837	556,425	
Other Farmer Mac Guaranteed Securities ³	Off-balance sheet	1,169	2,755	4,412	
Total Rural Utilities		\$ 6,359,613	\$ 5,895,227	\$ 5,314,051	
Renewable Energy:					
Loans	On-balance sheet	\$ 219,570	\$ 86,763	\$ 73,035	
Unfunded commitments	Off-balance sheet	10,600	—	—	
Total Renewable Energy		\$ 230,170	\$ 86,763	\$ 73,035	
Total Rural Infrastructure Finance		\$ 6,589,783	\$ 5,981,990	\$ 5,387,086	
Total		\$ 25,922,082	\$ 23,614,463	\$ 21,924,095	

1. A Farmer Mac Guaranteed Security.

2. An interest-only Farmer Mac Guaranteed Security retained as part of a structured securitization.

3. Other categories of Farmer Mac Guaranteed Securities that were sold by Farmer Mac to third parties.

The following table summarizes by maturity date the scheduled principal amortization of loans held, loans underlying off-balance sheet Farmer Mac Guaranteed Securities (excluding AgVantage securities) and LTSPCs, USDA Securities, and Farmer Mac Guaranteed USDA Securities as of December 31, 2022:

Table 20

Schedule of Principal Amortization as of December 31, 2022

	Loans	Loans Underlying Off-Balance Sheet Farmer Mac Guaranteed Securities and LTSPCs	USDA Securities and Farmer Mac Guaranteed USDA Securities	Total
	<i>(in thousands)</i>			
2023	\$ 477,190	\$ 288,844	\$ 113,008	\$ 879,042
2024	458,986	227,400	112,129	798,515
2025	498,676	225,519	116,010	840,205
2026	502,316	255,773	118,922	877,011
2027	610,614	230,267	119,323	960,204
Thereafter	8,002,063	2,486,381	2,037,834	12,526,278
Total	<u>\$ 10,549,845</u>	<u>\$ 3,714,184</u>	<u>\$ 2,617,226</u>	<u>\$ 16,881,255</u>

Of Farmer Mac's \$25.9 billion outstanding principal balance of business volume as of December 31, 2022, \$9.0 billion were AgVantage securities included in the Agricultural Finance and Rural Infrastructure Finance lines of business. Unlike business volume in the form of purchased loans, USDA Securities, and loans underlying LTSPCs and non-AgVantage Farmer Mac Guaranteed Securities, most AgVantage securities do not require periodic payments of principal based on amortization schedules and instead have fixed maturity dates when the secured general obligation is due. The following table summarizes by maturity date the outstanding principal amount of both on- and off-balance sheet AgVantage securities as of December 31, 2022:

Table 21

AgVantage Balances by Year of Maturity

	As of December 31, 2022
	<i>(in thousands)</i>
2023	\$ 2,120,447
2024	1,272,770
2025	916,625
2026	975,660
2027	979,698
Thereafter ⁽¹⁾	2,744,725
Total	<u>\$ 9,009,925</u>

⁽¹⁾ Includes various maturities ranging from 2027 to 2044.

The weighted-average remaining maturity of the outstanding AgVantage securities shown in the table above was 4.9 years as of December 31, 2022.

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 53% of the Class A voting common stock is held by four 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 generally requires most financial institutions that participate in Farmer Mac's Agricultural Finance line of business to own a requisite amount of common stock, based on the size and type of institution. 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, 2022 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, 2022. 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.

Table 22

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 both 2022 and 2021, Farmer Mac earned approximately \$1.2 million 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 director Richard H. Davidson served as director of AgriBank until March 2021 and former Farmer Mac director (through May 2021) Daniel L. Shaw served as director of AgriBank until March 2022.	Farmer Mac did not conduct any business with AgriBank during 2022 or 2021.
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 none and \$2.3 million in USDA Securities from Bath State Bank in 2022 and 2021, respectively. Additionally, Farmer Mac purchased \$2.1 million and \$5.0 million in Agricultural Finance mortgage loans from Bath State Bank in 2022 and 2021, 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. Although no longer a director of CoBank, Mr. Dobrinski currently serves on CoBank's independent nominating committee that screens and interviews director candidates and recommends a slate of candidates for consideration by CoBank's membership.	Farmer Mac purchased \$376.0 million and \$207.5 million in participation interests in loans from CoBank in 2022 and 2021, respectively. This represented 45.4% and 60.2% of loan purchases under the Rural Infrastructure Finance line of business for 2022 and 2021, respectively. Farmer Mac entered into \$46.3 million and \$72.0 million in unfunded commitments from CoBank in 2022 and 2021, respectively. In 2022 and 2021, CoBank retained \$3.5 million and \$3.2 million of servicing fees related to the loan participations sold to Farmer Mac, respectively.
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)	None	In 2022 and 2021, Farmer Mac earned approximately \$2.9 million and \$1.9 million, respectively, in fees attributable to transactions with FCBT, primarily commitment fees for LTSPCs. In both 2022 and 2021, FCBT retained approximately \$0.1 million in servicing fees for its work as a Farmer Mac servicer.
Matthew 25 Management Corp.	80,254 shares of Class A voting common stock (7.79% of outstanding Class A stock and 5.24% of total voting common stock outstanding)	None	Farmer Mac did not conduct any business with Matthew 25 Management Corp. during 2022 or 2021.

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
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 served as a director of CFC from June 2015 through June 2021.	<p>Transactions with CFC represented 46.7% and 36.9% of loan purchases under the Rural Infrastructure Finance line of business during 2022 and 2021, respectively.</p> <p>In 2022 and 2021, Farmer Mac earned commitment fees of approximately \$1.1 million and \$1.2 million, respectively, attributable to transactions with CFC.</p> <p>In 2022 and 2021, Farmer Mac earned interest income of \$79.4 million and \$50.0 million, respectively, attributable to AgVantage transactions with CFC.</p> <p>In 2022 and 2021, CFC retained approximately \$3.4 million and \$3.3 million in servicing fees for its work as a Farmer Mac servicer, respectively.</p>
The Vanguard Group, Inc.	58,649 shares of Class A voting common stock (5.69% of outstanding Class A stock and 3.83% of total voting common stock outstanding)	None	Farmer Mac did not conduct any business with The Vanguard Group during 2022 or 2021.
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	<p>In 2022 and 2021, Farmer Mac's purchases of on-balance sheet Agricultural Finance mortgage loans from Zions represented approximately 12.9% and 8.0%, respectively, of Agricultural Finance mortgage loan purchase volume for those years. Those purchases represented 9.6% and 5.6%, respectively, of total Agricultural Finance mortgage loan business volume (excluding AgVantage and USDA Securities) for those years. The purchases of USDA Securities from Zions represented approximately 1.5% and 2.1%, respectively, of the USDA Guarantees purchases for the years ended December 31, 2022 and 2021. Transactions with Zions represented 3.5% and 3.4%, respectively, of Farmer Mac's total outstanding business volume as of December 31, 2022 and 2021.</p> <p>In 2022 and 2021, Zions retained approximately \$10.4 million and \$11.0 million, respectively, in servicing fees for its work as a Farmer Mac servicer.</p>

As discussed in more detail in Note 2(o) to the consolidated financial statements, Farmer Mac's consolidated financial statements include the accounts of variable interest entities ("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 a secondary market that helps meet the financing needs of rural America. The pace and trajectory of Farmer Mac's growth will depend on the capital and liquidity needs of the lending institutions serving agriculture and rural infrastructure businesses and the overall financial health of borrowers in the sectors we serve. Farmer Mac foresees opportunities for profitable growth across our lines of business driven by several key factors:

- As agricultural and rural infrastructure lenders seek to manage equity capital and return on equity capital requirements or reduce exposure due to lending or concentration limits, Farmer Mac can provide relief for those institutions through loan and portfolio purchases, participations, guarantees, LTSPCs, wholesale funding, or securitizations.
- As a result of business and product development efforts and continued interest in the agricultural asset class from institutional investors and nontraditional agricultural real estate lenders, Farmer Mac's customer base and product set continue to expand and diversify, which may generate more demand for Farmer Mac's products from new sources.
- Farmer Mac's growing relationships with larger regional and national lenders, as well as consolidation within the agricultural lending industry, continue to provide opportunities that could influence Farmer Mac's loan demand and increase the average transaction size within Farmer Mac's lines of business.
- Future growth opportunities in Farmer Mac's Rural Infrastructure Finance line of business may evolve by deepening business relationships with eligible counterparties, financing broadband-related capital expenditures and rural telecommunications facilities, growing opportunities for renewable energy project finance, and exploring new types of loan products. These opportunities may be limited by sector growth, credit quality, and the competitiveness of Farmer Mac's products.
- Expansion and acquisition opportunities for agricultural producers resulting from high agricultural incomes and rising costs have increased financing requirements for mergers and acquisitions, consolidation, and vertical integration across many sectors of the agricultural industry, which may also generate demand for Farmer Mac's loan products.
- Investments necessary to support consumer demand could increase the need for financing within the food and agriculture supply chain, which may increase the need for incremental capital support from the secondary market.
- Market interest rates have increased significantly since the lows experienced in 2021, and interest rates on Farmer Mac products at the end of 2022 were higher than Farmer Mac's 15-year historical averages. New loan origination and sales volumes tend to correlate inversely with changes in interest rates. However, prepayment rates also generally correlate inversely with changes in interest rates, with higher interest rates typically slowing the pace of portfolio loan repayments. Future changes to monetary policy and the overall level and pace of the increase in interest rates could continue to impact the pace and timing of Agricultural Finance mortgage loan purchase demand and repayments.

The war in Ukraine continues to affect volatility for commodity prices and agricultural production costs for farmers and ranchers, who were already challenged by an inflationary environment. While agricultural commodity prices have thus far outpaced the significant increase in input costs, the impact on global commodity markets from the Ukraine conflict creates further uncertainty for farmers and ranchers in terms of global production, prices, and costs heading into 2023. Heightened market volatility is likely to persist until there is more certainty around the outcome of the war in Ukraine.

In addition to continued uncertainty from supply-side disruptions, market interest rates increased rapidly during 2022, driven by the Federal Reserve's accelerated efforts to achieve monetary policy normalization and decelerate inflation. A higher interest rate environment could slow the pace of farm mortgage refinancing. While lower refinances could result in lower levels of new loan purchases in Farm & Ranch and USDA Guarantees products, it could also result in lower portfolio prepayment speeds, as was Farmer Mac's experience between 2014 and 2018. Loan prepayment speeds in 2022 fell to pre-pandemic levels, and they are likely to correlate inversely with interest rates. Farmer Mac offers a range of interest rates, tenors, and rate resetting options for loan products, allowing flexibility for originators and borrowers in all interest rate environments.

The U.S. economy exhibited signs of slowing in fourth quarter 2022 after a rapid expansion in 2021. Higher consumer price inflation in 2022, particularly for food and energy, combined with a rising interest rate environment, has dampened economists' outlooks for the U.S. economy in 2023. And while labor markets remain resilient, slower consumer spending and declines in residential housing investment indicate that the probability of a U.S. or global recession is increasing. Farmer Mac believes that its portfolio is sufficiently balanced to withstand the market volatility that arises with an economic recession, as the agricultural, food, and infrastructure industries tend not to be directly correlated with the general economy. Farmer Mac believes these sectors are generally well positioned to withstand an economic downturn due to ample consumer demand and government support.

Operating Expense. Farmer Mac continues to expand its investments in human capital, technology, and business infrastructure to increase capacity and efficiency as it seeks to accommodate its growth opportunities and achieve its long-term strategic objectives. Farmer Mac expects continued increases in its operating expenses over the next several years. We will continue making investments in our infrastructure and funding platforms to support these strategies and scale with our growth.

During 2021, we closed on a strategic acquisition that enhanced our operations by expanding our internal loan servicing function and acquiring the loan servicing rights for a sizeable portion of our Farm & Ranch loan and USDA Securities portfolios. This acquisition provides opportunities to increase our interest income on our Farm & Ranch loans and USDA Securities that we service because there will not be any third-party central servicer retaining a central servicer fee on those assets. That increased interest income is expected to be partially offset by the increase in our operating expenses relating to our enhanced internal loan servicing operations. In the short term, we do not expect the effect on core earnings to be significant. In the medium to long term, the effect will depend on the size of our portfolio that we service and the long-run costs of our servicing operations.

Agricultural Industry. The agricultural economy experienced largely favorable conditions in fourth quarter 2022, with stable commodity prices and easing input price inflation. In response to Russia's invasion of Ukraine in early 2022, grain commodity prices rose rapidly during first half of 2022 and continued to be elevated during much of the second half of 2022. Higher commodity prices for grains and many animal proteins are likely to substantially increase gross cash receipts for the 2022 marketing year. Farm expense

price levels eased in fourth quarter 2022, driven by moderating feed, energy, and fertilizer prices. However, several farm expense categories such as interest, labor, and other inputs remain elevated and could experience additional upward pressure in 2023. Major commodity prices could remain elevated in 2023 as a result of the global supply shortages in food and energy, as well as a weakening U.S. dollar. Any such price stability would help support farm incomes in 2023.

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

The increase in farm profitability combined with low interest rates in 2020 and 2021 drove a rapid rise in land values and a decrease in farm delinquencies and bankruptcies. Land value survey data from the USDA show a 12.4% increase in average farm real estate values from June 2021 to June 2022. Annual farm real estate value gains were highest in the Northern Plains (19.8%) and the Corn Belt (14.9%) but also strong in the Lake states (13.7%), the Southern Plains (11.3%), and the Pacific (9.7%). The Federal Reserve Bank of Chicago AgLetter reported a 20% gain in farmland values in the Seventh District (primarily Iowa, Indiana, Illinois, and Wisconsin) between October 2021 and October 2022. Data from the Federal Reserve Bank of Kansas City show a similar rise in land values in the Tenth District (primarily Kansas, Missouri, Nebraska, and Oklahoma) during that same period. Historically, rising farm real estate values have correlated with an increase in real estate secured debt. While regional averages for farmland values provide a good barometer for the overall movement in U.S. farmland values, economic forces affecting land markets are highly localized, and some markets may experience greater volatility in farmland values than state or national averages indicate.

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

Positive economic conditions in the agricultural economy improved Farmer Mac's agricultural portfolio performance in 2022, and they could continue to positively influence loan delinquencies and losses in 2023. Farmer Mac's 90-day delinquency levels decreased slightly in fourth quarter 2022 relative to third quarter 2022. The overall delinquency rate decreased from 0.42% of the Agricultural Finance line of business as of September 30, 2022 to 0.41% of the Agricultural Finance line of business as of December 31, 2022, and the fourth quarter 2022 percentage is lower than the 0.48% delinquency rate as of December 31, 2021. The percentage of the portfolio rated substandard also continued to improve in fourth quarter

2022 to the lowest levels since 2016. However, rising input costs, market volatility, and the potential for continued economic and weather-related stress increase the level of uncertainty inherent in the agricultural credit sector, which could negatively affect the trajectory of the current agricultural cycle. Farmer Mac believes that its portfolio continues to be highly diversified, both geographically and by commodity and that its portfolio has been underwritten to high credit quality standards. Therefore, Farmer Mac believes that its portfolio is well-positioned to endure reasonably foreseeable volatility from cyclical and external factors. For more information about the loan balances, loan-to-value ratios, 90-day delinquencies, and substandard asset rate for the Agricultural Finance mortgage loans in Farmer Mac's portfolio as of December 31, 2022, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Risk Management—Credit Risk—Loans and Guarantees."

Exogenous factors facing farm and food producers can create uncertainty and market instability within the sector. External market conditions that could adversely impact the farm and food sectors in 2023 include the relative value of the U.S. dollar, supply chain disruptions, foreign trade and trade policy, and environmental conditions. The U.S. agricultural sector has become increasingly dependent on foreign markets as a source of demand, making trade policy increasingly important to farms and food. The USDA's estimate for fiscal year 2022 is a sizable increase in export value over 2021, and through November 2022, agricultural export values were up nearly 12% in 2022 compared to 2021. The value of the U.S. dollar relative to other major currencies fell 8% in fourth quarter 2022, which may have helped support major commodities to end the year. Continued disruptions to global grain supplies in Ukraine and Russia could maintain elevated demand for U.S. agricultural product demand. Slower global growth could be a headwind for consumer-oriented products like animal proteins, dairy, fruits, and nuts, and Ukrainian corn and wheat production may eventually stabilize. Because Farmer Mac has significant exposure to crop commodities like corn, soybeans, hay, wheat, and cotton, a sustained rally in agricultural commodities is likely to continue to benefit Farmer Mac's overall portfolio credit quality more than degradation from downward pressure on livestock and consumer product profitability.

Severe weather conditions and long-term environmental change continue to shape agricultural sectors. The U.S. experienced 18 separate billion-dollar weather disasters in 2022, as tracked by the National Oceanic and Atmospheric Administration. Many of those events affected agriculture, including midwestern storms, western wildfires, and drought. Federal crop insurance provides a strong mitigator against this risk, but farmers and ranchers face increasingly-severe weather incidents. Long and persistent drought conditions affected agricultural production regions in the western and midwestern parts of the United States in 2021 and 2022, but there has been a sizable improvement in conditions in fourth quarter 2022 and early 2023, particularly in California. Roughly 7% of the continental U.S. remained in exceptional or extreme drought as of January 31, 2023, according to data from the National Drought Mitigation Center. While this represents the lowest level of widespread drought since 2020, the current drought cycle is the longest in nearly 20 years. Extended periods of drought and dryness can reduce agricultural productivity, cause lasting damage to permanent crops like fruit and tree nuts, and result in producers leaving some fields fallow due to lack of water. States also regulate water use, and state laws like California's Sustainable Groundwater Management Act (SGMA) will continue to shape state-led efforts to manage water infrastructure and use and could potentially impact producers. Agricultural production in California, Oregon, Washington, Arizona, and Utah is likely to experience the greatest impact from the 2021 and 2022 droughts. For loans in areas that commonly experience exceptional drought (primarily in California), Farmer Mac's underwriting process includes an assessment of anticipated long-term water availability for the related property and how that impacts the collateral value and borrower's cash flow position to mitigate that risk.

Rural Infrastructure Industry. Economic conditions affecting the rural infrastructure industry typically follow those in the general economy. According to data from the U.S. Energy Information Administration, sales and the revenue from the sale of electricity to customers increased by 2.0% and 14.3%, respectively, in the last 12 months through November 2022 compared to November 2021. This increase was driven by a sharp increase in sales to the commercial, industrial, and transportation sectors and an increase in the retail price of electricity. Higher energy input prices such as natural gas and coal became a headwind in 2022. Natural gas prices rose consistently in 2021 and 2022 because of reduced supply and additional demand for U.S. liquified natural gas from European countries. Coal prices also rapidly increased in third quarter 2022, driven by higher natural gas prices and additional overseas demand to offset limited Russian coal exports. Despite higher input costs, power producers are generally able to pass cost increases through higher retail electricity prices, which has contributed to the increase in electricity costs impacting retail customers during third quarter 2022. Oil and natural gas prices were volatile during third quarter 2022 but moderated in fourth quarter 2022 and early 2023. Through December 31, 2022, Farmer Mac had not observed material degradation in the financial performance of its rural infrastructure portfolio, and that portfolio has never experienced a serious delinquency or default since inception.

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

The growth in renewable energy generation and deployment of energy storage technologies may help deepen Farmer Mac's relationships with existing customers through new business opportunities. According to data from the U.S. Energy Information Administration, renewable electricity capacity is expected to grow by 48% in the next five years, compared to total electric capacity growth of 10%. The rising cost of fossil fuel-based inputs combined with the falling costs of renewable power generation may hasten this increase in capacity along with recently enacted legislature, such as the Inflation Reduction Act of 2022 that incentivizes domestic production in clean energy technologies such as solar and wind. Any such growth in renewable energy capacity may broaden Farmer Mac's customer base with cooperative lenders focused on lending to renewable energy customers. In response to this expected growth, Farmer Mac has deployed new financing products tailored to the renewable energy sector, which represents a new market opportunity for Farmer Mac. Under this initiative, Farmer Mac's total outstanding loans and loan commitments of renewable energy financing transactions was \$230.2 million as of December 31, 2022.

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

- The current farm bill expires on September 30, 2023. Covering a variety of programs impacting farm profitability, agricultural credit, and rural infrastructure it is a critical piece of legislation for rural America and the agricultural sector. Congress has started an extensive process to review

programs included in the farm bill in preparation for reauthorization. Farmer Mac is seeking enhancement to its charter during the farm bill reauthorization to enhance its partnerships and services in support of farmers, ranchers, agribusinesses, and rural infrastructure. Farmer Mac will continue to monitor this legislation for any impact it may have on Farmer Mac and its stakeholders.

- On January 13, 2023, the FCA board approved an advanced notice of proposed rulemaking to review Farmer Mac's capital framework. The notice seeks public comment on Farmer Mac's capital requirements in the context of its business activities. The comment period closes March 27, 2023.
- On September 29, 2022, the U.S. Senate confirmed Vincent Logan to be a member of the FCA board. Mr. Logan was subsequently appointed to be the Chairman and CEO of the FCA by President Biden on October 21, 2022. The remaining two members of the board are currently serving in holdover status because their terms have expired. They will continue to serve in their roles until replacements are nominated by the President and confirmed by the U.S. Senate. Farmer Mac will continue to monitor changes to the composition of the FCA board, as it may affect Farmer Mac's regulatory environment.

Balance Sheet Review

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

Table 23

	As of		Change	
	December 31, 2022	December 31, 2021	\$	%
	(in thousands)			
Assets				
Cash and cash equivalents	\$ 861,002	\$ 908,785	\$ (47,783)	(5)%
Investment securities	4,628,268	3,882,590	745,678	19 %
Farmer Mac Guaranteed Securities	8,628,380	8,361,798	266,582	3 %
USDA Securities	2,411,601	2,440,732	(29,131)	(1)%
Loans, net of allowance	8,997,191	8,300,619	696,572	8 %
Loans held in trusts	1,211,116	948,059	263,057	28 %
Other	595,552	278,426	317,126	114 %
Total assets	<u>\$ 27,333,110</u>	<u>\$ 25,121,009</u>	<u>\$ 2,212,101</u>	9 %
Liabilities				
Notes Payable	\$ 24,469,113	\$ 22,713,771	\$ 1,755,342	8 %
Debt securities of consolidated trusts held by third parties	1,181,948	981,379	200,569	20 %
Other	410,091	212,159	197,932	93 %
Total liabilities	<u>\$ 26,061,152</u>	<u>\$ 23,907,309</u>	<u>\$ 2,153,843</u>	9 %
Total equity	<u>1,271,958</u>	<u>1,213,700</u>	<u>58,258</u>	5 %
Total liabilities and equity	<u>\$ 27,333,110</u>	<u>\$ 25,121,009</u>	<u>\$ 2,212,101</u>	9 %

Assets. The increase in total assets was primarily attributable to new loan volume and a larger investment portfolio.

Liabilities. The increase in total liabilities was primarily due to an increase in total notes payable to fund the acquisition of loan volume.

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

Risk Management

Credit Risk – Loans and Guarantees.

Agricultural Finance - Direct Credit Exposure

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

Farmer Mac's 90-day delinquency measure includes loans 90 days or more past due, as well as loans in foreclosure and non-performing loans where the borrower is in bankruptcy. For Agricultural Finance mortgage loans to which Farmer Mac has direct credit exposure, Farmer Mac's 90-day delinquencies as of December 31, 2022, were \$43.5 million (0.41% of the Agricultural Finance mortgage loan portfolio to which Farmer Mac has direct credit exposure), compared to \$47.3 million (0.48% of the Agricultural Finance mortgage loan portfolio) as of December 31, 2021. Those 90-day delinquencies were comprised of 37 delinquent loans as of December 31, 2022, compared to 32 delinquent loans as of December 31, 2021. The decrease in 90-day delinquencies was primarily driven by decreased delinquencies in crops and livestock and was partially offset by increased delinquencies in permanent plantings and part-time farms. The top ten borrower exposures over 90 days delinquent represented over half of the 90-day delinquencies as of December 31, 2022. Farmer Mac believes that it remains adequately collateralized on its delinquent loans.

Farmer Mac's 90-day delinquency rate as of December 31, 2022 was below Farmer Mac's historical average. In the near-term, our delinquency rate may exceed our historical average due to the impact of adverse weather events and/or supply chain disruptions on the agricultural economy. Farmer Mac's average 90-day delinquency rate as a percentage of its Agricultural Finance mortgage loan portfolio over the last 15 years is approximately 1%. The highest 90-day delinquency rate observed during that period occurred in 2009 at approximately 2%, which coincided with increased delinquencies in loans within Farmer Mac's ethanol loan portfolio.

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

Table 24

	Agricultural Finance Mortgage Loans	90-Day Delinquencies	Percentage
	<i>(dollars in thousands)</i>		
As of:			
December 31, 2022	\$ 10,719,571	\$ 43,498	0.41 %
September 30, 2022	10,508,549	44,232	0.42 %
June 30, 2022	10,128,083	20,623	0.20 %
March 31, 2022	9,879,978	55,847	0.57 %
December 31, 2021	9,811,749	47,307	0.48 %
September 30, 2021	9,445,359	54,792	0.58 %
June 30, 2021	9,056,152	63,076	0.70 %
March 31, 2021	8,629,352	72,346	0.84 %
December 31, 2020	8,581,181	46,232	0.54 %

Across all of Farmer Mac's lines of business, 90-day delinquencies represented 0.17% of total outstanding business volume as of December 31, 2022, compared to 0.20% as of December 31, 2021 and 0.21% as of December 31, 2020.

The following table presents outstanding Agricultural Finance mortgage loans and 90-day delinquencies as of December 31, 2022 by year of origination, geographic region, commodity/collateral type, original loan-to-value ratio, and range in the size of borrower exposure:

Table 25

Agricultural Finance Mortgage Loans 90-Day Delinquencies as of December 31, 2022

	Distribution of Agricultural Loans	Agricultural Loans	90-Day Delinquencies ⁽¹⁾	Percentage
	(dollars in thousands)			
By year of origination:				
2012 and prior	6 %	\$ 617,085	\$ 2,272	0.37 %
2013	2 %	267,394	117	0.04 %
2014	2 %	225,497	—	— %
2015	3 %	359,547	10,349	2.88 %
2016	5 %	556,574	636	0.11 %
2017	5 %	552,495	3,133	0.57 %
2018	6 %	625,131	8,606	1.38 %
2019	8 %	860,319	—	— %
2020	20 %	2,118,173	8,834	0.42 %
2021	26 %	2,757,351	4,319	0.16 %
2022	17 %	1,780,005	5,232	0.16 %
Total	100 %	\$ 10,719,571	\$ 43,498	0.41 %
By geographic region ⁽²⁾ :				
Northwest	13 %	\$ 1,382,143	\$ 2,297	0.17 %
Southwest	31 %	3,306,849	18,109	0.55 %
Mid-North	26 %	2,812,751	8,646	0.31 %
Mid-South	17 %	1,870,319	9,815	0.52 %
Northeast	4 %	427,531	1,412	0.33 %
Southeast	9 %	919,978	3,219	0.35 %
Total	100 %	\$ 10,719,571	\$ 43,498	0.41 %
By commodity/collateral type:				
Crops	50 %	\$ 5,385,259	\$ 17,220	0.32 %
Permanent plantings	22 %	2,389,661	4,180	0.17 %
Livestock	18 %	1,967,954	3,712	0.19 %
Part-time farm	5 %	483,550	2,823	0.58 %
Ag. Storage and Processing	5 %	475,485	15,563	3.27 %
Other	—	17,662	—	— %
Total	100 %	\$ 10,719,571	\$ 43,498	0.41 %
By original loan-to-value ratio:				
0.00% to 40.00%	19 %	\$ 2,021,834	\$ 18,597	0.92 %
40.01% to 50.00%	23 %	2,473,289	6,715	0.27 %
50.01% to 60.00%	36 %	3,800,377	15,611	0.41 %
60.01% to 70.00%	20 %	2,145,937	2,124	0.10 %
70.01% to 80.00% ⁽³⁾	2 %	250,980	451	0.18 %
80.01% to 90.00% ⁽³⁾	— %	27,154	—	— %
Total	100 %	\$ 10,719,571	\$ 43,498	0.41 %
By size of borrower exposure ⁽⁴⁾ :				
Less than \$1,000,000	26 %	\$ 2,794,986	\$ 8,755	0.31 %
\$1,000,000 to \$4,999,999	37 %	3,955,557	19,258	0.49 %
\$5,000,000 to \$9,999,999	16 %	1,674,698	5,900	0.35 %
\$10,000,000 to \$24,999,999	13 %	1,385,886	9,585	0.69 %
\$25,000,000 and greater	8 %	908,444	—	— %
Total	100 %	\$ 10,719,571	\$ 43,498	0.41 %

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

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

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

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

Another indicator that Farmer Mac considers in analyzing the credit quality of its Agricultural Finance mortgage loans is the level of internally-rated "substandard" assets, both in dollars and as a percentage of the outstanding portfolio. Assets categorized as "substandard" have a well-defined weakness or weaknesses, and there is a distinct possibility that some loss will be sustained if deficiencies are not corrected. As of December 31, 2022, Farmer Mac's Agricultural Finance mortgage loans (to which it has direct credit exposure) comprising substandard assets were \$209.4 million (2.0% of the portfolio), compared to \$246.7 million (2.5% of the portfolio) as of December 31, 2021. Those substandard assets comprised 243 loans as of December 31, 2022 and 274 loans as of December 31, 2021.

The decrease of \$37.3 million in substandard assets during 2022 was driven by credit upgrades in both our on-balance sheet and off-balance sheet portfolios. Substandard assets decreased as a percentage of both portfolios due to a combination of credit upgrades and volume growth.

The percentage of substandard assets within the portfolio as of December 31, 2022 was below the historical average. Farmer Mac's average substandard assets as a percentage of its Agricultural Finance mortgage loans over the last 15 years is approximately 4%. The highest substandard asset rate observed during the last 15 years occurred in 2010 at approximately 8%, which coincided with an increase in substandard loans within Farmer Mac's ethanol portfolio. If Farmer Mac's substandard asset rate increases from current levels, it is likely that Farmer Mac's provision to the allowance for loan losses and the reserve for losses will also increase.

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

Farmer Mac considers a loan's original loan-to-value ratio as one of many factors in evaluating loss severity. Loan-to-value ratios depend on the market value of a property, as determined in accordance with Farmer Mac's collateral valuation standards. As of December 31, 2022 and 2021, the average unpaid principal balances for Agricultural Finance mortgage loans outstanding and to which Farmer Mac has direct credit exposure was \$806,000 and \$790,000, respectively. Farmer Mac calculates the "original loan-to-value" ratio of a loan by dividing the original loan principal balance by the original appraised property value. This calculation does not reflect any amortization of the original loan balance or any adjustment to the original appraised value to provide a current market value. The original loan-to-value ratio of any cross-collateralized loans is calculated on a combined basis rather than on a loan-by-loan basis. The weighted-average original loan-to-value ratio for Agricultural Finance mortgage loans purchased during 2022 was 43%, compared to 49% for loans purchased during 2021. The weighted-average original loan-to-value ratio for Agricultural Finance mortgage loans and loans underlying off-balance sheet Farmer Mac Guaranteed Securities and LTSPCs was 51% and 52% as of December 31, 2022 and 2021, respectively. The weighted-average original loan-to-value ratio for all 90-day delinquencies was 46% and 51% as of December 31, 2022 and 2021, respectively.

The weighted-average current loan-to-value ratio (the loan to-value ratio based on original appraised value and current outstanding loan amount adjusted to reflect amortization) for Agricultural Finance mortgage loans and loans underlying off-balance sheet Farmer Mac Guaranteed Securities and LTSPCs was 46% and 47% as of December 31, 2022 and 2021, respectively.

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

Table 26

Agricultural Finance Mortgage Loans current loan-to-value ratio by internally assigned risk rating as of December 31, 2022

	Acceptable	Special Mention	Substandard	Total
	<i>(in thousands)</i>			
Current loan-to-value ratio ⁽¹⁾ :				
0.00% to 40.00%	\$ 3,036,770	\$ 59,865	\$ 72,356	\$ 3,168,991
40.01% to 50.00%	2,679,917	94,381	53,220	2,827,518
50.01% to 60.00%	2,942,745	80,982	42,382	3,066,109
60.01% to 70.00%	1,371,349	43,140	22,702	1,437,191
70.01% to 80.00%	155,527	16,208	14,766	186,501
80.01% and greater	29,024	263	3,974	33,261
Total	<u>\$ 10,215,332</u>	<u>\$ 294,839</u>	<u>\$ 209,400</u>	<u>\$ 10,719,571</u>

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

The following table presents Farmer Mac's cumulative net credit losses relative to the cumulative original balance for all Agricultural Finance mortgage loans as of December 31, 2022 by year of origination, geographic region, and commodity/collateral type. The purpose of this table is to present information about realized losses relative to original Farm & Ranch purchases, guarantees, and commitments.

Table 27

Agricultural Finance Mortgage Loans Credit Losses Relative to Cumulative
Original Loans, Guarantees, and LTSPCs as of December 31, 2022

	Cumulative Original Loans, Guarantees and LTSPCs	Cumulative Net Credit Losses/ (Recoveries)	Cumulative Loss Rate
<i>(dollars in thousands)</i>			
By year of origination:			
2012 and prior	\$ 17,260,722	\$ 33,785	0.20 %
2013	1,478,735	—	— %
2014	1,085,667	—	— %
2015	1,245,487	(516)	(0.04)%
2016	1,587,592	903	0.06 %
2017	1,682,147	4,311	0.26 %
2018	1,390,137	—	— %
2019	1,588,911	—	— %
2020	2,893,635	—	— %
2021	3,278,075	—	— %
2022	1,915,097	—	— %
Total	<u>\$ 35,406,205</u>	<u>\$ 38,483</u>	0.11 %
By geographic region ⁽¹⁾ :			
Northwest	\$ 4,571,621	\$ 12,094	0.26 %
Southwest	11,927,424	8,542	0.07 %
Mid-North	8,815,061	17,165	0.19 %
Mid-South	5,063,574	(613)	(0.01)%
Northeast	1,830,153	323	0.02 %
Southeast	3,198,372	972	0.03 %
Total	<u>\$ 35,406,205</u>	<u>\$ 38,483</u>	0.11 %
By commodity/collateral type:			
Crops	\$ 16,422,355	\$ 3,790	0.02 %
Permanent plantings	7,707,066	9,783	0.13 %
Livestock	7,784,896	3,836	0.05 %
Part-time farm	1,896,547	1,090	0.06 %
Ag. Storage and Processing	1,426,801	19,984	1.40 %
Other	168,540	—	— %
Total	<u>\$ 35,406,205</u>	<u>\$ 38,483</u>	0.11 %

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

Analysis of portfolio performance indicates that commodity type is the primary determinant of Farmer Mac's exposure to loss on a given loan. The following tables present concentrations of Agricultural Finance mortgage loans by commodity type within geographic region and cumulative credit losses by origination year and commodity type:

Table 28

As of December 31, 2022							
Agricultural Finance Mortgage Loans Concentrations by Commodity Type within Geographic Region							
Crops	Permanent Plantings	Livestock	Part-time Farm	Ag. Storage and Processing	Other	Total	
(dollars in thousands)							
By geographic region ⁽¹⁾ :							
Northwest	\$ 722,805	\$ 224,214	\$ 290,599	\$111,547	\$ 32,955	\$ 23	\$1,382,143
	6.7 %	2.1 %	2.7 %	1.0 %	0.3 %	— %	12.8 %
Southwest	698,041	1,788,082	564,464	110,072	130,377	15,813	3,306,849
	6.5 %	16.7 %	5.3 %	1.0 %	1.2 %	0.1 %	30.8 %
Mid-North	2,372,177	10,567	233,371	87,669	107,355	1,612	2,812,751
	22.1 %	0.1 %	2.2 %	0.8 %	1.0 %	— %	26.2 %
Mid-South	1,081,669	79,235	576,522	61,962	70,914	17	1,870,319
	10.1 %	0.7 %	5.4 %	0.6 %	0.7 %	— %	17.5 %
Northeast	191,635	45,513	76,071	50,877	63,435	—	427,531
	1.8 %	0.4 %	0.7 %	0.5 %	0.6 %	— %	4.0 %
Southeast	318,932	242,050	226,927	61,423	70,449	197	919,978
	3.0 %	2.3 %	2.1 %	0.6 %	0.7 %	— %	8.7 %
Total	\$5,385,259	\$2,389,661	\$1,967,954	\$483,550	\$475,485	\$17,662	\$10,719,571
	50.2 %	22.3 %	18.4 %	4.5 %	4.5 %	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 29

As of December 31, 2022							
Agricultural Loans Cumulative Credit Losses by Origination Year and Commodity Type							
Crops	Permanent Plantings	Livestock	Part-time Farm	Ag. Storage and Processing	Total		
(in thousands)							
By year of origination:							
2012 and prior	\$ 3,427	\$ 9,783	\$ 3,836	\$ 1,066	\$ 15,673	\$ 33,785	
2013	—	—	—	—	—	—	
2014	—	—	—	—	—	—	
2015	(540)	—	—	24	—	(516)	
2016	903	—	—	—	—	903	
2017	—	—	—	—	4,311	4,311	
2018	—	—	—	—	—	—	
2019	—	—	—	—	—	—	
2020	—	—	—	—	—	—	
2021	—	—	—	—	—	—	
2022	—	—	—	—	—	—	
Total	\$ 3,790	\$ 9,783	\$ 3,836	\$ 1,090	\$ 19,984	\$ 38,483	

For more information about the credit quality of Farmer Mac's Agricultural Finance mortgage loans and the associated allowance for losses please refer to Note 8 and Note 12 to the consolidated financial statements. Activity affecting the allowance for loan losses and reserve for losses is discussed in "Management's Discussion and Analysis of Financial Condition and Results of Operations—Results of Operations—Provision for and Release of Allowance for Loan Losses and Reserve for Losses."

Rural Infrastructure Finance - Direct Credit Exposure

Farmer Mac's direct credit exposure to Rural Infrastructure Finance loans held and loans underlying LTSPCs as of December 31, 2022 was \$3.5 billion across 45 states. For more information about Farmer Mac's underwriting and collateral valuation standards for Rural Infrastructure Finance loans, see "Business—Farmer Mac's Lines of Business—Rural Infrastructure Finance—Underwriting and Collateral Standards." As of December 31, 2022, there were no delinquencies in Farmer Mac's portfolio of Rural Infrastructure Finance loans.

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

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

Table 30

	Rural Infrastructure Finance portfolio by internally assigned risk rating as of December 31, 2022					
	Acceptable		Special Mention		Substandard	Total
	(in thousands)					
Distribution Cooperative	\$	2,290,695	\$	—	\$	2,290,695
G&T Cooperative		706,976		—		706,976
Renewable Energy		230,170		—		230,170
Telecommunications		316,617		—		316,617
Rural Infrastructure Total	\$	3,544,458	\$	—	\$	3,544,458

For more information about the credit quality of Farmer Mac's Rural Infrastructure Finance portfolio and the associated allowance for losses please refer to Notes 8 and 12 of the consolidated financial statements.

Other Considerations Regarding Credit Risk Related to Loans and Guarantees

The credit exposure on USDA Securities, including those underlying Farmer Mac Guaranteed USDA Securities, is guaranteed by the full faith and credit of the United States. Therefore, Farmer Mac believes that we have little or no credit risk exposure to the USDA Securities in the Agricultural Finance line of business because of the USDA guarantee. As of December 31, 2022, Farmer Mac had not experienced any credit losses on any USDA Securities or Farmer Mac Guaranteed USDA Securities and does not expect to incur any such losses in the future. Because we do not expect credit losses on this portfolio, Farmer Mac does not provide an allowance for losses on its portfolio of USDA Securities.

Farmer Mac requires many lenders to make representations and warranties about the conformity of Agricultural Finance mortgage loans and Rural Infrastructure Finance 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, 2022, there have been no breaches of representations and warranties by sellers that resulted in Farmer Mac requiring a seller to cure, replace, or repurchase a loan. In addition to relying on the representations and warranties of sellers, Farmer Mac also underwrites the Agricultural Finance mortgage loans (other than rural housing and part-time farm mortgage loans) and Rural Infrastructure Finance loans on which it has direct credit exposure. For rural housing and part-time farm mortgage loans, Farmer Mac relies on representations and warranties from the seller that those loans conform to Farmer Mac's specified underwriting criteria. For more information about Farmer Mac's loan eligibility requirements and underwriting standards, see "Business—Farmer Mac's Lines of Business—Agricultural Finance—Loan Eligibility," "Business—Farmer Mac's Lines of Business—Agricultural Finance—Underwriting and Collateral Standards—Farm & Ranch," "Business—Farmer Mac's Lines of Business—Agricultural Finance—Underwriting and Collateral Standards—Corporate AgFinance," and "Business—Farmer Mac's Lines of Business—Rural Infrastructure Finance—Underwriting and Collateral Standards."

Under contracts with Farmer Mac and in consideration for servicing fees, Farmer Mac-approved servicers service loans in accordance with Farmer Mac's requirements. Servicers are responsible to Farmer Mac for material errors in the servicing of those loans. If a servicer materially breaches the terms of its servicing

agreement with Farmer Mac, such as failing to forward payments received or releasing collateral without Farmer Mac's consent, or experiences insolvency or bankruptcy, the servicer is responsible for any corresponding damages to Farmer Mac and, in most cases, Farmer Mac has the right to terminate the servicing relationship for a particular loan or the entire portfolio serviced by the servicer. Farmer Mac also can proceed against the servicer in arbitration or exercise any remedies available to it under law. During the previous three years ended December 31, 2022, Farmer Mac had not exercised any remedies or taken any formal action against any servicers. For more information about Farmer Mac's servicing requirements, see "Business—Farmer Mac's Lines of Business—Agricultural Finance—Loan Servicing" and "Business—Farmer Mac's Lines of Business—Rural Infrastructure Finance—Lenders and Loan Servicing."

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

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

Farmer Mac approves AgVantage counterparties and manages institutional credit risk related to those AgVantage counterparties by requiring them to meet Farmer Mac's standards for creditworthiness for the particular counterparty type and transaction. The required collateralization level is established when the AgVantage facility is entered into with the counterparty and does not change during the life of the AgVantage securities issued under the facility without Farmer Mac's consent. In AgVantage transactions, the corporate obligor is typically required to remove from the pool of pledged collateral loans that become and remain (within specified parameters) delinquent in the payment of principal or interest and to substitute eligible loans that are current in payment or pay down the AgVantage securities to maintain the minimum required collateralization level.

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

The unpaid principal balance of outstanding on-balance sheet AgVantage securities secured by loans eligible for the Agricultural Finance line of business totaled \$6.0 billion as of December 31, 2022 and \$5.1 billion as of December 31, 2021. The unpaid principal balance of on-balance sheet AgVantage securities secured by loans eligible for the Rural Infrastructure Finance line of business totaled \$3.0 billion as of both December 31, 2022 and December 31, 2021. The unpaid principal balance of outstanding off-balance sheet AgVantage securities totaled \$1.2 million as of December 31, 2022 and \$2.8 million as of December 31, 2021.

The following table provides information about the issuers of AgVantage securities and the required collateralization levels for those transactions as of December 31, 2022 and 2021:

Table 31

Counterparty	As of December 31, 2022		As of December 31, 2021	
	Balance	Required Collateralization	Balance	Required Collateralization
<i>(dollars in thousands)</i>				
AgVantage:				
CFC	\$ 3,045,325	100%	\$ 3,036,017	100%
MetLife	2,050,000	103%	2,050,000	103%
Rabo AgriFinance	2,855,000	105%	2,550,000	105%
Other ⁽¹⁾	1,059,600	100% to 125%	492,464	106% to 125%
Total outstanding	<u>\$ 9,009,925</u>		<u>\$ 8,128,481</u>	

⁽¹⁾ Consists of AgVantage securities issued by 12 and 13 different issuers as of December 31, 2022 and 2021, respectively.

Farmer Mac manages institutional credit risk related to lenders and servicers by requiring those institutions to meet Farmer Mac's standards for creditworthiness. Farmer Mac monitors the financial condition of those institutions by evaluating financial statements and credit rating agency reports. For more information about Farmer Mac's lender eligibility requirements, see "Business—Farmer Mac's Lines of Business—Agricultural Finance—Lenders" and "Business—Farmer Mac's Lines of Business—Rural Infrastructure Finance—Lenders and Loan Servicing."

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

Credit Risk – Other Investments. As of December 31, 2022, Farmer Mac had \$0.9 billion of cash and cash equivalents and \$4.6 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 Farmer Mac's Liquidity and Investment Regulations. In addition to establishing a portfolio of highly liquid investments as an available source of cash, the goals of Farmer Mac's investment policies are designed to minimize Farmer Mac's exposure to financial market volatility, preserve capital, and support Farmer Mac's access to the debt markets.

The Liquidity and Investment Regulations and Farmer Mac's internal policies require that investments held in Farmer Mac's investment portfolio meet the following creditworthiness standards: (1) at a minimum, at least one obligor of the investment must have a very strong capacity to meet financial commitments for the life of the investment, even under severely adverse or stressful conditions, and generally present a very low risk of default; (2) if the obligor whose capacity to meet financial

commitments is being relied upon to meet the standard set forth in subparagraph (1) is located outside of the United States, the investment must also be fully guaranteed by a U.S. government agency; and (3) the investment must exhibit low credit risk and other risk characteristics consistent with the purpose or purposes for which it is held.

The Liquidity and Investment Regulations and Farmer Mac's internal policies also establish concentration limits, which are intended to limit exposure to any single entity, issuer, or obligor. The Liquidity and Investment Regulations limit Farmer Mac's total credit exposure to any single entity, issuer, or obligor of securities to 10% of Farmer Mac's regulatory capital (\$134.0 million as of December 31, 2022). However, Farmer Mac's current policy limits this total credit exposure to 5% of its regulatory capital (\$67.0 million as of December 31, 2022). These exposure limits do not apply to obligations of U.S. government agencies or GSEs, although Farmer Mac's current policy restricts investing more than 100% of regulatory capital in the senior non-convertible debt securities of any one GSE.

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

Interest Rate Risk. Farmer Mac is subject to interest rate risk on all interest-earning assets on its balance sheet because of timing differences in the cash flows due to maturity, paydown, or repricing of the assets and debt together with financial derivatives. Cash flow mismatches due to changing interest rates can reduce the earnings of Farmer Mac if assets prepay sooner than expected and the resulting cash flows must be reinvested in lower-yielding investments when Farmer Mac's funding costs cannot be correspondingly reduced. Alternatively, Farmer Mac could realize a decline in income if assets repay more slowly than originally forecasted and the associated maturing debt must be replaced by debt issuances at higher interest rates.

Interest Rate Risk Management

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

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

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

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

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

Changes in interest rates may affect the timing of asset prepayments which may, in turn, impact durations and values of the assets. Declining interest rates generally result in increased prepayments, which shortens the duration of these assets, while rising interest rates generally result in lower prepayments, thereby extending the duration of the assets.

Farmer Mac is subject to interest rate risk on loans and securities it has committed to acquire but not yet purchased (other than delinquent loans purchased through LTSPCs or loans designated for securitization under a forward purchase agreement). When Farmer Mac commits to purchase these assets, it is exposed to interest rate risk between the time it commits to purchase the loans and the time it issues debt to fund the purchase of these loans. Farmer Mac manages the interest rate risk exposure related to these loans by entering into exchange-traded futures contracts involving U.S. Treasury securities and other financial derivatives. Similarly, when Farmer Mac commits to sell certain assets, the associated interest rate exposure is primarily managed with exchange-traded futures contracts involving U.S. Treasury securities and other financial derivatives.

Farmer Mac's \$0.9 billion of cash and cash equivalents held as of December 31, 2022 mature within three months. As of December 31, 2022, \$3.2 billion of the \$4.6 billion of investment securities (70%) were floating rate securities with rates that adjust within one year or fixed rate securities with original maturities between three months and one year. Farmer Mac's floating rate investment securities are funded with floating rate debt. The fixed rate investment securities are generally funded in a manner consistent with Farmer Mac's overall funding strategy that approximates a duration and convexity match.

Interest Rate Risk Metrics

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

MVE represents management's estimate of the present value of all future cash flows from its current portfolio of on- and off-balance sheet assets, liabilities, and financial derivatives, discounted at current interest rates and appropriate spreads. However, MVE is not indicative of the market value of Farmer Mac as a going concern because these market values are theoretical and do not reflect future business activities. The MVE sensitivity analysis measures the degree to which the market values of Farmer Mac's assets, liabilities, and financial derivatives are estimated to change for a given change in interest rates.

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

Duration is a measure of a financial instrument's fair value sensitivity to small changes in interest rates. Duration gap is calculated using the net estimated durations of Farmer Mac's interest-earning assets, debt, and financial derivatives. Duration gap quantifies the extent to which estimated fair value sensitivities are matched for interest-earning assets, debt and financial derivatives. Duration gap provides a relatively concise measure of the interest rate risk inherent in Farmer Mac's outstanding portfolio.

A positive duration gap denotes that the duration of Farmer Mac's interest-earning assets is greater than the duration of its debt and financial derivatives. A positive duration gap indicates that with small changes in interest rate movements the fair value change of Farmer Mac's interest-earning assets is more sensitive than the fair value change of its debt and financial derivatives. Conversely, a negative duration gap indicates that with small changes in interest rate movements the fair value change of Farmer Mac's interest-earning assets are less sensitive than the fair value change of its debt and financial derivatives. A duration gap of zero indicates that with small changes in interest rate movements the fair value change of Farmer Mac's interest-earning assets is effectively offset by the fair value change of its debt and financial derivatives.

Each of the interest rate risk metrics is quantified using asset/liability models and derived based on management's best estimates of factors such as implied forward interest rates across the yield curve, interest rate volatility, and timing of asset prepayments and callable debt redemptions. Accordingly, these metrics are estimates rather than precise measurements. Actual results may differ to the extent there are material changes to Farmer Mac's financial asset portfolio or changes in funding or hedging strategies undertaken to mitigate unfavorable sensitivities to interest rate changes.

The following schedule summarizes the results of Farmer Mac's MVE and NES sensitivity analysis as of December 31, 2022 and 2021 to an immediate and instantaneous uniform or "parallel" shift in the yield curve:

Table 32

Interest Rate Scenario ⁽¹⁾	Percentage Change in MVE from Base Case	
	As of December 31, 2022	As of December 31, 2021 ⁽¹⁾
+100 basis points	(3.7)%	3.7 %
-100 basis points	2.7 %	(0.1)%
Interest Rate Scenario	Percentage Change in NES from Base Case	
	As of December 31, 2022	As of December 31, 2021 ⁽¹⁾
+100 basis points	0.4 %	6.6 %
-100 basis points	(0.6)%	(0.1)%

⁽¹⁾ The down 100 basis points shock scenario was replaced in 2020 with a proportional shock relative to 50% of the 3-month Treasury bill rate, with the approval of the Finance Committee of the Board of Directors. The replacement down shock scenario was negative 2 basis points as of December 31, 2021.

As of December 31, 2022, Farmer Mac's duration gap was positive 3.6 months, compared to negative 1.5 months as of December 31, 2021. Interest rates within the yield curve flattened during 2022 with the 2-year and 10-year U.S. Treasury Note yield-to-maturity increasing by approximately 370 basis points and 237 basis points, respectively, versus year-end 2021. This rate movement contributed to extending the duration of Farmer Mac's funded assets compared to its debt and financial derivatives, thereby lengthening Farmer Mac's duration gap.

Financial Derivatives Transactions

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

- "pay-fixed" interest rate swaps, in which Farmer Mac pays fixed rates of interest to, and receives floating rates of interest from, counterparties;
- "receive-fixed" interest rate swaps, in which Farmer Mac receives fixed rates of interest from, and pays floating rates of interest to, counterparties;
- "basis swaps," in which Farmer Mac pays floating rates of interest based on one index to, and receives floating rates of interest based on a different index from, counterparties; and
- exchange-traded futures contracts involving U.S. Treasury securities.

As of December 31, 2022, Farmer Mac had \$23.9 billion combined notional amount of interest rate swaps, with terms ranging from less than one year to just over thirty years, of which \$8.9 billion were pay-fixed interest rate swaps, \$13.1 billion were receive-fixed interest rate swaps, and \$1.9 billion were basis swaps.

Farmer Mac enters into interest rate swaps to more closely match the cash flow and duration characteristics of its interest-earning assets with those of its debt. For example, Farmer Mac transacts pay-fixed interest rate swaps and issues floating rate debt to effectively create fixed rate funding that approximately matches the duration of the corresponding fixed rate assets being funded. Farmer Mac evaluates the overall cost of using interest rate swaps in conjunction with debt issuance as a funding

alternative to duration-matched debt and enters into interest rate swaps to manage interest rate risks across the balance sheet.

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

As discussed in Note 4 to the consolidated financial statements, all financial derivatives are recorded on the balance sheet at fair value as derivative assets or as derivative liabilities. Changes in the fair values of undesignated financial derivatives are reported in "Gains on financial derivatives" in the consolidated statements of operations. For financial derivatives designated in fair value hedge accounting relationships, changes in the fair values of the hedged items related to the risk being hedged are reported in "Net interest income" in the consolidated statements of operations. Interest accruals on derivatives designated in fair value hedge accounting relationships are also recorded in "Net interest income" in the consolidated statements of operations. For financial derivatives designated in cash flow hedge accounting relationships, the unrealized gain or loss on the derivative is recorded in other comprehensive income. Because the hedging instrument is an interest rate swap and the hedged forecasted transactions are future interest payments on floating rate debt, amounts recorded in accumulated other comprehensive income are reclassified to "Total interest expense" in conjunction with the recognition of interest expense on the debt. All of Farmer Mac's interest rate swap transactions are conducted under standard collateralized agreements that limit Farmer Mac's potential credit exposure to any counterparty. As of both December 31, 2022 and 2021, Farmer Mac had no uncollateralized net exposures based on the mark-to-market value of the portfolio of interest rate swaps

Re-funding and repricing risk

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

Farmer Mac is subject to re-funding and repricing risk on a portion of its fixed rate assets as a result of its use of pay-fixed receive-floating interest rate swaps that effectively convert the required funding needed from fixed rate to floating rate. These fixed rate assets are then effectively floating rate assets that require floating rate funding.

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

- issuing short-term fixed rate discount notes with maturities that match the reset period of the assets;
- issuing floating rate medium-term notes with maturities and reset frequencies that match the assets being funded;
- issuing non-maturity matched, floating rate medium-term notes with reset frequencies that match the assets being funded; or

- issuing non-maturity matched, fixed rate discount notes or medium-term notes swapped to floating rate to match the interest rate reset dates of the assets.

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

However, if the funding cost of Farmer Mac's discount notes or medium-term notes increased relative to the benchmark market index of the associated assets during the time between when these floating rate assets were first funded and when Farmer Mac refinanced the associated debt, Farmer Mac would be exposed to a commensurate reduction of net effective spread. Conversely, if the funding cost on Farmer Mac's discount notes or medium-term notes decreased relative to the benchmark market index during that time, Farmer Mac would benefit from a commensurate increase to net effective spread.

Farmer Mac's debt issuance strategy targets balancing liquidity risk and re-funding and repricing risk while maintaining an appropriate liability management profile that is consistent with Farmer Mac's risk tolerance. Farmer Mac regularly adjusts its funding strategies to mitigate the effects of interest rate variability and seeks to maintain an effective mixture of funding structures in the context of its overall liability and liquidity management strategies.

As of December 31, 2022, Farmer Mac held \$6.9 billion of floating rate assets in its lines of business and its investment portfolio that reset based on floating rate market indices, such as LIBOR or SOFR. As of the same date, Farmer Mac also had \$8.9 billion of interest rate swaps outstanding where Farmer Mac pays a fixed rate of interest and receives a floating rate of interest, primarily LIBOR or SOFR.

Discontinuation of LIBOR

As described in "Risk Factors—Market Risk" in Part I, Item 1A, Farmer Mac faces risks associated with the reform, replacement, or discontinuation of the LIBOR benchmark interest rate and the transition to an alternative benchmark interest rate. Farmer Mac is evaluating the potential effect on our business of replacement benchmark interest rates expected to replace LIBOR, including SOFR, which is the replacement benchmark rate recommended by the Alternative Reference Rates Committee and designated by Adjustable Interest Rate (LIBOR) Act and implementing regulations.

As of December 31, 2022, Farmer Mac held \$2.9 billion of floating rate assets in its lines of business and its investment portfolio, had issued \$0.2 billion of floating rate debt, and had entered into \$10.5 billion notional amount of interest rate swaps, each of which reset based on LIBOR. In addition, our Non-Cumulative Series C Preferred Stock currently pays a fixed rate of interest until July 17, 2024. It becomes redeemable at our option on July 18, 2024 and thereafter pays interest at a floating rate equal to three-month LIBOR plus 3.260%.

The market transition away from LIBOR and towards alternative benchmark interest rate indices may be complicated and are expected to require term and credit adjustments to accommodate for differences between the benchmark interest rate indices. The transition may also result in different financial performance for existing transactions, may require different hedging strategies, or may require

renegotiation of existing transactions. As of December 31, 2022, we had \$1.3 billion outstanding in medium-term notes based on SOFR, a potential alternative benchmark interest rate index.

Liquidity and Capital Resources

Farmer Mac's primary sources of funds to meet its liquidity and funding needs are the proceeds of its debt issuances, guarantee and commitment fees, net effective spread, loan repayments, and maturities of AgVantage and investment securities. Farmer Mac regularly accesses the debt capital markets for funding, and Farmer Mac has maintained steady access to the debt capital markets throughout 2022. Farmer Mac funds its purchases of eligible loan assets, USDA Securities, Farmer Mac Guaranteed Securities, and investment assets and finances its operations primarily by issuing debt obligations of various maturities in the debt capital markets. As of December 31, 2022, Farmer Mac had outstanding discount notes of \$0.6 billion, medium-term notes that mature within one year of \$7.5 billion, and medium-term notes that mature after one year of \$17.0 billion.

Assuming continued access to the debt capital markets, Farmer Mac believes it has sufficient liquidity and capital resources to support its operations for the next 12 months and for the foreseeable future. Farmer Mac has a contingency funding plan to manage unanticipated disruptions in its access to the debt capital markets. Farmer Mac must maintain a minimum of 90 days of liquidity under the Liquidity and Investment Regulations prescribed for Farmer Mac by FCA. In accordance with the methodology for calculating available days of liquidity under those regulations, Farmer Mac maintained a monthly average of 368 days of liquidity throughout 2022 and had 324 days of liquidity as of December 31, 2022.

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

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

The following table presents these assets as of December 31, 2022 and 2021:

Table 33

	As of December 31, 2022	As of December 31, 2021
	<i>(in thousands)</i>	
Cash and cash equivalents	\$ 861,002	\$ 908,785
Investment securities:		
Guaranteed by U.S. Government and its agencies	1,444,650	1,579,452
Guaranteed by GSEs	3,160,919	2,282,655
Asset-backed securities	19,027	19,254
Total	<u>\$ 5,485,598</u>	<u>\$ 4,790,146</u>

The objectives of the investment portfolio as of December 31, 2022 and 2021 are to provide a level of liquidity that mitigates enterprise risk, provides a reliable source of short-term and long-term liquidity, to prepare for the possibility of future volatility in the debt capital markets, and to support program asset growth.

Capital Requirements. Farmer Mac is subject to the following statutory capital requirements – minimum, critical, and risk-based. Farmer Mac must comply with the higher of the minimum capital requirement and the risk-based capital requirement. As of December 31, 2022, Farmer Mac was in compliance with its statutory capital requirements and was classified as within "level 1" (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, 2022 and 2021, Farmer Mac's Tier 1 capital ratio was 14.9% and 14.8%, respectively. As of December 31, 2022, 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.

Discount and Medium-term Notes. The following table presents the amount and timing of Farmer Mac's known, fixed, and determinable discount and medium-term note obligations by payment date as of December 31, 2022. The payment amounts represent those amounts due to the investor (including return of discount and interest on debt) and do not include unamortized premiums or discounts or other similar carrying value adjustments.

Table 34

	One Year or Less	One to Three Years	Three to Five Years	Over Five Years	Total
	(in thousands)				
Discount notes ⁽¹⁾	\$ 568,079	\$ —	\$ —	\$ —	\$ 568,079
Medium-term notes ⁽¹⁾	7,469,450	7,583,077	5,333,762	4,066,485	24,452,774
Interest payments on fixed rate medium-term notes ⁽²⁾	374,223	467,003	271,625	337,919	1,450,770
Interest payments on floating rate medium-term notes ⁽³⁾	84,757	121,559	81,188	48,219	335,723

⁽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 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, 2022. As a result, these amounts do not reflect the effects of changes in the interest rates effective on future interest rate reset dates.

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, 2022 do not represent the amounts that may ultimately be paid under the financial derivative contracts, those liabilities are not included in the table presented above. More information about financial derivatives is included in Note 2(f) 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 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 35

	As of December 31,	
	2022	2021
	(in thousands)	
LTSPCs	\$ 3,423,155	\$ 3,191,061
Mandatory commitments to purchase loans and USDA Securities	9,907	75,589

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) certain categories of Farmer Mac Guaranteed Securities; and (2) LTSPCs. Both products are available through each of the Agricultural Finance and Rural Infrastructure Finance 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 deconsolidation, 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, 2022 and 2021, outstanding off-balance sheet LTSPCs and Farmer Mac Guaranteed Securities totaled \$3.9 billion and \$3.8 billion, respectively. The following table presents the balance of outstanding LTSPCs and off-balance sheet Farmer Mac Guaranteed Securities as of December 31, 2022 and 2021:

Table 36

Outstanding Balance of LTSPCs and Off-Balance Sheet Farmer Mac Guaranteed Securities		
	As of December 31,	
	2022	2021
	<i>(in thousands)</i>	
Agricultural Finance:		
Corporate AgFinance:		
Unfunded Loan Commitments	\$ 77,654	\$ 47,070
Farm & Ranch:		
LTSPCs and unfunded commitments	2,822,309	2,587,154
Farmer Mac Guaranteed Securities	500,953	578,358
Total Agricultural Finance obligations	3,400,916	3,212,582
Rural Infrastructure:		
Rural Utilities:		
LTSPCs and Unfunded Loan Commitments	512,592	556,837
Farmer Mac Guaranteed Securities	1,169	2,755
Renewable Energy:		
Unfunded Loan Commitments	10,600	—
Total Rural Infrastructure obligations	524,361	559,592
Total off-balance sheet	\$ 3,925,277	\$ 3,772,174

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

Other Matters

None.

Supplemental Information

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

Table 37

New Business Volume										
	Agricultural Finance		Rural Infrastructure Finance		Total					
	Farm & Ranch	Corporate AgFinance	Rural Utilities	Renewable Energy						
	(in thousands)									
For the quarter ended:										
December 31, 2022	\$	1,114,255	\$	165,395	\$	140,222	\$	43,737	\$	1,463,609
September 30, 2022		1,927,209		169,932		547,117		61,653		2,705,911
June 30, 2022		1,418,397		107,916		326,899		35,307		1,888,519
March 31, 2022		2,452,539		103,353		377,965		41,636		2,975,493
December 31, 2021		2,075,540		411,838		631,338		12,594		3,131,310
September 30, 2021		1,791,662		122,043		609,745		4,152		2,527,602
June 30, 2021		925,950		159,958		410,666		3,441		1,500,015
March 31, 2021		1,087,897		186,393		171,546		23,484		1,469,320
December 31, 2020		907,316		242,394		145,416		44,313		1,339,439
For the year ended:										
December 31, 2022	\$	6,912,400	\$	546,596	\$	1,392,203	\$	182,333	\$	9,033,532
December 31, 2021		5,881,049		880,232		1,823,295		43,671		8,628,247

Table 38

Repayments of Assets										
	Agricultural Finance		Rural Infrastructure Finance		Total					
	Farm & Ranch	Corporate AgFinance	Rural Utilities	Renewable Energy						
	(in thousands)									
For the quarter ended:										
Scheduled	\$	447,976	\$	64,308	\$	75,671	\$	9,809	\$	597,764
Unscheduled		136,245		132,366		1,201		—		269,812
December 31, 2022	\$	584,221	\$	196,674	\$	76,872	\$	9,809	\$	867,576
Scheduled	\$	724,580	\$	38,018	\$	422,917	\$	13,429	\$	1,198,944
Unscheduled		296,763		64,439		—		—		361,202
September 30, 2022	\$	1,021,343	\$	102,457	\$	422,917	\$	13,429	\$	1,560,146
Scheduled	\$	1,114,779	\$	42,162	\$	159,491	\$	7,898	\$	1,324,330
Unscheduled		286,303		30,203		1,791		—		318,297
June 30, 2022	\$	1,401,082	\$	72,365	\$	161,282	\$	7,898	\$	1,642,627
Scheduled	\$	1,535,369	\$	39,480	\$	266,349	\$	7,790	\$	1,848,988
Unscheduled		434,794		60,947		397		—		496,138
March 31, 2022	\$	1,970,163	\$	100,427	\$	266,746	\$	7,790	\$	2,345,126
Scheduled	\$	928,663	\$	205,778	\$	816,802	\$	18,526	\$	1,969,769
Unscheduled		318,024		48,042		—		—		366,066
December 31, 2021	\$	1,246,687	\$	253,820	\$	816,802	\$	18,526	\$	2,335,835
Scheduled	\$	725,713	\$	406,285	\$	95,443	\$	4,043	\$	1,231,484
Unscheduled		374,287		—		201		—		374,488
September 30, 2021	\$	1,100,000	\$	406,285	\$	95,644	\$	4,043	\$	1,605,972
Scheduled	\$	380,684	\$	139,774	\$	225,257	\$	4,704	\$	750,419
Unscheduled		409,393		3,921		1,652		—		414,966
June 30, 2021	\$	790,077	\$	143,695	\$	226,909	\$	4,704	\$	1,165,385
Scheduled	\$	721,090	\$	120,621	\$	100,482	\$	2,671	\$	944,864
Unscheduled		501,651		82,090		2,279		—		586,020
March 31, 2021	\$	1,222,741	\$	202,711	\$	102,761	\$	2,671	\$	1,530,884
Scheduled	\$	365,732	\$	197,108	\$	405,597	\$	561	\$	968,998
Unscheduled		400,809		27,850		1,610		—		430,269
December 31, 2020	\$	766,541	\$	224,958	\$	407,207	\$	561	\$	1,399,267
For the year ended:										
Scheduled	\$	3,822,704	\$	183,968	\$	924,428	\$	38,926	\$	4,970,026
Unscheduled		1,154,105		287,955		3,389		—		1,445,449
December 31, 2022	\$	4,976,809	\$	471,923	\$	927,817	\$	38,926	\$	6,415,475
Scheduled	\$	2,756,150	\$	872,458	\$	1,237,984	\$	29,944	\$	4,896,536
Unscheduled		1,603,355		134,053		4,132		—		1,741,540
December 31, 2021	\$	4,359,505	\$	1,006,511	\$	1,242,116	\$	29,944	\$	6,638,076

Table 39

Outstanding Business Volume										
	Agricultural Finance				Rural Infrastructure Finance		Total			
	Farm & Ranch	Corporate AgFinance	Rural Utilities	Renewable Energy						
	(in thousands)									
As of:										
December 31, 2022	\$	17,728,792	\$	1,603,507	\$	6,359,613	\$	230,170	\$	25,922,082
September 30, 2022		17,199,347		1,634,786		6,296,263		196,242		25,326,638
June 30, 2022		16,591,999		1,567,311		6,172,063		148,018		24,479,391
March 31, 2022		16,575,595		1,540,760		6,006,446		120,609		24,243,410
December 31, 2021		16,094,639		1,537,834		5,895,227		86,763		23,614,463
September 30, 2021		15,565,589		1,379,816		6,080,691		92,695		23,118,791
June 30, 2021		14,873,926		1,664,059		5,566,591		92,585		22,197,161
March 31, 2021		14,738,052		1,647,796		5,382,835		93,848		21,862,531
December 31, 2020		14,872,894		1,664,115		5,314,051		73,035		21,924,095

Table 40

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, 2022	\$	13,693,810	\$	3,031,288	\$	5,251,427	\$ 21,976,525
September 30, 2022		13,810,162		2,960,596		4,644,958	21,415,716
June 30, 2022		13,798,771		2,939,467		3,993,956	20,732,194
March 31, 2022		14,174,611		2,858,521		3,443,816	20,476,948
December 31, 2021		13,228,675		2,896,014		3,695,269	19,819,958
September 30, 2021		12,921,572		2,872,499		3,818,550	19,612,621
June 30, 2021		11,800,429		2,878,637		4,254,625	18,933,691
March 31, 2021		11,454,321		2,824,551		4,410,661	18,689,533
December 31, 2020		11,330,414		2,816,840		4,511,964	18,659,218

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

Table 41

Net Effective Spread ⁽¹⁾														
Agricultural Finance				Rural Infrastructure Finance				Treasury				Net Effective Spread		
Farm & Ranch		Corporate AgFinance		Rural Utilities		Renewable Energy		Funding		Investments		Net Effective Spread		
Dollars	Yield	Dollars	Yield	Dollars	Yield	Dollars	Yield	Dollars	Yield	Dollars	Yield	Dollars	Yield	
(dollars in thousands)														
For the quarter ended:														
December 31, 2022 ⁽²⁾	\$32,770	0.98 %	\$ 7,471	1.94 %	\$ 4,960	0.34 %	\$ 935	1.76 %	\$27,656	0.42 %	\$(2,689)	0.19 %	\$71,103	1.07 %
September 30, 2022	33,343	1.04 %	7,600	1.99 %	4,220	0.30 %	705	1.97 %	22,564	0.36 %	(2,791)	(0.21)%	65,641	1.03 %
June 30, 2022	32,590	1.05 %	6,929	1.87 %	3,733	0.27 %	468	1.78 %	18,508	0.30 %	(1,282)	(0.10)%	60,946	0.99 %
March 31, 2022	30,354	1.02 %	7,209	1.96 %	3,159	0.23 %	375	1.69 %	16,738	0.28 %	4	— %	57,839	0.97 %
December 31, 2021 ⁽²⁾	28,998	0.99 %	6,321	1.84 %	2,521	0.19 %	356	1.53 %	15,979	0.28 %	158	0.01 %	54,333	0.94 %
September 30, 2021	28,914	1.06 %	7,163	1.80 %	2,067	0.16 %	236	1.09 %	17,386	0.31 %	159	0.01 %	55,925	0.99 %
June 30, 2021	29,163	1.06 %	6,676	1.65 %	1,759	0.14 %	378	1.80 %	18,449	0.33 %	126	0.01 %	56,551	1.01 %
March 31, 2021	26,461	0.98 %	6,921	1.67 %	1,720	0.14 %	249	1.28 %	18,394	0.33 %	114	0.01 %	53,859	0.97 %
December 31, 2020	25,596	0.95 %	6,237	1.53 %	1,838	0.15 %	123	1.20 %	20,585	0.37 %	143	0.01 %	54,522	0.98 %

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

⁽²⁾ See Note 14 to the consolidated financial statements for a reconciliation of GAAP net interest income by segment to net effective spread by segment for the years ended December 31, 2022 and 2021.

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

Table 42

	Core Earnings by Quarter End								
	December 2022	September 2022	June 2022	March 2022	December 2021	September 2021	June 2021	March 2021	December 2020
	(in thousands)								
Revenues:									
Net effective spread	\$ 71,103	\$ 65,641	\$ 60,946	\$ 57,839	\$ 54,333	\$ 55,925	\$ 56,551	\$ 53,859	\$ 54,522
Guarantee and commitment fees	4,677	4,201	4,709	4,557	4,637	4,322	4,334	4,240	4,652
Gains on sale of mortgage loans	—	—	—	—	6,539	—	—	—	—
Other	390	473	307	514	241	687	301	451	512
Total revenues	76,170	70,315	65,962	62,910	65,750	60,934	61,186	58,550	59,686
Credit related expense/(income):									
Provision for/(release of) losses	1,945	450	(1,535)	(54)	(1,428)	255	(983)	(31)	2,973
REO operating expenses	819	—	—	—	—	—	—	—	—
Losses on sale of REO	—	—	—	—	—	—	—	—	22
Total credit related expense/ (income)	2,764	450	(1,535)	(54)	(1,428)	255	(983)	(31)	2,995
Operating expenses:									
Compensation and employee benefits	12,105	11,648	11,715	13,298	11,246	10,027	9,779	11,795	9,497
General and administrative	8,055	6,919	7,520	7,278	8,492	6,330	6,349	6,336	6,274
Regulatory fees	832	812	813	812	812	750	750	750	750
Total operating expenses	20,992	19,379	20,048	21,388	20,550	17,107	16,878	18,881	16,521
Net earnings	52,414	50,486	47,449	41,576	46,628	43,572	45,291	39,700	40,170
Income tax expense	11,210	10,303	9,909	9,024	9,809	9,152	9,463	8,520	8,470
Preferred stock dividends	6,791	6,791	6,792	6,791	6,792	6,774	5,842	5,269	5,269
Core earnings	\$ 34,413	\$ 33,392	\$ 30,748	\$ 25,761	\$ 30,027	\$ 27,646	\$ 29,986	\$ 25,911	\$ 26,431
Reconciling items:									
Gains/(losses) on undesignated financial derivatives due to fair value changes	\$ 1,596	\$ 6,441	\$ 2,846	\$ 2,612	\$ (1,242)	\$ (405)	\$ (3,020)	\$ 3,236	\$ (3,005)
(Losses)/gains on hedging activities due to fair value changes	(148)	(624)	428	5,687	(2,079)	1,818	(5,866)	4,317	7,954
Unrealized gains/(losses) on trading assets	31	(757)	(285)	94	(76)	36	(61)	(14)	223
Net effects of amortization of premiums/discounts and deferred gains on assets consolidated at fair value	57	24	(62)	20	71	23	20	16	(77)
Net effects of terminations or net settlements on financial derivatives	1,268	(3,522)	2,536	15,512	(429)	(351)	109	1,165	1,583
Income tax effect related to reconciling items	(590)	(327)	(1,148)	(5,024)	789	(236)	1,852	(1,831)	(1,403)
Net income attributable to common stockholders	\$ 36,627	\$ 34,627	\$ 35,063	\$ 44,662	\$ 27,061	\$ 28,531	\$ 23,020	\$ 32,800	\$ 31,706

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, 2022. 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, 2022 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, 2022, 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, 2022 and 2021, 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, 2022, 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, 2022, 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, 2022 and 2021, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2022 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, 2022, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the COSO.

Change in Accounting Principle

As discussed in Note 2 to the consolidated financial statements, the Company changed the manner in which it accounts for credit losses in 2020.

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.

Valuation of Available-for-sale AgVantage Farmer Mac Guaranteed Securities

As disclosed by management, the Company guarantees and purchases general obligations of lenders and other financial institutions that are secured by pools of the types of loans eligible for purchase under Farmer Mac's Agricultural Finance or Rural Infrastructure Finance lines of business, which are referred to as AgVantage securities. As described in Notes 5 and 13 to the consolidated financial statements, the total unpaid principal balance of available-for-sale AgVantage securities as of December 31, 2022 was \$8.0 billion, and the fair value of the available-for-sale AgVantage securities of December 31, 2022 was \$7.6

billion. The fair value of AgVantage securities is estimated using a discounted cash flow model. The significant unobservable input used is the discount rate commensurate with the risks involved.

The principal considerations for our determination that performing procedures relating to the valuation of available-for-sale AgVantage securities is a critical audit matter are (i) the high degree of audit effort in performing procedures and evaluating audit evidence related to the discount rate assumption used by management in the valuation of the available-for-sale AgVantage securities, and (ii) the audit effort involved the use of professionals with specialized skill and knowledge.

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 valuation of available-for-sale AgVantage securities, including controls over the model, data and assumption. These procedures also included, among others, (i) the involvement of professionals with specialized skill and knowledge to assist in developing an independent range of prices for a sample of available-for-sale AgVantage securities, and (ii) comparing management's estimate to the independently developed range to evaluate the reasonableness of management's estimate. Developing the independent range of prices involved testing the completeness and accuracy of data provided by management and independently developing the discount rate assumption.

/s/ PricewaterhouseCoopers LLP
Washington, District of Columbia
February 24, 2023

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

FEDERAL AGRICULTURAL MORTGAGE CORPORATION AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS

	As of	
	December 31, 2022	December 31, 2021
	<i>(in thousands)</i>	
Assets:		
Cash and cash equivalents	\$ 861,002	\$ 908,785
Investment securities:		
Available-for-sale, at fair value (amortized cost of \$4,769,426 and \$3,834,714, respectively)	4,579,564	3,836,391
Held-to-maturity, at amortized cost	45,032	44,970
Other investments	3,672	1,229
Total Investment Securities	4,628,268	3,882,590
Farmer Mac Guaranteed Securities:		
Available-for-sale, at fair value (amortized cost of \$8,019,495 and \$6,135,807, respectively)	7,607,226	6,328,559
Held-to-maturity, at amortized cost	1,021,154	2,033,239
Total Farmer Mac Guaranteed Securities	8,628,380	8,361,798
USDA Securities:		
Trading, at fair value	1,767	4,401
Held-to-maturity, at amortized cost	2,409,834	2,436,331
Total USDA Securities	2,411,601	2,440,732
Loans:		
Loans held for investment, at amortized cost	9,011,820	8,314,096
Loans held for investment in consolidated trusts, at amortized cost	1,211,576	948,623
Allowance for losses	(15,089)	(14,041)
Total loans, net of allowance	10,208,307	9,248,678
Financial derivatives, at fair value	37,409	6,081
Accrued interest receivable (includes \$12,514 and \$10,418, respectively, related to consolidated trusts)	229,061	165,604
Guarantee and commitment fees receivable	47,151	45,538
Deferred tax asset, net	18,004	15,869
Prepaid expenses and other assets	263,927	45,334
Total Assets	\$ 27,333,110	\$ 25,121,009
Liabilities and Equity:		
Liabilities:		
Notes payable	\$ 24,469,113	\$ 22,713,771
Debt securities of consolidated trusts held by third parties	1,181,948	981,379
Financial derivatives, at fair value	175,326	35,554
Accrued interest payable (includes \$8,081 and \$9,619, respectively, related to consolidated trusts)	117,887	59,003
Guarantee and commitment obligation	46,582	43,926
Accounts payable and accrued expenses	68,863	71,726
Reserve for losses	1,433	1,950
Total Liabilities	26,061,152	23,907,309
Commitments and Contingencies (Note 12)		
Equity:		
Preferred stock:		
Series C, par value \$25 per share, 3,000,000 shares authorized, issued and outstanding	73,382	73,382
Series D, par value \$25 per share, 4,000,000 shares authorized, issued and outstanding	96,659	96,659
Series E, par value \$25 per share, 3,180,000 shares authorized, issued and outstanding	77,003	77,003
Series F, par value \$25 per share, 4,800,000 shares authorized, issued and outstanding	116,160	116,160
Series G, par value \$25 per share, 5,000,000 shares authorized, issued and outstanding	121,327	121,327
Common stock:		
Class A Voting, \$1 par value, no maximum authorization, 1,030,780 shares outstanding	1,031	1,031
Class B Voting, \$1 par value, no maximum authorization, 500,301 shares outstanding	500	500
Class C Non-Voting, \$1 par value, no maximum authorization, 9,270,265 shares and 9,235,205 shares outstanding, respectively	9,270	9,235
Additional paid-in capital	128,939	125,993
Accumulated other comprehensive (loss)/income, net of tax	(50,843)	3,853
Retained earnings	698,530	588,557
Total Equity	1,271,958	1,213,700
Total Liabilities and Equity	\$ 27,333,110	\$ 25,121,009

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,		
	2022	2021	2020
	(in thousands, except per share amounts)		
Interest income:			
Investments and cash equivalents	\$ 82,659	\$ 18,660	\$ 42,144
Farmer Mac Guaranteed Securities and USDA Securities	283,769	164,723	232,951
Loans	350,420	242,582	233,699
Total interest income	716,848	425,965	508,794
Total interest expense	445,908	204,014	312,946
Net interest income	270,940	221,951	195,848
(Provision for)/release of losses	(1,323)	860	(7,805)
Net interest income after (provision for)/release of losses	269,617	222,811	188,043
Non-interest income/(expense):			
Guarantee and commitment fees	13,040	12,669	12,549
Gains on financial derivatives	22,631	324	1,744
Gains on sale of mortgage loans	—	6,539	—
(Losses)/gains on trading securities	(51)	(115)	50
Gains on sale of available-for-sale investment securities	—	253	—
Gains on sale of real estate owned	—	—	463
Release of/(provision for) reserve for losses	517	1,327	(250)
Other income	2,551	2,069	3,487
Non-interest income	38,688	23,066	18,043
Operating expenses:			
Compensation and employee benefits	48,766	42,847	36,502
General and administrative	29,772	27,507	21,976
Regulatory fees	3,269	3,062	2,925
Real estate owned operating costs, net	819	—	—
Operating expenses	82,626	73,416	61,403
Income before income taxes	225,679	172,461	144,683
Income tax expense	47,535	36,372	30,307
Net income	178,144	136,089	114,376
Preferred stock dividends	(27,165)	(24,677)	(17,805)
Loss on retirement of preferred stock	—	—	(1,667)
Net income attributable to common stockholders	\$ 150,979	\$ 111,412	\$ 94,904
Earnings per common share:			
Basic earnings per common share	\$ 14.00	\$ 10.36	\$ 8.85
Diluted earnings per common share	\$ 13.87	\$ 10.27	\$ 8.80

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,		
	2022	2021	2020
	<i>(in thousands)</i>		
Net income	\$ 178,144	\$ 136,089	\$ 114,376
Other comprehensive (loss)/income:			
Net unrealized (losses)/gains on available-for-sale securities	(137,506)	8,867	37,291
Net changes in held-to-maturity securities	259	(8,451)	(12,677)
Net unrealized gains/(losses) on cash flow hedges	68,012	22,084	(21,780)
Other comprehensive (loss)/income before tax	(69,235)	22,500	2,834
Income tax benefit/(expense) related to other comprehensive (loss)/income	14,539	(4,724)	(596)
Other comprehensive (loss)/income net of tax	(54,696)	17,776	2,238
Comprehensive income	<u>\$ 123,448</u>	<u>\$ 153,865</u>	<u>\$ 116,614</u>

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	Accumulated		
	Shares	Amount	Shares	Amount	Paid-In	Other	Retained	Total
					Capital	Comprehensive	Earnings	Equity
	<i>(in thousands)</i>							
Balance as of December 31, 2019	9,400	\$ 228,374	10,712	\$ 10,712	\$ 119,304	\$ (16,161)	\$ 456,777	\$ 799,006
Cumulative effect adjustment from adoption of current expected credit loss standard	—	—	—	—	—	—	(2,099)	(2,099)
Balance as of January 1, 2020	9,400	\$ 228,374	10,712	\$ 10,712	\$ 119,304	\$ (16,161)	\$ 454,678	\$ 796,907
Net Income	—	—	—	—	—	—	114,376	114,376
Other comprehensive income, net of tax	—	—	—	—	—	2,238	—	2,238
Cash dividends:								
Preferred stock	—	—	—	—	—	—	(17,805)	(17,805)
Common stock (cash dividend of \$0.80 per share)	—	—	—	—	—	—	(34,333)	(34,333)
Issuance of Series E Preferred Stock	3,180	77,003	—	—	—	—	—	77,003
Issuance of Series F Preferred Stock	4,800	116,160	—	—	—	—	—	116,160
Redemption of Series A preferred stock	(2,400)	(58,333)	—	—	—	—	—	(58,333)
Loss on retirement of preferred stock	—	—	—	—	—	—	(1,667)	(1,667)
Issuance of Class C Common Stock	—	—	29	29	56	—	—	85
Repurchase of Class C Common Stock	—	—	(4)	(4)	—	—	(231)	(235)
Stock-based compensation cost	—	—	—	—	4,128	—	—	4,128
Other stock-based award activity	—	—	—	—	(589)	—	—	(589)
Balance as of December 31, 2020	14,980	\$ 363,204	10,737	\$ 10,737	\$ 122,899	\$ (13,923)	\$ 515,018	\$ 997,935
Net Income	—	—	—	—	—	—	136,089	136,089
Other comprehensive income, net of tax	—	—	—	—	—	17,776	—	17,776
Cash dividends:								
Preferred stock	—	—	—	—	—	—	(24,677)	(24,677)
Common stock (cash dividend of \$0.88 per share)	—	—	—	—	—	—	(37,873)	(37,873)
Issuance of Series G Preferred Stock	5,000	121,327	—	—	—	—	—	121,327
Issuance of Class C Common Stock	—	—	29	29	116	—	—	145
Stock-based compensation cost	—	—	—	—	4,310	—	—	4,310
Other stock-based award activity	—	—	—	—	(1,332)	—	—	(1,332)
Balance as of December 31, 2021	19,980	\$ 484,531	10,766	\$ 10,766	\$ 125,993	\$ 3,853	\$ 588,557	\$1,213,700
Net Income	—	—	—	—	—	—	178,144	178,144
Other comprehensive loss, net of tax	—	—	—	—	—	(54,696)	—	(54,696)
Cash dividends:								
Preferred stock	—	—	—	—	—	—	(27,165)	(27,165)
Common stock (cash dividend of \$0.95 per share)	—	—	—	—	—	—	(41,006)	(41,006)
Issuance of Class C Common Stock	—	—	35	35	190	—	—	225
Stock-based compensation cost	—	—	—	—	4,625	—	—	4,625
Other stock-based award activity	—	—	—	—	(1,869)	—	—	(1,869)
Balance as of December 31, 2022	<u>19,980</u>	<u>\$ 484,531</u>	<u>10,801</u>	<u>\$ 10,801</u>	<u>\$ 128,939</u>	<u>\$ (50,843)</u>	<u>\$ 698,530</u>	<u>\$1,271,958</u>

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 Year Ended		
	2022	2021	2020
	(in thousands)		
Cash flows from operating activities:			
Net income	\$ 178,144	\$ 136,089	\$ 114,376
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	720	17,314	8,343
Amortization of debt premiums, discounts, and issuance costs	19,656	6,780	21,319
Net change in fair value of trading securities, hedged assets, and financial derivatives	689,998	205,701	(240,545)
Gain on sale of real estate owned	—	—	(463)
Gain on the sale of available-for-sale investment securities	—	(253)	—
Gain on the sale of mortgage loans	—	(6,539)	—
Total (provision for)/release of allowance for losses	806	(2,187)	8,055
Excess tax benefits related to stock-based awards	101	292	(440)
Deferred income taxes	12,406	(1,630)	(2,826)
Stock-based compensation expense	4,624	4,311	4,128
Purchases of loans held for sale	—	—	(59,150)
Proceeds from the sale of loans held for sale	—	—	15,000
Proceeds from repayment of loans purchased as held for sale	33,311	46,968	59,370
Net change in:			
Interest receivable	(63,777)	4,446	10,319
Guarantee and commitment fees receivable	1,043	(34)	164
Other assets	(126,054)	(9,830)	(10,304)
Accrued interest payable	58,884	(9,526)	(22,732)
Custodial deposit liability	(7,666)	44,955	—
Other liabilities	7,075	(445)	839
Net cash provided by/(used in) operating activities	809,271	436,412	(94,547)
Cash flows from investing activities:			
Purchases of available-for-sale investment securities	(2,472,056)	(2,004,911)	(2,852,658)
Purchases of other investment securities	(2,443)	(1,229)	—
Purchases of Farmer Mac Guaranteed Securities and USDA Securities	(5,275,733)	(4,380,901)	(2,074,701)
Purchases of loans held for investment	(2,592,924)	(2,916,493)	(3,043,392)
Purchases of defaulted loans	—	(8,713)	(6,272)
Proceeds from repayment of available-for-sale investment securities	1,440,201	1,740,000	1,961,895
Proceeds from repayment of Farmer Mac Guaranteed Securities and USDA Securities	4,429,364	4,027,726	2,517,957
Proceeds from repayment of loans purchased as held for investment	1,321,989	1,889,408	1,715,663
Proceeds from sale of loans previously classified as held for investment	9,000	301,393	—
Proceeds from sale of available-for-sale investment securities	—	257,524	—
Proceeds from sale of Farmer Mac Guaranteed Securities	99,643	—	41,248
Proceeds from sale of real estate owned	—	—	4,169
Net cash used in investing activities	(3,042,959)	(1,096,196)	(1,736,091)
Cash flows from financing activities:			
Proceeds from issuance of discount notes	52,470,273	61,112,365	68,548,733
Proceeds from issuance of medium-term notes	9,031,116	11,173,147	13,509,754
Proceeds from third parties from issuance of debt securities of consolidated trusts	258,198	—	—
Payments to redeem discount notes	(54,085,418)	(60,743,066)	(68,960,492)
Payments to redeem medium-term notes	(5,192,159)	(10,586,370)	(10,414,765)
Payments to third parties on debt securities of consolidated trusts	(226,291)	(480,272)	(504,807)
Proceeds from common stock issuance	192	117	56
Retirement of preferred stock	—	—	(60,000)
Proceeds from preferred stock issuance, net of stock issuance costs	—	121,327	193,163
Tax payments related to share-based awards	(1,835)	(1,305)	(560)
Purchases of common stock	—	—	(235)
Dividends paid on common and preferred stock	(68,171)	(61,315)	(50,649)
Net cash provided by financing activities	2,185,905	534,628	2,260,198
Net change in cash and cash equivalents	(47,783)	(125,156)	429,560
Cash and cash equivalents at beginning of period	908,785	1,033,941	604,381
Cash and cash equivalents at end of period	\$ 861,002	\$ 908,785	\$ 1,033,941

Cash paid during the period for:			
Interest	269,327	198,593	283,335
Income taxes	33,800	36,300	30,000
Non-cash activity:			
Loans securitized as Farmer Mac Guaranteed Securities	162,875	113,175	165,054
Loans held for investment transferred to consolidated trusts	297,713	—	—
Reclassification of defaulted loans from loans held for investment in consolidated trusts to loans held for investment	3,977	24,690	47,036
Reclassification of loans held for sale to loans held for investment	—	—	44,150
Reclassification of loans held for investment to loans held for sale	—	301,551	—
Net assets obtained in securitization	—	15,369	—
Matured securities receivable	97,500	—	—
(Recovery)/charge-off from the allowance for losses	84	(1,054)	5,759

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

FEDERAL AGRICULTURAL MORTGAGE CORPORATION AND SUBSIDIARIES
NOTES TO 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 (including participation interests, syndicated notes, revolving and non-revolving credit facilities, and unfunded commitments to make advances on loans);
- purchasing securities that are issued by lenders and guaranteed by Farmer Mac and that are secured by eligible loans (Farmer Mac refers to these securities as "AgVantage," a registered trademark of Farmer Mac);
- issuing and guaranteeing securities that represent interests in, or obligations secured by, pools of eligible loans (together with AgVantage, Farmer Mac refers to these securities as "Farmer Mac Guaranteed Securities");
- servicing (including as master servicer) eligible loans purchased or securitized by Farmer Mac; and
- providing long-term standby purchase commitments ("LTSPCs") for eligible loans.

Farmer Mac conducts its secondary market activities through two lines of business — Agricultural Finance and Rural Infrastructure Finance. For more information about those lines of business and the segments within them, see Note 14 - Business Segments.

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:

Farmer Mac has revised its prior period financial information to correct an error that was not material to those previous consolidated financial statements, taken as a whole. For more information on the revision, refer to Note 15, Revision of Prior Period 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, whose principal activities are to facilitate the purchase and issuance of Farmer Mac Guaranteed Securities; and (2) Farmer Mac II LLC, whose principal activity is the operation of substantially all of the business related to the USDA Securities included in the Agricultural Finance line of business. The consolidated financial statements also include the accounts of Variable Interest Entities ("VIEs") in which Farmer Mac determined itself to be the primary beneficiary.

(b) Cash and Cash Equivalents

Farmer Mac considers highly liquid investment securities with maturities at the time of purchase of three months or less to be cash equivalents.

(c) 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. 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.

Interest Income Recognition on Interest-Only Farmer Mac Guaranteed Securities ("IO-FMGS")

Farmer Mac recognizes interest income for its IO-FMGS by applying the effective yield methodology required by GAAP for financial assets that are either not of high credit quality at the time of acquisition or can be contractually prepaid or otherwise settled in such a way that Farmer Mac would not recover substantially all of its recorded investment. The amount of periodic interest income recognized is determined by applying the IO-FMGS effective interest rate to its amortized cost basis (or "reference amount"). At the time of acquisition, the effective interest rate is calculated by solving for the single discount rate that equates the present value of Farmer Mac's best estimate of the amount and timing of the

cash flows expected to be collected from the IO-FMGS to its purchase cost. To prepare its best estimate of cash flows expected to be collected, Farmer Mac develops a number of assumptions about the future performance of the pool of mortgage loans that serve as collateral, including assumptions about the timing and amount of prepayments and credit losses. In each subsequent quarterly reporting period, the amount and timing of cash flows expected to be collected from the IO-FMGS are re-estimated based upon current information and events.

(d) 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 legally 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(o) 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.

(e) 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 mortgage loans, Rural Infrastructure 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 principal and interest payments 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 Farmer Mac Guaranteed Security (other than Farmer Mac Guaranteed Securities structured as real estate mortgage investment conduits pursuant to 26 U.S.C. §§ 860A-860G) 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 collateral 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.

Transfers of Financial Assets

Farmer Mac accounts for transfers of financial assets as sales when it has surrendered control over the related assets. Whether control has been relinquished requires, among other things, an evaluation of relevant legal considerations and an assessment of the nature and extent of Farmer Mac's continuing involvement with the assets transferred. Gains and losses stemming from transfers reported as sales are included in "Gain on sale of mortgage loans" in the accompanying consolidated statements of operations. Assets obtained and liabilities incurred in connection with transfers reported as sales are initially recognized in the consolidated balance sheets at fair value.

In the fourth quarter of 2021, Farmer Mac executed a structured securitization of a \$299.4 million pool of Farm & Ranch loans. The securitization consisted of two classes of securities, Class A and Class B. The Class A securities are backed by 92.5% of the pool and is guaranteed by Farmer Mac. The Class B Tranche is backed by the remaining 7.5% of the pool. Credit losses on the entire pool are first allocated to the Class B securities. As a result of the transaction, Farmer Mac recognized the following:

1. A guarantee asset and liability related to the guarantee fees and the obligation to stand ready to perform on the guarantee to the Class A security holders.
2. A servicing asset related to Farmer Mac's role as Master and Central Servicer. Farmer Mac will earn a related servicing fee.
3. A retained interest-only strip of a Farmer Mac Guaranteed Security (IO-FMGS) security.

The above assets and liabilities were initially recorded on the consolidated balance sheets at fair value. For more information on fair value measurement see Footnote 13.

The securitization trust used to effect this transaction was a variable interest entity that Farmer Mac does not consolidate. See Table 2.4 below for more information about these trusts.

Gains or losses arising from securitization are recorded as the difference between the transferred loans' carrying values and the sum of (a) the initial fair value of the assets or liabilities received and (b) net cash proceeds. For the year ended December 31, 2021, Farmer Mac recorded \$6.5 million in gains attributable to securitization activity. These gains were reported in "Gains on sale of mortgage loans" in the consolidated statements of operations. Farmer Mac recorded no gains attributable to securitization activity for both the years ended December 31, 2022 and 2020.

(f) 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.

Changes in the fair values of financial derivatives not designated as cash flow or fair value hedges were reported in "Gains on financial derivatives" in the consolidated statements of operations. For financial derivatives designated in fair value hedge accounting relationships, changes in the fair values of hedged items related to the risk being hedged are reported in the same interest income or expense line item as income or expense from the hedged financial asset or liability 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.

Collateralized Agreements and Offsetting Arrangements

Over-the-Counter Derivatives

Farmer Mac uses master netting and collateral agreements to reduce our credit risk exposure to our over-the-counter derivative ("OTC") counterparties for interest-rate swap derivatives. Master netting agreements provide for the netting of amounts receivable and payable from an individual counterparty, as well as posting of collateral in the form of cash depending on which party is in a liability position.

Farmer Mac has master netting agreements in place with most of our OTC derivative counterparties. The market value of each counterparty's derivatives outstanding is calculated to determine the amount of our net credit exposure, which is equal to the market value of derivatives in net gain position by counterparty after giving consideration to collateral posted. In the event a counterparty defaults on its obligation under the derivatives agreement and the default is not remedied in the manner prescribed by the agreement, Farmer Mac has a right under the agreement to sell the collateral. As a result, Farmer Mac's use of master netting and collateral agreements reduce our exposure to our counterparties in the event of default.

Cleared Derivatives

The majority of Farmer Mac's interest-rate swaps are subject to the central clearing requirement. Changes in the value of cleared derivatives are settled daily via payments made through the clearinghouse. Farmer Mac nets the exposure by clearinghouse and clearing member.

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

(g) Notes Payable

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.

(h) Allowance for Losses and Reserve for Losses

Farmer Mac's allowance for credit losses represents the difference between the carrying amount of the related financial instruments and the present value of their expected cash flows discounted at their effective interest rates, as of the respective balance sheet date. Farmer Mac's reserve for credit losses represents the difference between the outstanding amount of off-balance sheet credit exposures and the present value of their expected cash flows discounted at their effective interest rates.

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

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

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

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

In 2020, Farmer Mac adopted the Current Expected Credit Loss standard. The cumulative effect adjustment from adoption of the standard is included in the Consolidated Statements of Equity.

Charge-offs

Farmer Mac records a charge-off from the allowance for losses when either a) a loan, or a portion of a loan, is deemed uncollectible; or b) a loss has been confirmed through the receipt of assets, generally the underlying collateral, in full satisfaction of the loan. The charge-off equals the excess of the recorded investment in the loan over the fair value of the collateral less estimated selling costs.

Estimation Methodology

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

- An economic model for each portfolio, including Agricultural Finance loans (Corporate AgFinance and Farm & Ranch), Rural Infrastructure Finance loans (Rural Utilities and Renewable Energy), and AgVantage Securities;
- A migration matrix for each portfolio that reasonably predicts the movement of each financial asset among various risk categories over the course of each asset's expected life (the migration matrix forms the basis for our estimate of the probability of default of each financial asset);
- A loss-given-default ("LGD") model that reasonably predicts the amount of loss that Farmer Mac would incur upon the default of each financial asset;
- An economic factor forecast that updates the migration matrix model and the LGD model with current assumptions for the economic indicators that Farmer Mac has determined are most

correlated with or relevant to the performance of each portfolio of assets (including Gross Domestic Product ("GDP"), credit spreads, unemployment rates, land values, and commodity prices); and

- A discounted cash flow analysis, which relies upon each of the above model outputs, plus the contractual terms of each financial asset, and the effective interest rate of each financial asset.

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

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

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

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

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

Collateral Dependent Assets ("CDAs")

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

(i) 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, 2022, 2021 and 2020:

Table 2.1

	For the Years Ended December 31,								
	2022			2021			2020		
	Net Income	Weighted- Average Shares	\$ per Share	Net Income	Weighted- Average Shares	\$ per Share	Net Income	Weighted- Average Shares	\$ per Share
<i>(in thousands, except per share amounts)</i>									
Basic EPS									
Net income attributable to common stockholders	\$ 150,979	10,791	\$ 14.00	\$ 111,412	10,758	\$ 10.36	\$ 94,904	10,728	\$ 8.85
Effect of dilutive securities⁽¹⁾									
SARs and restricted stock	—	92	(0.13)	—	88	(0.09)	—	58	(0.05)
Diluted EPS	\$ 150,979	10,883	\$ 13.87	\$ 111,412	10,846	\$ 10.27	\$ 94,904	10,786	\$ 8.80

⁽¹⁾ For the years ended December 31, 2022, 2021 and 2020, SARs and restricted stock of 32,448, 39,326, and 74,336, 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, 2022, 2021 and 2020, contingent shares of unvested restricted stock of 18,535, 18,183, and 12,680 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.

(j) 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. 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.

Deferred tax assets are measured at rates enacted for the periods in which they are expected to be realized. To the extent rates change, the deferred tax asset will be adjusted to reflect the new rate. A increase in corporate tax rates would result in an increase in the value of the deferred tax asset.

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. 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.

(k) 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 \$4.6 million, \$4.3 million, and \$4.1 million of compensation expense related to SARs and non-vested restricted stock awards for 2022, 2021, and 2020, respectively.

(l) 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, 2022, 2021, and 2020.

Table 2.2

	Available-for-Sale Securities	Held-to-Maturity Securities	Cash Flow Hedges	Total
	<i>(in thousands)</i>			
Balance as of January 1, 2020	\$ (43,397)	\$ 32,845	\$ (5,609)	\$ (16,161)
Other comprehensive income/(loss) before reclassifications	32,739	—	(21,606)	11,133
Amounts reclassified from AOCI	(3,279)	(10,016)	4,400	(8,895)
Net comprehensive income/(loss)	29,460	(10,016)	(17,206)	2,238
Balance as of December 31, 2020	\$ (13,937)	\$ 22,829	\$ (22,815)	\$ (13,923)
Other comprehensive income before reclassifications	9,114	—	11,602	20,716
Amounts reclassified from AOCI	(2,109)	(6,676)	5,845	(2,940)
Net comprehensive income/(loss)	7,005	(6,676)	17,447	17,776
Balance as of December 31, 2021	\$ (6,932)	\$ 16,153	\$ (5,368)	\$ 3,853
Other comprehensive (loss)/income before reclassifications	(108,624)	—	54,688	(53,936)
Amounts reclassified from AOCI	(5)	204	(959)	(760)
Net comprehensive (loss)/income	(108,629)	204	53,729	(54,696)
Balance as of December 31, 2022	\$ (115,561)	\$ 16,357	\$ 48,361	\$ (50,843)

The following table presents other comprehensive income activity, the impact on net income of amounts reclassified from each component of AOCI, and the related tax impact for the years ended December 31, 2022, 2021, and 2020:

Table 2.3

	For the Years Ended December 31,								
	2022			2021			2020		
	Before Tax	Provision (Benefit)	After Tax	Before Tax	Provision (Benefit)	After Tax	Before Tax	Provision (Benefit)	After Tax
<i>(in thousands)</i>									
Other comprehensive income:									
Available-for-sale-securities:									
Unrealized holding (losses)/gains on available-for-sale securities	\$(137,500)	\$ (28,876)	\$(108,624)	\$ 11,537	\$ 2,423	\$ 9,114	\$ 41,442	\$ 8,703	\$ 32,739
Less reclassification adjustments included in:									
Net interest income ⁽¹⁾	—	—	—	(2,333)	(490)	(1,843)	(3,895)	(818)	(3,077)
Gains on sale of available-for-sale investment securities ⁽²⁾	—	—	—	(253)	(53)	(200)	—	—	—
Other income ⁽³⁾	(6)	(1)	(5)	(84)	(18)	(66)	(256)	(54)	(202)
Total	\$(137,506)	\$ (28,877)	\$(108,629)	\$ 8,867	\$ 1,862	\$ 7,005	\$ 37,291	\$ 7,831	\$ 29,460
Held-to-maturity securities:									
Less reclassification adjustments included in:									
Net interest income ⁽⁴⁾	259	55	204	(8,451)	(1,775)	(6,676)	(12,677)	(2,661)	(10,016)
Total	\$ 259	\$ 55	\$ 204	\$ (8,451)	\$ (1,775)	\$ (6,676)	\$ (12,677)	\$ (2,661)	\$ (10,016)
Cash flow hedges									
Unrealized gains/(losses) on cash flow hedges	\$ 69,225	\$ 14,537	\$ 54,688	\$ 14,685	\$ 3,083	\$ 11,602	\$(27,350)	\$ (5,744)	\$(21,606)
Less reclassification adjustments included in:									
Net interest income ⁽⁵⁾	(1,213)	(254)	(959)	7,399	1,554	5,845	5,570	1,170	4,400
Total	\$ 68,012	\$ 14,283	\$ 53,729	\$ 22,084	\$ 4,637	\$ 17,447	\$(21,780)	\$ (4,574)	\$(17,206)
Other comprehensive (loss)/income	\$ (69,235)	\$ (14,539)	\$ (54,696)	\$ 22,500	\$ 4,724	\$ 17,776	\$ 2,834	\$ 596	\$ 2,238

⁽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.

(m) 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 guarantee obligations for Farmer Mac. Farmer Mac records, at the inception of a 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 Finance real estate mortgage loans and Rural Infrastructure Finance loans.

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

(n) 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 on similar securities. 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 discount rates commensurate with the risks involved. 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 require the use of significant unobservable inputs in estimating the fair value.

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 a third-party accounting and valuation system. The third-party accounting and valuation system determines the fair value of the interest rate swaps using the market standard methodology of netting the discounted future fixed cash payments (or receipts) and the discounted expected variable cash receipts (or payments). In addition, the Company incorporates credit valuation adjustments to appropriately reflect both its own nonperformance risk and the respective counterparty's nonperformance risk in the fair value measurements of its derivatives. The credit valuation adjustments associated with the Company's derivatives utilize model-derived credit spreads, which are Level 3 inputs. As of December 31, 2022, the Company has assessed the significance of the impact of the credit valuation adjustments on the overall valuation of these interest rate contracts and has determined that the credit valuation adjustments were not significant to the overall valuation of its derivative portfolios. As a result, the Company classifies these derivative instruments as Level 2 due to the observable nature of the significant inputs utilized.

Additionally, Farmer Mac internally values its derivative portfolio using a discounted cash flow valuation technique and obtains counterparty valuations to corroborate the third-party accounting and valuation system.

See Note 13 for more information regarding fair value measurement.

(o) 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 Agricultural Finance 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 Farmer Mac 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 Agricultural Finance 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.

In 2021, Farmer Mac executed a structured securitization of a \$299.4 million pool of Farm & Ranch loans. For more information about this securitization, see Note 2(e) - Securitization. The securitization trust used to effect this transaction was a variable interest entity that Farmer Mac has not consolidated. Farmer Mac determined that it was not the primary beneficiary of the securitization trust because the subordinate class majority holder has the unilateral right to remove Farmer Mac as Master Servicer with or without cause.

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

Table 2.4

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

⁽¹⁾ Includes borrower remittances of \$8.1 million. The borrower remittances had not been passed through to third-party investors as of December 31, 2022.

⁽²⁾ Includes \$37.7 million in unamortized discount related to a structured securitization transaction.

⁽³⁾ Farmer Mac uses unpaid principal balance and outstanding face amount of investment securities to represent maximum exposure to loss.

⁽⁴⁾ Includes auction-rate certificates, government-sponsored enterprise ("GSE")-guaranteed mortgage-backed securities, and other mission related investments.

⁽⁵⁾ The amount under the Agricultural Finance line of business relates to unconsolidated trusts where it was determined that Farmer Mac was either not the primary beneficiary due to shared power with an unrelated party or a subordinate class majority holder has the unilateral right to remove Farmer Mac as Master Servicer without cause.

Consolidation of Variable Interest Entities				
As of December 31, 2021				
	Agricultural Finance	Treasury	Total	
	(in thousands)			
On-Balance Sheet:				
Consolidated VIEs:				
Loans held for investment in consolidated trusts, at amortized cost	\$ 948,623	\$ —	\$	948,623
Debt securities of consolidated trusts held by third parties ⁽¹⁾	981,379	—		981,379
Unconsolidated VIEs:				
Farmer Mac Guaranteed Securities:				
Carrying value	42,298	—		42,298
Maximum exposure to loss ⁽²⁾	42,155	—		42,155
Investment securities:				
Carrying value ⁽³⁾	—	2,258,219		2,258,219
Maximum exposure to loss ⁽²⁾⁽³⁾	—	2,246,272		2,246,272
Off-Balance Sheet:				
Unconsolidated VIEs:				
Farmer Mac Guaranteed Securities:				
Maximum exposure to loss ⁽²⁾⁽⁴⁾	578,358	—		578,358

⁽¹⁾ Includes borrower remittances of \$32.8 million. The borrower remittances had not been passed through to third-party investors as of December 31, 2021.

⁽²⁾ Farmer Mac uses unpaid principal balance and outstanding face amount of investment securities to represent maximum exposure to loss.

⁽³⁾ Includes auction-rate certificates, government-sponsored enterprise ("GSE")-guaranteed mortgage-backed securities, and other mission related investments.

⁽⁴⁾ The amount under the Agricultural Finance line of business relates to unconsolidated trusts where it was determined that Farmer Mac was either not the primary beneficiary due to shared power with an unrelated party or a subordinate class majority holder has the unilateral right to remove Farmer Mac as Master Servicer without cause.

- (1) Includes borrower remittances of \$32.8 million. The borrower remittances had not been passed through to third-party investors as of December 31, 2021.
- (2) Farmer Mac uses unpaid principal balance and outstanding face amount of investment securities to represent maximum exposure to loss.
- (3) Includes auction-rate certificates, government-sponsored enterprise ("GSE")-guaranteed mortgage-backed securities, and other mission related investments.
- (4) The amount under the Agricultural Finance line of business relates to unconsolidated trusts where it was determined that Farmer Mac was either not the primary beneficiary due to shared power with an unrelated party or a subordinate class majority holder has the unilateral right to remove Farmer Mac as Master Servicer without cause.

(p) Custodial Deposit Liability

During 2021, Farmer Mac acquired the loan servicing rights for a sizeable portion of its Agricultural Finance loan and USDA Guaranteed Securities portfolios. In connection with this acquisition, Farmer Mac now collects cash from borrowers in advance of the borrower's contractual payment date. Farmer Mac's policy is to include the cash in the consolidated balance sheet as "Cash and cash equivalents" with an offsetting liability to "Accounts payable and accrued expenses" until the payment is contractually due, at which point the payment is applied to the loan. The net change in the amount of this custodial cash will also be disclosed in the consolidated statements of cash flows as "Custodial deposit liability."

(q) Business Segments

During fourth quarter 2021, Farmer Mac's Chief Operating Decision Maker ("CODM") – its President and Chief Executive Officer – began reviewing financial information of seven operating segments, which are reportable segments. The CODM reviews the financial information of the seven segments to make decisions about allocating resources and to assess the financial performance of those segments. The seven reportable segments are: Farm & Ranch, Corporate AgFinance, Rural Utilities, Renewable Energy, Funding, Investments, and Corporate. The purpose of the new alignment of the company's segments is for the CODM to review and analyze financial performance according to the type of customer and market rather than according to the type of product offerings. Additionally, the financial information for the Funding and Investments segments allow the CODM to review the results of the company's Treasury

activities. All operating expenses are managed at the enterprise level and are reported within the Corporate segment rather than allocated to any of the other segments.

The operations and financial results of the Farm & Ranch and Corporate AgFinance segments are within our Agricultural Finance line of business. The Farm & Ranch segment includes the financial results of the USDA Securities portfolio and Farm & Ranch loans. The Corporate AgFinance segment includes loans and AgVantage securities to larger and more complex farming operations, agribusinesses focused on food and fiber processing, and other supply chain production.

The Rural Utilities and Renewable Energy segments are within our Rural Infrastructure Finance line of business. The Rural Utilities segment includes loans to rural electric generation and transmission cooperatives, distribution cooperatives, and telecommunications providers, as well as AgVantage securities secured by those types of loans. The Renewable Energy segment includes loans to rural electric solar and wind energy projects.

The Funding segment includes the financial results of the company's debt issuance, hedging, asset/liability management, and capital allocation strategies. The company allocates interest expense to each of the other segments (except Corporate) using a funds transfer pricing process. That process also allocates the benefits and costs from the company's funding and hedging strategies to the Funding segment.

The Investments segment includes the financial results of the company's investment portfolio, which is held for liquidity purposes. Interest expense is allocated to the Investments segment using the same funds transfer pricing process that is used to allocate interest expense to the other segments.

The Corporate segment includes all of the company's operating expenses, including compensation, general and administrative expenses, and regulatory fees. The Corporate segment also includes items of other income and preferred stock dividend expense.

Farmer Mac uses the non-GAAP financial measure "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. The main difference between core earnings and net income attributable to common stockholders is that core earnings excludes 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.

(r) New Accounting Standards

Recently Adopted Accounting Guidance

Standard	Description	Date of Adoption	Effect on Consolidated Financial Statements
ASU 2020-04 and 2021-01 , Reference Rate Reform (Topic 848): Facilitation of the Effects of Reference Rate Reform on Financial Reporting	The amendments in this Update provide optional guidance for a limited period of time to ease the potential burden in accounting for reference rate reform on financial reporting. They provide optional expedients and exceptions for applying GAAP to contracts, hedging relationships, and other transactions affected by reference rate reform if certain criteria are met.	January 1, 2020	Farmer Mac adopted optional expedients specific to discounting transition on a retrospective basis, and as a result of this election, the discounting transition did not have a material effect on Farmer Mac's financial position, results of operations, or cash flows. Farmer Mac is exploring the adoption of additional optional expedients, including contract modification relief, and does not expect this to have a material effect on Farmer Mac's financial position, results of operations, or cash flows.
ASU 2022-06 , Reference Rate Reform (Topic 848): Deferral of the Sunset Date of Topic 848	The amendments in this Update deferred the sunset date in Topic 848 from December 31, 2022 to December 31, 2024.	December 21, 2022	Farmer Mac continues to evaluate the impact of ASC 848.

Recently Issued Accounting Guidance

Standard	Description	Effect on Consolidated Financial Statements
ASU 2020-01 , Fair Value Hedging - Portfolio Layer Method	The Update introduces the portfolio layer method, which expands the current single-layer method to allow multiple hedged layers of a single closed portfolio under the method (previously named, last-of-layer method). Additionally, it expands the scope of the portfolio layer method to include non-prepayable assets, specifies eligible hedging instruments in a single-layer hedge, provides additional guidance on the accounting for and disclosure of hedge basis adjustments under the portfolio layer method, specifies how hedge basis adjustments should be considered when determining credit losses for the assets included in the closed portfolio, and provides that an entity may reclassify HTM debt securities identified within 30 days of the date of adoption to AFS if the entity applies portfolio layer method hedging to those debt securities.	Farmer Mac is continuing to evaluate the use of the portfolio layer method in its hedging programs, although future use of the standard is dependent on its asset-liability management strategies in the context of the then current interest rate outlook. Farmer Mac does not believe adoption of the standard will have a material effect on Farmer Mac's financial position, results of operations, or cash flows.
ASU 2022-02 , Financial Instruments-Credit Losses (Topic 326): Troubled Debt Restructurings and Vintage Disclosures	The Update addresses and amends areas identified by the Financial Accounting Standards Board ("FASB") as part of its post-implementation review of the accounting standard that introduced the current expected credit losses ("CECL") model. The amendments eliminate the accounting guidance for troubled debt restructurings by creditors that have adopted the CECL model and enhance the disclosure requirements for loan refinancings and restructurings made with borrowers experiencing financial difficulty. In addition, the amendments require disclosure of current-period gross writeoffs for financing receivables and net investment in leases by year of origination in the vintage disclosures. ASU 2022-02 is effective for fiscal years beginning after December 15, 2022, including interim periods within those fiscal years for entities that have adopted the CECL accounting standard. Early adoption, however, is permitted if an entity has adopted the CECL accounting standard.	We adopted this guidance effective January 1, 2023 on a prospective basis and will provide additional disclosures as required.

(s) Reclassifications

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

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 Agricultural Finance 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 because Zions owns approximately 31.2% of Farmer Mac's Class A voting common stock. The following transactions occurred between Farmer Mac and Zions during 2022, 2021, and 2020:

Table 3.1

	For the Years Ended December 31,		
	2022	2021	2020
	(in thousands)		
Unpaid Principal Balance:			
Purchases:			
Loans	\$ 274,517	\$ 214,319	\$ 177,143
USDA Securities	4,171	9,565	10,764
Sales of Farmer Mac Guaranteed Securities	99,643	—	41,247

The purchases of loans from Zions under the Agricultural Finance line of business represented approximately 12.9%, 8.0%, and 7.1% of Agricultural Finance mortgage loan purchases for the years ended December 31, 2022, 2021, and 2020, respectively, and 9.6%, 5.6% and 6.2%, respectively, of total Agricultural Finance mortgage loan business volume (excluding AgVantage and USDA Securities). The purchases of USDA Securities from Zions represented approximately 1.5%, 2.1%, and 1.4% of total purchases of USDA Securities for the years ended December 31, 2022, 2021, and 2020, respectively. Outstanding Agricultural Finance mortgage loans purchased and USDA Securities purchased from Zions represented 3.5% and 3.4%, respectively, of Farmer Mac's outstanding business volume as of December 31, 2022 and 2021.

Zions retained servicing fees of \$10.4 million, \$11.0 million, and \$11.8 million in 2022, 2021, and 2020, 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 CFC owns approximately 7.91% of Farmer Mac's Class A voting common stock and because a member of Farmer Mac's board of directors had an affiliation with CFC through June 2021. The following transactions occurred between Farmer Mac and CFC during 2022, 2021, and 2020:

Table 3.2

Farmer Mac Loan Purchases and Guarantees			
	For the Years Ended December 31,		
	2022	2021	2020
	<i>(in thousands)</i>		
Unpaid Principal Balance:			
Loans	\$ 386,998	\$ 127,117	\$ 272,943
LTSPCs	30,421	—	—
On-balance sheet AgVantage Securities	670,000	1,450,000	250,000
Total purchases and guarantees	<u>\$ 1,087,419</u>	<u>\$ 1,577,117</u>	<u>\$ 522,943</u>

The transactions with CFC represented 46.7% of Farmer Mac's loan purchase volume under the Rural Infrastructure Finance line of business for 2022, compared to 36.9% of Rural Infrastructure Finance loan purchase volume for 2021 and 36.7% for 2020. These transactions represented 13.4%, 37.0%, and 19.2% of AgVantage securities volume for 2022, 2021, and 2020, respectively, and represented 12.0%, 18.4%, and 9.1% of new business volume for 2022, 2021, and 2020, respectively. Of Farmer Mac's total outstanding business volume as of December 31, 2022 and 2021, Rural Utilities loans, loans under LTSPCs, and AgVantage securities issued by CFC represented 18.7% and 19.5%, respectively.

Farmer Mac had interest receivable of \$18.2 million and \$7.8 million as of December 31, 2022 and 2021, respectively, and earned interest income of \$79.4 million, \$50.0 million, and \$63.1 million during 2022, 2021, and 2020, respectively, related to its AgVantage transactions with CFC.

As of both December 31, 2022 and 2021, Farmer Mac had \$0.1 million of commitment fees receivable from CFC and earned commitment fees of \$1.1 million, \$1.2 million, and \$1.3 million, respectively for 2022, 2021, and 2020.

CFC retained servicing fees of \$3.4 million, \$3.3 million, and \$3.3 million in 2022, 2021, and 2020, respectively, for its work as a Farmer Mac central servicer.

CoBank:

Farmer Mac considers CoBank a related party because CoBank owns approximately 32.6% of Farmer Mac's Class B voting common stock.

Farmer Mac purchased \$376.0 million, \$207.5 million, and \$416.8 million of loans and participations from CoBank, under the Rural Infrastructure Finance line of business in 2022, 2021, and 2020, respectively. The transactions with CoBank represented 45.4%, 60.2%, and 56.0% of Farmer Mac's loan

purchase transactions under the Rural Infrastructure Finance line of business for 2022, 2021, and 2020, respectively. Of Farmer Mac's total outstanding business volume as of December 31, 2022 and 2021, CoBank's Rural Infrastructure Finance loans and unfunded commitments represented 6.3% and 5.6%, respectively, of total outstanding volume.

CoBank retained servicing fees of \$3.5 million, \$3.2 million, and \$2.3 million in 2022, 2021, and 2020, respectively, for its work as a Farmer Mac central servicer.

AgFirst Farm Credit Bank:

Farmer Mac considers AgFirst Farm Credit Bank ("AgFirst") a related party because AgFirst owns approximately 16.8% of Farmer Mac's Class B voting common stock.

AgFirst entered into \$0.0 million, \$11.0 million, and \$32.5 million of Agricultural Finance LTSPC transactions in 2022, 2021, and 2020, respectively, and the aggregate balance of Agricultural Finance LTSPCs outstanding as of December 31, 2022 and 2021 was \$387.1 million and \$363.9 million, respectively. In each of 2022, 2021, and 2020, Farmer Mac received \$1.2 million in commitment fees from AgFirst, and had \$0.1 million of commitment fees receivable as of both December 31, 2022 and 2021.

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, 2022 and 2021, the outstanding balance of those securities owned by AgFirst was \$2.2 million and \$4.0 million, respectively. Farmer Mac received guarantee fees of \$15,000, \$19,000, and \$25,000 in 2022, 2021, and 2020, respectively, on those securities.

Farm Credit Bank of Texas:

Farmer Mac considers Farm Credit Bank of Texas a related party because the bank owns approximately 7.7% of Farmer Mac's Class B voting common stock. Farmer Mac received from Farm Credit Bank of Texas commitment fees of \$2.9 million, \$1.9 million, and \$1.2 million in 2022, 2021, and 2020, respectively. The aggregate amount of Agricultural Finance LTSPCs outstanding with Farm Credit Bank of Texas as of December 31, 2022 and 2021 was \$881.6 million and \$625.6 million, respectively. In each of 2022, 2021, and 2020, Farm Credit Bank of Texas retained \$0.1 million in servicing fees for its work as a Farmer Mac central servicer.

Other Related Party Transactions:

Farmer Mac considers Bath State Bank and Farm Credit of Florida related parties because a member of Farmer Mac's board of directors is affiliated with those entities. Farmer Mac purchased \$0.0 million, \$2.3 million, and \$9.2 million in USDA Securities from Bath State Bank in 2022, 2021, and 2020, respectively. Farmer Mac purchased \$2.1 million and \$5.0 million in Agricultural Finance mortgage loans from Bath State Bank in 2022 and 2021, respectively. Farmer Mac did not purchase any Agricultural Finance mortgage loans from Bath State Bank in 2020.

Farmer Mac purchased \$0.0 million, \$1.1 million, and \$0.2 million of Agricultural Finance mortgage loans from Farm Credit of Florida in 2022, 2021, and 2020.

4. INVESTMENT SECURITIES

The following tables set forth information about Farmer Mac's available-for-sale and held-to-maturity investment securities as of December 31, 2022 and 2021:

Table 4.1

As of December 31, 2022							
	Amount Outstanding	Unamortized Premium/ (Discount)	Amortized Cost ⁽¹⁾	Allowance for losses ⁽²⁾	Unrealized Gains	Unrealized Losses	Fair Value
<i>(in thousands)</i>							
Available-for-sale:							
Floating rate auction-rate certificates backed by Government guaranteed student loans	\$ 19,700	\$ —	\$ 19,700	\$ (33)	\$ —	\$ (640)	\$ 19,027
Floating rate Government/GSE guaranteed mortgage-backed securities	2,433,696	(200)	2,433,496	—	1,954	(42,910)	2,392,540
Fixed rate GSE guaranteed mortgage-backed securities	1,207,416	(30,321)	1,177,095	—	2,128	(130,837)	1,048,386
Fixed rate U.S. Treasuries	1,145,915	(6,780)	1,139,135	—	621	(20,145)	1,119,611
Total available-for-sale	4,806,727	(37,301)	4,769,426	(33)	4,703	(194,532)	4,579,564
Held-to-maturity:							
Floating rate Government/GSE guaranteed mortgage-backed securities ⁽³⁾	45,032	—	45,032	—	2,433	—	47,465
Total held-to-maturity	\$ 45,032	\$ —	\$ 45,032	\$ —	\$ 2,433	\$ —	\$ 47,465

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

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

⁽³⁾ The held-to-maturity investment securities had a weighted average yield of 4.5% as of December 31, 2022.

As of December 31, 2021							
	Amount Outstanding	Unamortized Premium/ (Discount)	Amortized Cost ⁽¹⁾	Allowance for losses ⁽²⁾	Unrealized Gains	Unrealized Losses	Fair Value
<i>(in thousands)</i>							
Available-for-sale:							
Floating rate auction-rate certificates backed by Government guaranteed student loans	\$ 19,700	\$ —	\$ 19,700	\$ (52)	\$ —	\$ (394)	\$ 19,254
Floating rate Government/GSE guaranteed mortgage-backed securities	2,168,016	90	2,168,106	—	11,821	(1,096)	2,178,831
Fixed rate GSE guaranteed mortgage-backed securities	451,660	12,525	464,185	—	382	(5,730)	458,837
Fixed rate U.S. Treasuries	1,180,000	2,723	1,182,723	—	—	(3,254)	1,179,469
Total available-for-sale	3,819,376	15,338	3,834,714	(52)	12,203	(10,474)	3,836,391
Held-to-maturity:							
Floating rate Government/GSE guaranteed mortgage-backed securities ⁽³⁾	44,970	—	44,970	—	1,612	—	46,582
Total held-to-maturity	\$ 44,970	\$ —	\$ 44,970	\$ —	\$ 1,612	\$ —	\$ 46,582

⁽¹⁾ Amounts presented exclude \$4.3 million of accrued interest receivable on investment securities as of December 31, 2021.

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

⁽³⁾ The held-to-maturity investment securities had a weighted average yield of 1.5% as of December 31, 2021.

Farmer Mac did not sell any securities from its available-for-sale investment portfolio during the years ended December 31, 2022 and 2020. During the year ended December 31, 2021, Farmer Mac received proceeds of \$257.5 million, from the sale of securities from its available-for-sale investment portfolio, resulting in gains of \$0.3 million.

As of December 31, 2022 and 2021, unrealized losses on available-for-sale investment securities were as follows:

Table 4.2

	As of December 31, 2022			
	Available-for-Sale Securities			
	Unrealized loss position for less than 12 months		Unrealized loss position for more than 12 months	
	Fair Value	Unrealized Loss	Fair Value	Unrealized Loss
	(dollars in thousands)			
Floating rate auction-rate certificates backed by Government guaranteed student loans	\$ —	\$ —	\$ 19,027	\$ (640)
Floating rate Government/GSE guaranteed mortgage-backed securities	1,884,146	(36,976)	193,964	(5,934)
Fixed rate Government/GSE guaranteed mortgage-backed securities	621,215	(56,434)	336,782	(74,403)
Fixed rate U.S. Treasuries	314,524	(2,842)	704,780	(17,303)
Total	<u>\$ 2,819,885</u>	<u>\$ (96,252)</u>	<u>\$ 1,254,553</u>	<u>\$ (98,280)</u>
Number of securities in loss position	174		51	
	As of December 31, 2021			
	Available-for-Sale Securities			
	Unrealized loss position for less than 12 months		Unrealized loss position for more than 12 months	
	Fair Value	Unrealized Loss	Fair Value	Unrealized Loss
	(dollars in thousands)			
Floating rate auction-rate certificates backed by Government guaranteed student loans	\$ —	\$ —	\$ 19,254	\$ (394)
Floating rate Government/GSE guaranteed mortgage-backed securities	459,195	(619)	37,307	(477)
Fixed rate Government/GSE guaranteed mortgage-backed securities	406,805	(5,730)	—	—
Fixed rate U.S. Treasuries	1,123,439	(3,070)	51,031	(184)
Total	<u>\$ 1,989,439</u>	<u>\$ (9,419)</u>	<u>\$ 107,592</u>	<u>\$ (1,055)</u>
Number of securities in loss position	69		24	

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, 2022 and December 31, 2021, 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, 2022 and December 31, 2021, 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, 2022 that is, on average, approximately 92.7% of their amortized cost basis. Farmer Mac believes that all of these unrealized losses are recoverable within a reasonable period of time by way of maturity or changes in credit spreads.

The amortized cost, fair value, and weighted-average yield of available-for-sale investment securities by remaining contractual maturity as of December 31, 2022 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, 2022		
	Available-for-Sale Securities		
	Amortized Cost	Fair Value	Weighted-Average Yield
	<i>(dollars in thousands)</i>		
Due within one year	\$ 780,641	\$ 769,179	0.52%
Due after one year through five years	658,748	648,594	3.09%
Due after five years through ten years	2,577,103	2,420,688	3.49%
Due after ten years	752,934	741,103	4.17%
Total	<u>\$ 4,769,426</u>	<u>\$ 4,579,564</u>	3.06%

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, 2022 and 2021:

Table 5.1

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

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

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

⁽³⁾ Fair value includes \$7.8 million of an interest-only security with a notional amount of \$250.1 million.

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

As of December 31, 2021							
	Unpaid Principal Balance	Unamortized Premium/ (Discount)	Amortized Cost ⁽¹⁾	Allowance for losses ⁽²⁾	Unrealized Gains	Unrealized Losses	Fair Value
<i>(in thousands)</i>							
Held-to-maturity:							
AgVantage	\$ 2,003,486	\$ —	\$ 2,003,486	\$ (132)	\$ 10,097	\$ (12,764)	\$ 2,000,687
Farmer Mac Guaranteed USDA Securities	29,859	26	29,885	—	1,162	—	31,047
Total Farmer Mac Guaranteed Securities	2,033,345	26	2,033,371	(132)	11,259	(12,764)	2,031,734
USDA Securities	2,411,649	24,682	2,436,331	—	95,741	—	2,532,072
Total held-to-maturity	<u>\$ 4,444,994</u>	<u>\$ 24,708</u>	<u>\$ 4,469,702</u>	<u>\$ (132)</u>	<u>\$ 107,000</u>	<u>\$ (12,764)</u>	<u>\$ 4,563,806</u>
Available-for-sale:							
AgVantage	\$ 6,122,240	\$ 1,270	\$ 6,123,510	\$ (263)	\$ 212,908	\$ (20,010)	\$ 6,316,145
Farmer Mac Guaranteed Securities ⁽³⁾	—	12,297	12,297	—	117	—	\$ 12,414
Total available-for-sale	<u>\$ 6,122,240</u>	<u>\$ 13,567</u>	<u>\$ 6,135,807</u>	<u>\$ (263)</u>	<u>\$ 213,025</u>	<u>\$ (20,010)</u>	<u>\$ 6,328,559</u>
Trading:							
USDA Securities ⁽⁴⁾	<u>\$ 4,299</u>	<u>\$ 134</u>	<u>\$ 4,433</u>	<u>\$ —</u>	<u>\$ 1</u>	<u>\$ (33)</u>	<u>\$ 4,401</u>

⁽¹⁾ Amounts presented exclude \$29.8 million, \$42.1 million, and \$0.1 million of accrued interest receivable on available-for-sale, held-to-maturity, and trading securities, respectively, as of December 31, 2021.

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

⁽³⁾ Fair value includes \$12.4 million of an interest-only security with a notional amount of \$275.4 million.

⁽⁴⁾ The trading USDA securities had a weighted average yield of 5.05% as of December 31, 2021.

As of December 31, 2022 and 2021, 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, 2022					
Held-to-Maturity and Available-for-Sale Securities					
Unrealized loss position for less than 12 months			Unrealized loss position for more than 12 months		
Fair Value	Unrealized Loss		Fair Value	Unrealized Loss	
<i>(in thousands)</i>					
Held-to-maturity:					
AgVantage	\$ 548,634	\$ (11,455)	\$ 382,358	\$ (42,643)	
Farmer Mac Guaranteed USDA Securities	19,790	(856)	—	—	
USDA Securities	2,086,108	(312,824)	—	—	
Total held-to-maturity	<u>\$ 2,654,532</u>	<u>\$ (325,135)</u>	<u>\$ 382,358</u>	<u>\$ (42,643)</u>	
Available-for-sale:					
AgVantage	\$ 4,642,096	\$ (267,886)	\$ 1,548,551	\$ (143,123)	
Farmer Mac Guaranteed Securities	7,847	(2,775)	—	—	
Total available-for-sale	<u>\$ 4,649,943</u>	<u>\$ (270,661)</u>	<u>\$ 1,548,551</u>	<u>\$ (143,123)</u>	

	As of December 31, 2021			
	Held-to-Maturity and Available-for-Sale Securities			
	Unrealized loss position for less than 12 months		Unrealized loss position for more than 12 months	
	Fair Value	Unrealized Loss	Fair Value	Unrealized Loss
	(in thousands)			
Held-to-maturity:				
AgVantage	\$ 1,387,236	\$ (12,764)	\$ —	\$ —
Available-for-sale:				
AgVantage	\$ 1,867,364	\$ (17,263)	\$ 90,971	\$ (2,747)

The unrealized losses presented above are principally due to changes in interest rates from the date of acquisition to December 31, 2022 and 2021, as applicable.

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

The unrealized losses from AgVantage securities were on 95 and 13 available-for-sale securities as of December 31, 2022 and 2021, respectively. There were 37 and 10 held-to-maturity AgVantage securities with an unrealized loss as of December 31, 2022 and 2021, respectively. As of December 31, 2022 and 2021, 13 and 2 available-for-sale AgVantage securities, respectively, had been in a loss position for more than 12 months. As of December 31, 2022, there were 4 held-to-maturity AgVantage securities in a loss position for more than 12 months. As of December 31, 2021, there were no held-to-maturity AgVantage securities in a loss position for more than 12 months.

During the three years ended December 31, 2022, 2021, and 2020, Farmer Mac had no sales of AgVantage Farmer Mac Guaranteed Securities, USDA Farmer Mac Guaranteed Securities or USDA Trading Securities and, therefore, Farmer Mac realized no gains or losses.

The amortized cost, fair value, and weighted-average yield of available-for-sale and held-to-maturity Farmer Mac Guaranteed Securities and USDA Securities by remaining contractual maturity as of December 31, 2022 are set forth below. The balances presented are based on their contractual maturities, although the actual maturities may differ due to prepayments of the underlying assets.

Table 5.3

As of December 31, 2022			
Available-for-Sale Securities			
	Amortized Cost ⁽¹⁾	Fair Value	Weighted-Average Yield
	<i>(dollars in thousands)</i>		
Due within one year	\$ 1,675,756	\$ 1,670,398	4.27 %
Due after one year through five years	3,295,169	3,149,966	3.49 %
Due after five years through ten years	1,331,931	1,230,818	3.50 %
Due after ten years	1,716,639	1,556,044	4.12 %
Total	\$ 8,019,495	\$ 7,607,226	3.78 %

⁽¹⁾ Amounts presented exclude \$51.5 million of accrued interest receivable.

As of December 31, 2022			
Held-to-Maturity Securities			
	Amortized Cost ⁽¹⁾	Fair Value	Weighted- Average Yield
	<i>(dollars in thousands)</i>		
Due within one year	\$ 375,930	\$ 369,834	2.86 %
Due after one year through five years	660,556	605,494	2.15 %
Due after five years through ten years	276,635	243,939	3.15 %
Due after ten years	2,117,926	1,844,966	3.29 %
Total	<u>\$ 3,431,047</u>	<u>\$ 3,064,233</u>	2.99 %

⁽¹⁾ Amounts presented exclude \$44.4 million of accrued interest receivable.

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 or SOFR). Certain other financial derivatives are designated as cash flow hedges to mitigate the volatility of future interest rate payments on floating rate debt. Certain financial derivatives are not designated in hedge accounting relationships.

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

The following tables summarize information related to Farmer Mac's financial derivatives on a gross basis without giving consideration to master netting arrangements. The table below includes accrued interest on cleared swaps, but excludes \$6.1 million and \$3.0 million of accrued interest receivable and \$3.6 million and \$1.9 million of accrued interest payable on uncleared swaps as of December 31, 2022 and 2021, respectively. The aforementioned accrued interest on uncleared swaps is included within Accrued Interest Receivable and Accrued Interest Payable on the consolidated balance sheets.

Table 6.1

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

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

As of December 31, 2021

	As of December 31, 2021						
	Notional Amount	Fair Value		Weighted- Average Pay Rate	Weighted- Average Receive Rate	Weighted- Average Forward Price	Weighted- Average Remaining Term (in years)
		Asset	(Liability)				
(dollars in thousands)							
Fair value hedges:							
Interest rate swaps:							
Pay fixed non-callable	\$ 6,238,438	\$ 205	\$ (9,525)	2.06%	0.13%		11.64
Receive fixed non-callable	5,884,529	974	(1,475)	0.17%	0.88%		2.27
Receive fixed callable	1,571,577	103	(17,612)	0.01%	0.80%		4.17
Cash flow hedges:							
Interest rate swaps:							
Pay fixed non-callable	570,000	5,426	(3,095)	1.93%	0.49%		5.72
No hedge designation:							
Interest rate swaps:							
Pay fixed non-callable	229,062	52	(4,807)	3.22%	0.16%		4.95
Receive fixed non-callable	1,377,250	115	(132)	0.13%	0.43%		0.97
Basis swaps	1,608,911	507	(296)	0.17%	0.20%		3.31
Treasury futures	67,600	73	—			130.58	
Credit valuation adjustment		—	14				
Netting adjustments ⁽¹⁾		(1,374)	1,374				
Total financial derivatives	\$ 17,547,367	\$ 6,081	\$ (35,554)				

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

As of December 31, 2022, Farmer Mac expects to reclassify \$14.8 million after-tax from accumulated other comprehensive income to earnings over the next twelve months related to cash flow hedges. This amount could differ from amounts actually recognized due to changes in interest rates, hedge designations, and the addition of other hedges after December 31, 2022. During the years ended December 31, 2022, 2021, and 2020, there were no gains or losses from interest rate swaps designated as cash flow hedges reclassified to earnings because it was probable that the originally forecasted transactions would occur.

The following tables summarize the net income/(expense) recognized in the consolidated statements of operations related to derivatives for the years ended December 31, 2022, 2021, and 2020:

Table 6.2

	For the Year Ended December 31, 2022						
	Net Income/(Expense) Recognized in Consolidated Statement of Operations on Derivatives						
	Net Interest Income				Non-Interest Income		
	Interest Income Investments and Cash Equivalents	Interest Income Farmer Mac Guaranteed Securities and USDA Securities	Interest Income Loans	Total Interest Expense	Gains on financial derivatives	Total	
	(in thousands)						
Total amounts presented in the consolidated statement of operations	\$ 82,659	\$ 283,769	\$ 350,420	\$ (445,908)	\$ 22,631	\$ 293,571	
Income/(expense) related to interest settlements on fair value hedging relationships:							
Recognized on derivatives	2,727	(19,486)	(501)	(61,941)	—	(79,201)	
Recognized on hedged items	16,199	142,809	56,141	(132,406)	—	82,743	
Premium/discount amortization recognized on hedged items	(754)	—	—	(2,116)	—	(2,870)	
Income/(expense) related to interest settlements on fair value hedging relationships	\$ 18,172	\$ 123,323	\$ 55,640	\$ (196,463)	\$ —	\$ 672	
Gains/(losses) on fair value hedging relationships:							
Recognized on derivatives	\$ 104,722	\$ 553,530	\$ 351,116	\$ (489,445)	\$ —	\$ 519,923	
Recognized on hedged items	(105,889)	(553,393)	(341,162)	486,323	—	(514,121)	
Gains/(losses) on fair value hedging relationships	\$ (1,167)	\$ 137	\$ 9,954	\$ (3,122)	\$ —	\$ 5,802	
Expense related to interest settlements on cash flow hedging relationships:							
Interest settlements reclassified from AOCI into net income on derivatives	\$ —	\$ —	\$ —	\$ 1,213	\$ —	\$ 1,213	
Recognized on hedged items	—	—	—	(12,847)	—	(12,847)	
Discount amortization recognized on hedged items	—	—	—	(57)	—	(57)	
Expense recognized on cash flow hedges	\$ —	\$ —	\$ —	\$ (11,691)	\$ —	\$ (11,691)	
Gains on financial derivatives not designated in hedging relationships:							
Gains on interest rate swaps	\$ —	\$ —	\$ —	\$ —	\$ 13,012	\$ 13,012	
Interest expense on interest rate swaps	—	—	—	—	(7,619)	(7,619)	
Treasury futures	—	—	—	—	17,238	17,238	
Gains on financial derivatives not designated in hedge relationships	\$ —	\$ —	\$ —	\$ —	\$ 22,631	\$ 22,631	

For the Year Ended December 31, 2021

	Net Income/(Expense) Recognized in Consolidated Statement of Operations on Derivatives					
	Net Interest Income				Non-Interest Income	
	Interest Income Investments and Cash Equivalents	Interest Income Farmer Mac Guaranteed Securities and USDA Securities	Interest Income Loans	Total Interest Expense	Gains on financial derivatives	Total
	(in thousands)					
Total amounts presented in the consolidated statement of operations:	\$ 18,660	\$ 164,723	\$ 242,582	\$ (204,014)	\$ 324	\$ 222,275
Income/(expense) related to interest settlements on fair value hedging relationships:						
Recognized on derivatives	(1,002)	(85,302)	(27,167)	42,591	—	(70,880)
Recognized on hedged items	1,792	119,896	46,842	(51,484)	—	117,046
Discount amortization recognized on hedged items	—	—	—	(1,118)	—	(1,118)
Income/(expense) related to interest settlements on fair value hedging relationships	\$ 790	\$ 34,594	\$ 19,675	\$ (10,011)	\$ —	\$ 45,048
Gains/(losses) on fair value hedging relationships:						
Recognized on derivatives	\$ 1,688	\$ 178,252	\$ 97,459	\$ (98,332)	\$ —	\$ 179,067
Recognized on hedged items	(1,218)	(176,304)	(97,502)	95,617	—	(179,407)
Gains/(losses) on fair value hedging relationships	\$ 470	\$ 1,948	\$ (43)	\$ (2,715)	\$ —	\$ (340)
Expense related to interest settlements on cash flow hedging relationships:						
Interest settlements reclassified from AOCI into net income on derivatives	\$ —	\$ —	\$ —	\$ (7,399)	\$ —	\$ (7,399)
Recognized on hedged items	—	—	—	(2,657)	—	(2,657)
Discount amortization recognized on hedged items	—	—	—	(37)	—	(37)
Expense recognized on cash flow hedges	\$ —	\$ —	\$ —	\$ (10,093)	\$ —	\$ (10,093)
Gains on financial derivatives not designated in hedge relationships:						
Losses on interest rate swaps	\$ —	\$ —	\$ —	\$ —	\$ (2,144)	\$ (2,144)
Interest expense on interest rate swaps	—	—	—	—	3,259	3,259
Treasury futures	—	—	—	—	(791)	(791)
Gains on financial derivatives not designated in hedge relationships	\$ —	\$ —	\$ —	\$ —	\$ 324	\$ 324

For the Year Ended December 31, 2020

Net Income/(Expense) Recognized in Consolidated Statement of Operations on Derivatives					
	Net Interest Income			Non-Interest Income	Total
	Interest Income Farmer Mac Guaranteed Securities and USDA Securities	Interest Income Loans	Total Interest Expense	Gains on financial derivatives	
Total amounts presented in the consolidated statement of operations:	\$ 232,951	\$ 233,699	\$ (312,946)	\$ 1,744	\$ 155,448
Income/(expense) related to interest settlements on fair value hedging relationships:					
Recognized on derivatives	(60,056)	(19,135)	26,386	—	(52,805)
Recognized on hedged items	126,170	40,793	(51,230)	—	115,733
Discount amortization recognized on hedged items	—	—	(745)	—	(745)
Income/(expense) related to interest settlements on fair value hedging relationships	<u>\$ 66,114</u>	<u>\$ 21,658</u>	<u>\$ (25,589)</u>	<u>\$ —</u>	<u>\$ 62,183</u>
Gains/(losses) on fair value hedging relationships:					
Recognized on derivatives	\$ (201,021)	\$ (76,565)	\$ 43,332	\$ —	\$ (234,254)
Recognized on hedged items	202,624	73,426	(45,720)	—	230,330
Gains/(losses) on fair value hedging relationships	<u>\$ 1,603</u>	<u>\$ (3,139)</u>	<u>\$ (2,388)</u>	<u>\$ —</u>	<u>\$ (3,924)</u>
Expense related to interest settlements on cash flow hedging relationships:					
Interest settlements reclassified from AOCI into net income on derivatives	\$ —	\$ —	\$ (5,570)	\$ —	\$ (5,570)
Recognized on hedged items	—	—	(4,553)	—	(4,553)
Discount amortization recognized on hedged items	—	—	(13)	—	(13)
Expense recognized on cash flow hedges	<u>\$ —</u>	<u>\$ —</u>	<u>\$ (10,136)</u>	<u>\$ —</u>	<u>\$ (10,136)</u>
Gains on financial derivatives not designated in hedge relationships:					
Losses on interest rate swaps	\$ —	\$ —	\$ —	\$ (2,214)	\$ (2,214)
Interest expense on interest rate swaps	—	—	—	5,808	5,808
Treasury futures	—	—	—	(1,850)	(1,850)
Gains on financial derivatives not designated in hedge relationships	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 1,744</u>	<u>\$ 1,744</u>

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, 2022 and 2021:

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, 2022	December 31, 2021	December 31, 2022	December 31, 2021
	<i>(in thousands)</i>			
Investment securities, Available-for-Sale, at fair value	\$ 876,063	\$ 458,653	\$ (107,107)	\$ (1,218)
Farmer Mac Guaranteed Securities, Available-for-Sale, at fair value	4,814,784	4,276,002	(346,873)	206,520
Loans held for investment, at amortized cost	1,623,301	1,668,142	(327,278)	13,832
Notes Payable ⁽¹⁾	(12,151,382)	(7,081,150)	531,086	39,992

⁽¹⁾ Carrying amount represents amortized cost.

The following tables present the fair value of financial assets and liabilities, based on the terms of Farmer Mac's master netting arrangements as of December 31, 2022 and 2021:

Table 6.4

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

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

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

December 31, 2021

				Gross Amounts Not Offset in the Consolidated Balance Sheet				
	Gross Amount Recognized	Gross Amounts offset in the Consolidated Balance Sheet	Net Amount Presented in the Consolidated Balance Sheet ⁽¹⁾	Netting Adjustments	Financial instruments pledged	Cash Collateral ⁽²⁾	Net Amount	
	(in thousands)							
Assets:								
Uncleared derivatives	\$ 6,081	\$ —	\$ 6,081	\$ (6,008)	\$ —	\$ —	\$ 73	
Cleared derivatives	1,374	(1,374)	—	—	—	—	—	
Total	<u>\$ 7,455</u>	<u>\$ (1,374)</u>	<u>\$ 6,081</u>	<u>\$ (6,008)</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 73</u>	
Liabilities:								
Uncleared derivatives	\$ (23,368)	\$ —	\$ (23,368)	\$ 6,008	\$ —	\$ 14,339	\$ (3,021)	
Cleared derivatives	(10,993)	1,374	(9,619)	—	177,878	—	168,259	
Total	<u>\$ (34,361)</u>	<u>\$ 1,374</u>	<u>\$ (32,987)</u>	<u>\$ 6,008</u>	<u>\$ 177,878</u>	<u>\$ 14,339</u>	<u>\$ 165,238</u>	

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

⁽²⁾ Cash collateral excludes \$2.3 million of collateral posted related to counterparties not subject to master netting agreements.

Farmer Mac records posted cash as a reduction in the outstanding balance of cash and cash equivalents and an increase in the balance of prepaid expenses and other assets. Any investment securities posted as collateral are included in the investment securities balances on the consolidated balance sheets. If Farmer Mac had breached certain provisions of the derivative contracts as of December 31, 2022 or 2021, 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, 2022 and 2021, 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 \$23.9 billion notional amount of interest rate swaps outstanding as of December 31, 2022, \$19.5 billion were cleared through the swap clearinghouse, the Chicago Mercantile Exchange ("CME"). Of Farmer Mac's \$17.5 billion notional amount of interest rate swaps outstanding as of December 31, 2021, \$14.9 billion were cleared through the CME. During 2022 and throughout 2021, Farmer Mac continued the use of non-cleared basis swaps to prepare for the transition away from the use of LIBOR as a reference rate.

7. NOTES PAYABLE

Farmer Mac's borrowings consist of discount notes and medium-term notes, both of which are unsecured general obligations of Farmer Mac. Discount notes generally have original maturities of 1.0 year or less, whereas medium-term notes generally have maturities of 0.5 years to 25.0 years.

The following tables set forth information related to Farmer Mac's borrowings as of December 31, 2022 and 2021:

Table 7.1

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

December 31, 2021				
	Outstanding as of December 31		Average Outstanding During the Year	
	Amount	Weighted-Average Rate	Amount	Weighted-Average Rate
<i>(dollars in thousands)</i>				
Due within one year:				
Discount notes	\$ 2,167,979	0.05 %	\$ 1,822,714	0.08 %
Medium-term notes	837,580	0.09 %	1,956,870	0.12 %
Current portion of medium-term notes	3,981,240	0.75 %		
Total due within one year	\$ 6,986,799	0.45 %		
Due after one year:				
Medium-term notes due in:				
Two years	\$ 4,179,985	0.81 %		
Three years	2,554,906	0.87 %		
Four years	2,119,805	0.85 %		
Five years	2,810,894	1.07 %		
Thereafter	4,106,144	1.69 %		
Total due after one year	\$ 15,771,734	1.10 %		
Total principal net of discounts	\$ 22,758,533	0.90 %		
Hedging adjustments	(44,762)			
Total	\$ 22,713,771			

The maximum amount of Farmer Mac's discount notes outstanding at any month end during each of the years ended December 31, 2022 and 2021 was \$2.2 billion and \$2.4 billion, respectively.

Callable medium-term notes give Farmer Mac the option to redeem the debt at par value on a specified call date or at any time on or after a specified call date. The following table summarizes by maturity date the amounts and costs for Farmer Mac debt callable in 2023 as of December 31, 2022:

Table 7.2

Debt Callable in 2023 as of December 31, 2022, by Maturity		
	Amount	Weighted-Average Rate
	<i>(dollars in thousands)</i>	
Maturity:		
2024	\$ 587,271	1.74 %
2025	816,087	1.91 %
2026	1,109,736	1.21 %
2027	650,013	2.30 %
Thereafter	1,712,917	2.19 %
Total	<u>\$ 4,876,024</u>	<u>1.88 %</u>

The following schedule summarizes the earliest interest rate reset date, or debt maturities, of total borrowings outstanding as of December 31, 2022, including callable and non-callable medium-term notes, assuming callable notes are redeemed at the initial call date:

Table 7.3

Earliest Interest Rate Reset Date, or Debt Maturities, of Borrowings Outstanding		
	Amount	Weighted-Average Rate
	<i>(dollars in thousands)</i>	
Debt with interest rate resets, or debt maturities in:		
2023	\$ 9,512,484	2.67 %
2024	3,957,769	1.63 %
2025	3,181,100	1.84 %
2026	2,809,720	1.25 %
2027	2,070,417	2.90 %
Thereafter	3,468,709	2.26 %
Total principal net of discounts	<u>\$ 25,000,199</u>	<u>2.20 %</u>

During the years ended December 31, 2022 and 2021, Farmer Mac called \$26.0 million and \$2.0 billion of callable medium-term notes, respectively.

Authority to Borrow from the U.S. Treasury

Farmer Mac's statutory charter authorizes it, upon satisfying certain conditions, to borrow up to \$1.5 billion from the U.S. Treasury through the issuance of debt obligations to the U.S. Treasury. Any funds borrowed from the U.S. Treasury may be used solely to fulfill Farmer Mac's guarantee obligations. Any debt obligations issued by Farmer Mac under this authority would bear interest at a rate determined by the U.S. Treasury, taking into consideration the average rate on outstanding marketable obligations of the United States as of the last day of the last calendar month ending before the date of the purchase of the obligations from Farmer Mac. The charter requires Farmer Mac to repurchase any of its debt obligations held by the U.S. Treasury within a reasonable time. As of December 31, 2022, Farmer Mac had not used this borrowing authority.

Gains on Repurchases of Outstanding Debt

During the years ended December 31, 2022 and 2021, Farmer Mac repurchased \$27.0 million and \$23.0 million of outstanding debt at a gain of \$0.2 million and \$0.0 million, respectively.

8. LOANS

Farmer Mac classifies loans as either held for investment or held for sale. Loans held for investment are recorded at the unpaid principal balance, net of unamortized premium or discount and other cost basis adjustments. Loans held for sale are reported at the lower of cost or fair value determined on a pooled basis. As of both December 31, 2022 and 2021, Farmer Mac had no loans held for sale, respectively.

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

The following table includes loans held for investment and displays the composition of the loan balances as of December 31, 2022 and 2021:

Table 8.1

	As of December 31, 2022			As of December 31, 2021		
	Unsecuritized	In Consolidated Trusts	Total	Unsecuritized	In Consolidated Trusts	Total
	<i>(in thousands)</i>					
Agricultural Finance loans						
Farm & Ranch	\$ 5,150,750	\$ 1,211,576	\$ 6,362,326	\$ 4,775,070	\$ 948,623	\$ 5,723,693
Corporate AgFinance	1,166,253	—	1,166,253	1,123,300	—	1,123,300
Total Agricultural Finance loans	6,317,003	1,211,576	7,528,579	5,898,370	948,623	6,846,993
Rural Infrastructure Finance loans	3,021,266	—	3,021,266	2,389,136	—	2,389,136
Total unpaid principal balance ⁽¹⁾	9,338,269	1,211,576	10,549,845	8,287,506	948,623	9,236,129
Unamortized premiums, discounts, fair value hedge basis adjustment, and other cost basis adjustments	(326,449)	—	(326,449)	26,590	—	26,590
Total loans	9,011,820	1,211,576	10,223,396	8,314,096	948,623	9,262,719
Allowance for losses	(14,629)	(460)	(15,089)	(13,477)	(564)	(14,041)
Total loans, net of allowance	\$ 8,997,191	\$ 1,211,116	\$ 10,208,307	\$ 8,300,619	\$ 948,059	\$ 9,248,678

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

Allowance for Losses

The following table is a summary, by asset type, of the allowance for losses as of December 31, 2022 and 2021:

Table 8.2

	December 31, 2022	December 31, 2021
	Allowance for Losses	Allowance for Losses
	<i>(in thousands)</i>	
Loans:		
Agricultural Finance loans		
Farm & Ranch	\$ 4,044	\$ 2,882
Corporate AgFinance	2,731	560
Total Agricultural Finance Loans	6,775	3,442
Rural Infrastructure Finance loans	8,314	10,599
Total	\$ 15,089	\$ 14,041

The following is a summary of the changes in the allowance for losses for each year in the three-year period ended December 31, 2022:

Table 8.3

	Agricultural Finance loans			Rural Infrastructure Finance loans
	Farm & Ranch	Corporate AgFinance	Total	
	<i>(in thousands)</i>			
Balance as of December 31, 2019 ⁽¹⁾	\$ 8,830	\$ 1,624	\$ 10,454	\$ —
Cumulative effect adjustment from adoption of current expected credit loss standard	(2,735)	(1,174)	(3,909)	5,378
Adjusted Beginning Balance	\$ 6,095	\$ 450	\$ 6,545	\$ 5,378
Provision for losses	3,068	(109)	2,959	4,709
Charge-offs	(5,759)	—	(5,759)	—
Balance as of December 31, 2020 ⁽²⁾	\$ 3,404	\$ 341	\$ 3,745	\$ 10,087
(Release of)/provision for losses	(1,576)	219	(1,357)	512
Recovery	1,054	—	1,054	—
Balance as of December 31, 2021 ⁽³⁾⁽⁴⁾⁽⁵⁾	\$ 2,882	\$ 560	\$ 3,442	\$ 10,599
Provision for/(release of) losses	1,246	2,171	3,417	(2,285)
Charge-offs	(84)	—	(84)	—
Balance as of December 31, 2022 ⁽³⁾⁽⁴⁾⁽⁵⁾	\$ 4,044	\$ 2,731	\$ 6,775	\$ 8,314

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

⁽²⁾ Allowance for losses reflects the adoption of ASU 2016-13, "Financial Instruments - Credit Losses," effective January 1, 2020.

⁽³⁾ As of December 31, 2022 and 2021, allowance for losses for Agricultural Finance Farm & Ranch loans includes \$1.9 million and \$0.0 million allowance for collateral dependent assets secured by agricultural real estate, respectively.

⁽⁴⁾ As of December 31, 2022 and 2021, allowance for losses for Agricultural Finance Corporate AgFinance loans includes \$2.4 million and \$0.0 million allowance for collateral dependent assets secured by agricultural real estate, respectively.

⁽⁵⁾ As of both December 31, 2022 and 2021, allowance for losses for Rural Infrastructure Finance loans includes no allowance for collateral dependent assets.

The \$2.3 million net release from the allowance for the Rural Infrastructure Finance portfolio during the year ended December 31, 2022 was primarily attributable to a risk rating upgrade on a single loan and improvements in forecasts of future economic conditions. The risk rating upgrade on that loan reflected

that borrower's successful securitization of its large payable that arose during the arctic freeze that struck Texas in February 2021. The \$3.4 million net provision to the allowance for the Agricultural Finance mortgage loan portfolio during the year ended December 31, 2022 was primarily attributable to a risk rating downgrade on a single agricultural storage and processing loan, due to its ongoing bankruptcy proceedings.

The provision to the allowance for Rural Infrastructure Finance loan losses of \$0.5 million recorded during the year ended 2021 was primarily attributable to the impact of the Texas Arctic Freeze, partially offset by the impact of improving economic factor forecasts. The \$1.4 million release from the allowance for the Agricultural Finance mortgage loan portfolio during the year ended 2021 was primarily attributable to a recovery on the payoff of the agricultural storage and processing loan secured by a specialized poultry facility that had been partially charged off in 2020 and improving economic factor forecasts.

The provision to the allowance for Rural Infrastructure Finance loan losses of \$4.7 million recorded during the year ended December 31, 2020 was primarily attributable to the impact of net new loan volume in the portfolio and the impact of economic factor forecasts, especially continued expected higher unemployment, as a result of the COVID-19 pandemic and the resulting economic volatility. The provision to the allowance for Agricultural Finance mortgage loans of \$3.0 million recorded during the year ended December 31, 2020 was primarily related to an agricultural storage and processing loan secured by a specialized poultry facility that Farmer Mac has deemed to be a CDA. The provision was more than offset by charge-offs from the allowance of \$5.8 million, primarily related to the specialized poultry loan because a portion of the loan was deemed to be uncollectible.

The following table presents the unpaid principal balances by delinquency status of Farmer Mac's loans and non-performing assets as of December 31, 2022 and 2021:

Table 8.4

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

(1) Amounts represent unpaid principal balance of risk-rated loans, which is the basis Farmer Mac uses to analyze its portfolio, and recorded investment of past due loans.

(2) Includes loans in consolidated trusts with beneficial interests owned by third parties that are 90 days or more past due.

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

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

	As of December 31, 2021							
	Accruing					Nonaccrual loans ⁽³⁾⁽⁴⁾	Total Loans	
	Current	30-59 Days	60-89 Days	90 Days and Greater ⁽²⁾	Total Past Due			
				(in thousands)				
Loans ⁽¹⁾ :								
Agricultural Finance loans								
Farm & Ranch	\$ 5,591,770	\$ 4,548	\$ 568	\$ —	\$ 5,116	\$ 126,807	\$ 5,723,693	
Corporate AgFinance	1,123,300	—	—	—	—	—	1,123,300	
Total Agricultural Finance loans	6,715,070	4,548	568	—	5,116	126,807	6,846,993	
Rural Infrastructure Finance loans	2,389,136	—	—	—	—	—	2,389,136	
Total	\$ 9,104,206	\$ 4,548	\$ 568	\$ —	\$ 5,116	\$ 126,807	\$ 9,236,129	

⁽¹⁾ Amounts represent unpaid principal balance of risk-rated loans, which is the basis Farmer Mac uses to analyze its portfolio, and recorded investment of past due loans.

⁽²⁾ Includes loans in consolidated trusts with beneficial interests owned by third parties that are 90 days or more past due.

⁽³⁾ Includes loans that are 90 days or more past due, in foreclosure, or in bankruptcy with at least one missed payment, excluding loans performing under either their original loan terms or a court-approved bankruptcy plan.

⁽⁴⁾ Includes \$31.0 million of nonaccrual loans for which there was no associated allowance. During the year ended December 31, 2021, Farmer Mac received \$5.0 million in interest on nonaccrual loans.

Credit Quality Indicators

The following tables present credit quality indicators related to Agricultural Finance mortgage loans and Rural Infrastructure Finance loans held as of December 31, 2022 and 2021, by year of origination:

Table 8.5

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

⁽¹⁾ Amounts represent unpaid principal balance of risk-rated loans, which is the basis Farmer Mac uses to analyze its portfolio, and recorded investment of past due loans.

⁽²⁾ Assets in the "Special mention" category generally have potential weaknesses due to performance issues but are currently considered to be adequately secured.

⁽³⁾ Substandard assets have a well-defined weakness or weaknesses and there is a distinct possibility that some loss will be sustained if deficiencies are not corrected.

As of December 31, 2022								
Year of Origination:							Revolving Loans - Amortized Cost Basis	Total
2022	2021	2020	2019	2018	Prior			
(in thousands)								
Agricultural Finance - Corporate AgFinance ⁽¹⁾ :								
Internally Assigned Risk Rating:								
Acceptable	\$ 145,263	\$ 299,729	\$ 221,560	\$ 108,230	\$ 76,454	\$ 44,827	\$ 232,107	\$ 1,128,170
Special mention ⁽²⁾	—	—	—	20,698	—	—	2,145	22,843
Substandard ⁽³⁾	—	—	4,598	—	—	—	10,642	15,240
Total	<u>\$ 145,263</u>	<u>\$ 299,729</u>	<u>\$ 226,158</u>	<u>\$ 128,928</u>	<u>\$ 76,454</u>	<u>\$ 44,827</u>	<u>\$ 244,894</u>	<u>\$ 1,166,253</u>
For the Year Ended:								
Current period charge-offs	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —
Current period recoveries	—	—	—	—	—	—	—	—
Current period Agricultural Finance net charge-offs	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>
⁽¹⁾ Amounts represent unpaid principal balance of risk-rated loans, which is the basis Farmer Mac uses to analyze its portfolio, and recorded investment of past due loans.								
⁽²⁾ Assets in the "Special mention" category generally have potential weaknesses due to performance issues but are currently considered to be adequately secured.								
⁽³⁾ Substandard assets have a well-defined weakness or weaknesses and there is a distinct possibility that some loss will be sustained if deficiencies are not corrected.								

As of December 31, 2022								
	Year of Origination:						Revolving Loans - Amortized Cost Basis	Total
	2022	2021	2020	2019	2018	Prior		
	(in thousands)							
Rural Infrastructure Finance loans ⁽¹⁾ :								
Internally Assigned Risk Rating:								
Acceptable	\$ 741,021	\$ 220,420	\$ 629,223	\$ 739,270	\$ 7,932	\$ 649,830	\$ 33,570	\$3,021,266
Special mention ⁽²⁾	—	—	—	—	—	—	—	—
Substandard ⁽³⁾	—	—	—	—	—	—	—	—
Total	<u>\$ 741,021</u>	<u>\$ 220,420</u>	<u>\$ 629,223</u>	<u>\$ 739,270</u>	<u>\$ 7,932</u>	<u>\$ 649,830</u>	<u>\$ 33,570</u>	<u>\$3,021,266</u>
For the Year Ended:								
Current period charge-offs	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —
Current period recoveries	—	—	—	—	—	—	—	—
Current period Rural Infrastructure net charge-offs	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>
⁽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, 2021								
Year of Origination:							Revolving Loans - Amortized Cost Basis	Total
2021	2020	2019	2018	2017	Prior			
(in thousands)								
Agricultural Finance - Farm & Ranch loans ⁽¹⁾ :								
Internally Assigned Risk Rating:								
Acceptable	\$1,786,446	\$1,300,798	\$ 399,394	\$ 277,061	\$ 271,234	\$ 957,357	\$ 349,949	\$5,342,239
Special mention ⁽²⁾	84,795	50,057	30,168	3,670	9,133	14,646	3,227	195,696
Substandard ⁽³⁾	1,654	4,997	26,237	27,109	38,703	75,780	11,278	185,758
Total	<u>\$1,872,895</u>	<u>\$1,355,852</u>	<u>\$ 455,799</u>	<u>\$ 307,840</u>	<u>\$ 319,070</u>	<u>\$1,047,783</u>	<u>\$ 364,454</u>	<u>\$5,723,693</u>
For the Year Ended:								
Current period charge-offs	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —
Current period recoveries	—	—	—	—	(1,054)	—	—	(1,054)
Current period Agricultural Finance net recoveries	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ (1,054)</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ (1,054)</u>
⁽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, 2021								
Year of Origination:							Revolving Loans - Amortized Cost Basis	Total
2021	2020	2019	2018	2017	Prior			
(in thousands)								
Agricultural Finance - Corporate AgFinance loans ⁽¹⁾ :								
Internally Assigned Risk Rating:								
Acceptable	\$ 351,614	\$ 240,712	\$ 140,742	\$ 47,856	\$ 32,618	\$ 47,360	\$ 195,415	\$1,056,317
Special mention ⁽²⁾	—	—	21,031	44,407	—	—	1,545	66,983
Substandard ⁽³⁾	—	—	—	—	—	—	—	—
Total	<u>\$ 351,614</u>	<u>\$ 240,712</u>	<u>\$ 161,773</u>	<u>\$ 92,263</u>	<u>\$ 32,618</u>	<u>\$ 47,360</u>	<u>\$ 196,960</u>	<u>\$1,123,300</u>
For the Year Ended:								
Current period charge-offs	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —
Current period recoveries	—	—	—	—	—	—	—	—
Current period Agricultural Finance net recoveries	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>
⁽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, 2021

	Year of Origination:						Revolving Loans - Amortized Cost Basis	Total
	2021	2020	2019	2018	2017	Prior		
	(in thousands)							
Rural Infrastructure Finance loans ⁽¹⁾ :								
Internally Assigned Risk Rating:								
Acceptable	\$ 242,570	\$ 612,366	\$ 774,941	\$ 8,100	\$ 86,878	\$ 628,903	\$ 12,578	\$ 2,366,336
Special mention ⁽²⁾	—	—	—	—	—	—	—	—
Substandard ⁽³⁾	—	22,800	—	—	—	—	—	22,800
Total	<u>\$ 242,570</u>	<u>\$ 635,166</u>	<u>\$ 774,941</u>	<u>\$ 8,100</u>	<u>\$ 86,878</u>	<u>\$ 628,903</u>	<u>\$ 12,578</u>	<u>\$ 2,389,136</u>
For the Year Ended:								
Current period charge-offs	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —
Current period recoveries	—	—	—	—	—	—	—	—
Current period Rural Infrastructure net charge-offs	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —

⁽¹⁾ Amounts represent unpaid principal balance of risk-rated loans, which is the basis Farmer Mac uses to analyze its portfolio, and recorded investment of past due loans.

⁽²⁾ Assets in the "Special mention" category generally have potential weaknesses due to performance issues but are currently considered to be adequately secured.

⁽³⁾ Substandard assets have a well-defined weakness or weaknesses and there is a distinct possibility that some loss will be sustained if deficiencies are not corrected.

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 2022, 2021, and 2020, Farmer Mac paid a quarterly dividend of \$0.95, \$0.88, and \$0.80 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, authorized Farmer Mac to repurchase up to \$10.0 million of Farmer Mac's outstanding Class C non-voting common stock. During

first quarter 2020, Farmer Mac repurchased approximately 4,000 shares of Class C non-voting common stock at a cost of approximately \$0.2 million. Shortly after these repurchases were completed, Farmer Mac indefinitely suspended its share repurchase program in an effort to preserve capital and liquidity in view of market volatility and uncertainty caused by the COVID-19 pandemic. In March 2021, Farmer Mac's board of directors reinstated the share repurchase program on its previous terms (with a remaining authorization of up to \$9.8 million in stock repurchases) and extended the expiration date of the program to March 2023. Farmer Mac did not repurchase any shares of its Class C non-voting common stock during 2022. As of December 31, 2022, Farmer Mac had repurchased approximately 673,000 shares of Class C non-voting common stock at a cost of approximately \$19.8 million under the share repurchase program since 2015.

Preferred Stock

The following table presents the Series C Preferred Stock, the Series D Preferred Stock, the Series E Preferred Stock, the Series F Preferred Stock, and the Series G Preferred Stock (collectively referred to as the "Outstanding Preferred Stock") as of December 31, 2022:

Table 9.1

Name	Issuance Date	Issuance Cost	Shares Issued	Annual Dividend Rate ⁽³⁾	Liquidation Value	Redemption Date ⁽⁴⁾
Series C ⁽¹⁾	June 20, 2014	\$ 1,618,583	3,000,000	6.000 %	\$ 25.00	July 18, 2024
Series D ⁽²⁾	May 13, 2019	\$ 3,340,456	4,000,000	5.700 %	\$ 25.00	July 17, 2024
Series E	May 20, 2020	\$ 2,496,750	3,180,000	5.750 %	\$ 25.00	July 17, 2025
Series F	August 20, 2020	\$ 3,839,902	4,800,000	5.250 %	\$ 25.00	October 17, 2025
Series G	May 27, 2021	\$ 3,661,677	5,000,000	4.875 %	\$ 25.00	July 17, 2026

⁽¹⁾ The Series C Preferred Stock pays an annual dividend rate of 6.00% 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.

The following tables present the quarterly dividends paid by Farmer Mac on its outstanding preferred during 2022, 2021, and 2020:

Table 9.2

	2022			
	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
6.000% Fixed-to-Floating Rate Non-Cumulative Preferred Stock, Series C	\$ 0.3750	\$ 0.3750	\$ 0.3750	\$ 0.3750
5.700% Non-Cumulative Preferred Stock, Series D	0.3563	0.3563	0.3563	0.3563
5.750% Non-Cumulative Preferred Stock, Series E	0.3594	0.3594	0.3594	0.3594
5.250% Non-Cumulative Preferred Stock, Series F	0.3281	0.3281	0.3281	0.3281
4.875% Non-Cumulative Preferred Stock, Series G	0.3047	0.3047	0.3047	0.3047

	2021			
	1st Quarter	2nd Quarter ⁽¹⁾	3rd Quarter	4th Quarter
6.000% Fixed-to-Floating Rate Non-Cumulative Preferred Stock, Series C	\$ 0.3750	\$ 0.3750	\$ 0.3750	\$ 0.3750
5.700% Non-Cumulative Preferred Stock, Series D	0.3563	0.3563	0.3563	0.3563
5.750% Non-Cumulative Preferred Stock, Series E	0.3594	0.3594	0.3594	0.3594
5.250% Non-Cumulative Preferred Stock, Series F	0.3281	0.3281	0.3281	0.3281
4.875% Non-Cumulative Preferred Stock, Series G	—	0.1693	0.3047	0.3047

⁽¹⁾ For second quarter 2021, dividend payment includes \$0.1693 per share on the Series G Preferred Stock for the period from but not including May 27, 2021 (issuance date) to and including July 17, 2021.

	2020			
	1st Quarter	2nd Quarter ⁽¹⁾	3rd Quarter ⁽²⁾⁽³⁾	4th Quarter
5.875% Non-Cumulative Preferred Stock, Series A	\$ 0.3672	\$ 0.3672	\$ 0.2530	\$ —
6.000% Fixed-to-Floating Rate Non-Cumulative Preferred Stock, Series C	0.3750	0.3750	0.3750	0.3750
5.700% Non-Cumulative Preferred Stock, Series D	0.3563	0.3563	0.3563	0.3563
5.750% Non-Cumulative Preferred Stock, Series E	—	0.2276	0.3594	0.3594
5.250% Non-Cumulative Preferred Stock, Series F	—	—	0.2078	0.3281

⁽¹⁾ For second quarter 2020, dividend payment includes \$0.2276 per share on the Series E Preferred Stock for the period from but not including May 20, 2020 (issuance date) to and including July 17, 2020.

⁽²⁾ For third quarter 2020 dividend payment includes \$0.2530 per share on the Series A Preferred Stock for the period from but not including July 17, 2020 to and including the September 19, 2020 redemption date.

⁽³⁾ For third quarter 2020, dividend payment includes \$0.2078 per share on the Series F Preferred Stock for the period from but not including August 20, 2020 (issuance date) to and including October 17, 2020.

Equity-Based Incentive Compensation Plans

Farmer Mac's Amended and Restated 2008 Omnibus Incentive Compensation Plan authorizes the grant of restricted stock 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 2022 have an exercise price of \$120.38 per share, SARs granted during 2021 have an exercise price of \$88.68 per share, and SARs granted during 2020 have an exercise price ranging from \$72.26 to \$75.16 per share. During 2022, 2021, and 2020, restricted stock awards were granted to employees, officers, and directors with vesting periods of one to three years.

The following tables summarize SARs and non-vested restricted stock activity for the years ended December 31, 2022, 2021, and 2020:

Table 9.3

	For the Years Ended December 31,					
	2022		2021		2020	
	SARs	Weighted-Average Exercise Price	SARs	Weighted-Average Exercise Price	SARs	Weighted-Average Exercise Price
Outstanding, beginning of year	130,409	\$ 66.10	116,417	\$ 57.16	98,836	\$ 46.47
Granted	18,432	120.38	28,575	88.68	34,881	74.80
Exercised	(16,678)	49.04	(14,583)	38.99	(15,912)	26.93
Canceled	—	—	—	—	(1,388)	86.15
Outstanding, end of year	<u>132,163</u>	<u>75.82</u>	<u>130,409</u>	<u>66.10</u>	<u>116,417</u>	<u>57.16</u>
Exercisable at end of year	83,054	63.12	72,106	52.85	66,602	42.08

	For the Years Ended December 31,					
	2022		2021		2020	
	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	103,891	\$ 78.55	83,956	\$ 71.76	62,597	\$ 75.81
Granted	38,668	120.14	53,358	88.92	53,471	66.02
Canceled	(2,711)	97.44	(1,184)	79.82	(4,042)	69.66
Vested and issued	(39,823)	84.25	(32,239)	77.98	(28,070)	70.13
Outstanding, end of year	<u>100,025</u>	<u>91.84</u>	<u>103,891</u>	<u>78.55</u>	<u>83,956</u>	<u>71.76</u>

The cancellations of SARs and non-vested restricted stock during 2022, 2021, and 2020 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 2022, 2021, and 2020, the reduction of income taxes payable as a result of the deduction for the exercise of SARs and the vesting or accelerated tax elections of restricted stock was \$1.2 million, \$0.9 million, and \$0.5 million, respectively.

During 2022, 2021, and 2020, Farmer Mac recorded a net decrease to additional paid-in capital of \$1.9 million, \$1.3 million, and \$0.6 million, respectively, related to stock-based compensation awards.

As of December 31, 2022, Farmer Mac had no stock options outstanding. The following tables summarize information regarding SARs and non-vested restricted stock outstanding as of December 31, 2022:

Table 9.4

SARs:

Range of Exercise Prices	Outstanding		Exercisable		Vested or Expected to Vest	
	SARs	Weighted-Average Remaining Contractual Life	SARs	Weighted-Average Remaining Contractual Life	SARs	Weighted-Average Remaining Contractual Life
\$25.00 - 39.99	30,492	2.0 years	30,492	2.0 years	30,492	2.0 years
40.00 - 54.99	—	0.0 years	—	0.0 years	—	0.0 years
55.00 - 69.99	3,381	4.3 years	3,381	4.3 years	3,381	4.3 years
70.00 - 84.99	46,739	6.8 years	35,112	6.7 years	46,739	6.8 years
85.00 - 99.99	33,119	7.6 years	14,069	6.9 years	33,119	7.6 years
100.00 - 114.99	—	0.0 years	—	0.0 years	—	0.0 years
115.00 - 129.99	18,432	9.2 years	—	0.0 years	18,432	9.2 years
	<u>132,163</u>		<u>83,054</u>		<u>132,163</u>	

Non-vested Restricted Stock:

Weighted-Average Grant-Date Fair Value	Outstanding		Expected to Vest	
	Non-vested Restricted Stock	Weighted-Average Remaining Contractual Life	Non-vested Restricted Stock	Weighted-Average Remaining Contractual Life
\$50.00 - \$64.99	18,100	0.3 years	18,100	0.3 years
65.00 - 79.99	10,744	0.2 years	10,744	0.2 years
80.00 - 94.99	35,101	1.3 years	35,101	1.3 years
95.00 - 109.99	915	0.8 years	915	0.8 years
110.00 - 124.99	35,165	1.9 years	35,165	1.9 years
	<u>100,025</u>		<u>100,025</u>	

As of December 31, 2022 and 2021, the intrinsic value of SARs, and non-vested restricted stock outstanding, exercisable, and vested or expected to vest was \$16.3 million and \$20.4 million, respectively. During 2022, 2021, and 2020, the total intrinsic value of SARs exercised was \$1.1 million, \$0.9 million, and \$0.7 million, respectively. As of December 31, 2022, there was \$3.7 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 1.7 years.

The weighted-average grant date fair values of SARs and restricted stock awards granted in 2022, 2021, and 2020 were \$91.94, \$65.48, and \$45.91 per share, respectively. Under the fair value-based method of accounting for stock-based compensation cost, Farmer Mac recognized compensation expense of \$4.6 million, \$4.3 million, and \$4.1 million during 2022, 2021, and 2020, respectively.

The fair value of SARs was estimated using the Black-Scholes option pricing model based on the following assumptions:

Table 9.5

	For the Year Ended December 31,		
	2022	2021	2020
Risk-free interest rate	1.9%	0.9%	0.9%
Expected years until exercise	6 years	6 years	6 years
Expected stock volatility	37.4%	39.1%	34.3%
Dividend yield	3.2%	4.0%	4.2%

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 2022, 2021, and 2020 was \$120.14, \$88.92, and \$66.02 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, 2022 and 2021, 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, 2022, Farmer Mac's minimum capital requirement was \$805.9 million and its core capital level was \$1.3 billion, which was \$516.9 million above the minimum capital requirement as of that date. As of December 31, 2021, Farmer Mac's minimum capital requirement was \$713.1 million and its core capital level was \$1.2 billion, which was \$496.8 million above the minimum capital requirement as of that date.

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

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, 2022, 2021, and 2020 were as follows:

Table 10.1

	For the Year Ended December 31,		
	2022	2021	2020
	<i>(in thousands)</i>		
Current income tax expense	\$ 35,609	\$ 38,645	\$ 32,796
Deferred income tax expense	11,926	(2,273)	(2,489)
Income tax expense	<u>\$ 47,535</u>	<u>\$ 36,372</u>	<u>\$ 30,307</u>

A reconciliation of income tax at the statutory federal corporate income tax rate to the income tax expense for the years ended December 31, 2022, 2021, and 2020 is as follows:

Table 10.2

	For the Year Ended December 31,		
	2022	2021	2020
	<i>(dollars in thousands)</i>		
Tax expense at statutory rate	\$ 47,393	\$ 36,217	\$ 30,383
Excess tax benefits related to stock-based awards	(401)	(300)	(9)
Other	543	455	(67)
Income tax expense	<u>\$ 47,535</u>	<u>\$ 36,372</u>	<u>\$ 30,307</u>
Statutory tax rate	21.0 %	21.0 %	21.0 %

The components of the deferred tax assets and liabilities as of December 31, 2022 and 2021 were as follows:

Table 10.3

	As of December 31,	
	2022	2021
	<i>(in thousands)</i>	
Deferred tax assets:		
Basis difference related to hedge items	\$ 53,360	\$ —
Unrealized losses on available-for-sale securities	26,371	—
Allowance for losses	3,603	3,452
Compensation and Benefits	1,639	1,281
Stock-based compensation	1,755	1,462
Basis differences related to financial derivatives	—	64,795
Unrealized losses on cash flow hedges	—	1,427
Basis difference related to structured securitizations	—	35
Capital loss carryforwards	32	32
Valuation allowance	(32)	(32)
Other	1,444	358
Total deferred tax assets	\$ 88,172	\$ 72,810
Deferred tax liability:		
Basis differences related to financial derivatives	\$ 49,526	\$ —
Unrealized gains on cash flow hedges	12,855	—
Basis difference related to structured securitizations	7,782	—
Basis differences related to hedged items	—	54,446
Unrealized gains on available-for-sale securities	—	2,451
Other	5	44
Total deferred tax liability	\$ 70,168	\$ 56,941
Net deferred tax asset	\$ 18,004	\$ 15,869

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 \$32,000, as of both December 31, 2022 and 2021, 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. As of December 31, 2022, no capital loss carryforwards expired. As of December 31, 2022, the amount of capital loss carryforwards was \$0.2 million. These capital loss carryforwards will expire beginning in 2024.

As of December 31, 2022 and 2021, Farmer Mac did not identify any uncertain tax positions.

Farmer Mac did not have any unrecognized tax benefits for the years ended December 31, 2022, 2021, and 2020.

Tax years 2019 through 2022 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") (\$305,000 for 2022, \$290,000 for 2021, and \$285,000 for 2020), 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, 2022, 2021, and 2020 were \$3.1 million, \$2.7 million, and \$2.2 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 \$0.2 million for the years ended December 31, 2022, 2021, and 2020.

12. GUARANTEES AND COMMITMENTS

Farmer Mac offers two credit enhancement alternatives to direct loan purchases that allow approved lenders the ability to retain the cash flow benefits of their loans and increase their liquidity and lending capacity: (1) Farmer Mac Guaranteed Securities and (2) LTSPCs, both of which are available through each of the Agricultural Finance and Rural Infrastructure Finance 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 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 \$3.9 billion and \$3.8 billion as of December 31, 2022 and 2021, respectively. Farmer Mac's maximum potential exposure for guarantees issued before January 1, 2003, which are not recorded on the consolidated balance sheets, was \$6.1 million and \$7.8 million as of December 31, 2022 and 2021, 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(h). The following table presents changes in Farmer Mac's guarantee and commitment obligations in the consolidated balance sheets for the years ended December 31, 2022, 2021, and 2020:

Table 12.1

	For the Years Ended December 31,		
	2022	2021	2020
	(in thousands)		
Beginning balance, January 1	\$ 43,926	\$ 35,535	\$ 36,700
Additions to the guarantee and commitment obligation ⁽¹⁾	8,569	15,648	5,210
Amortization of the guarantee and commitment obligation	(5,913)	(7,257)	(6,375)
Ending balance, December 31	<u>\$ 46,582</u>	<u>\$ 43,926</u>	<u>\$ 35,535</u>

⁽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, 2022 and 2021, 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, 2022	As of December 31, 2021
	(in thousands)	
Agricultural Finance		
Farmer Mac Guaranteed Securities	\$ 500,953	\$ 578,358
Rural Infrastructure Finance		
Farmer Mac Guaranteed Securities	1,169	2,755
Total off-balance sheet Farmer Mac Guaranteed Securities	<u>\$ 502,122</u>	<u>\$ 581,113</u>

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 Year Ended		
	2022	2021	2020
	<i>(in thousands)</i>		
Proceeds from new securitizations	\$ 357,841	\$ 291,393	\$ 41,248
Guarantee fees received	1,852	1,029	1,365

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, 2022	As of December 31, 2021
	<i>(dollars in thousands)</i>	
Guarantee and commitment obligation	\$ 6,461	\$ 7,355
Weighted average remaining maturity:		
Farmer Mac Guaranteed Securities	21.4 years	21.7 years
AgVantage Securities	2.0 years	3.0 years

Long-Term Standby Purchase Commitments

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

Table 12.5

	As of December 31, 2022	As of December 31, 2021
	<i>(dollars in thousands)</i>	
Guarantee and commitment obligation ⁽¹⁾	\$ 40,121	\$ 36,571
Maximum principal amount	3,423,155	3,191,061
Weighted-average remaining maturity	15.3 years	15.5 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, 2022 and 2021, commitments to purchase Agricultural Finance loans and USDA Guarantees totaled \$9.9 million and \$75.6 million, respectively, all of which were mandatory commitments. As of December 31, 2022, there were no commitments to purchase Rural Infrastructure 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.

Reserve for Losses

The following table is a summary, by asset type, of the reserve for losses as of December 31, 2022 and 2021:

Table 12.6

	December 31, 2022	December 31, 2021
	Reserve for Losses	Reserve for Losses
	<i>(in thousands)</i>	
Agricultural Finance	\$ 819	\$ 1,068
Rural Infrastructure Finance	614	882
Total	<u>\$ 1,433</u>	<u>\$ 1,950</u>

The following is a summary of the changes in the reserve for losses for the three-year period ended December 31, 2022:

Table 12.7

	Agricultural Finance loans	Rural Infrastructure Finance loans
	Reserve for Losses	Reserve for Losses
	<i>(in thousands)</i>	
Balance as of December 31, 2019 ⁽¹⁾	\$ 2,164	\$ —
Cumulative effect adjustment from adoption of current expected credit loss standard	(148)	1,011
Adjusted Beginning Balance	\$ 2,016	\$ 1,011
Provision for losses	81	169
Balance as of December 31, 2020 ⁽²⁾	\$ 2,097	\$ 1,180
Release of losses	(1,029)	(298)
Balance as of December 31, 2021	\$ 1,068	\$ 882
Release of losses	(249)	(268)
Balance as of December 31, 2022	<u>\$ 819</u>	<u>\$ 614</u>

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

⁽²⁾ Reserve for losses reflects the adoption of ASU 2016-13, "Financial Instruments - Credit Losses," in first quarter 2020.

The release from the reserve for losses in the Rural Infrastructure Finance LTSPC portfolio recorded during the year ended December 31, 2022 was primarily due to decreased volume and ratings upgrades. The release from the reserve for losses in the Agricultural Finance LTSPC portfolio was primarily due to ratings upgrades.

The release from the reserve for losses in both the Agricultural Finance and Rural Infrastructure Finance LTSPC and Farmer Mac Guaranteed portfolios recorded during the year ended December 31, 2021 was primarily due to improving economic factor forecasts and ratings upgrades.

The provision to the reserve for losses recorded during the year ended December 31, 2020 was primarily due to credit downgrades in the LTSPC portfolio.

The following table presents the unpaid principal balances by delinquency status of Agricultural Finance and Rural Infrastructure loans underlying LTSPCs and Farmer Mac Guaranteed Securities as of December 31, 2022 and 2021:

Table 12.8

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

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

	As of December 31, 2021					
	Current	30-59 Days	60-89 Days	90 Days and Greater ⁽¹⁾	Total Past Due	Total Loans
	<i>(in thousands)</i>					
Agricultural Finance:	\$ 2,953,091	\$ 8,068	\$ —	\$ 3,597	\$ 11,665	\$ 2,964,756
Rural Infrastructure:	556,837	—	—	—	—	556,837
Total	\$ 3,509,928	\$ 8,068	\$ —	\$ 3,597	\$ 11,665	\$ 3,521,593

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

Credit Quality Indicators

The following tables present credit quality indicators related to Agricultural Finance and Rural Infrastructure loans underlying LTSPCs and Farmer Mac Guaranteed Securities as of December 31, 2022 and 2021, by year of origination:

Table 12.9

As of December 31, 2022								
Year of Origination:							Revolving Loans - Amortized Cost Basis	Total
2022	2021	2020	2019	2018	Prior			
(in thousands)								
Agricultural Finance:								
Internally Assigned Risk Rating:								
Acceptable	\$ 202,998	\$ 496,269	\$ 535,798	\$ 254,293	\$ 207,379	\$1,107,834	\$ 296,508	\$3,101,079
Special mention ⁽¹⁾	—	1,319	1,778	—	1,198	42,680	3,205	50,180
Substandard ⁽²⁾	—	—	176	—	3,588	32,597	3,372	39,733
Total	<u>\$ 202,998</u>	<u>\$ 497,588</u>	<u>\$ 537,752</u>	<u>\$ 254,293</u>	<u>\$ 212,165</u>	<u>\$1,183,111</u>	<u>\$ 303,085</u>	<u>\$3,190,992</u>
For the Year Ended:								
Current period charge-offs	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —
Current period recoveries	—	—	—	—	—	—	—	—
Current period Agricultural Finance net charge-offs	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>
⁽¹⁾ Assets in the "Special mention" category generally have potential weaknesses due to performance issues but are currently considered to be adequately secured.								
⁽²⁾ Substandard assets have a well-defined weakness or weaknesses and there is a distinct possibility that some loss will be sustained if deficiencies are not corrected.								

As of December 31, 2022														
Year of Origination:														
		2022	2021	2020	2019	2018	Prior	Revolving Loans - Amortized Cost Basis	Total					
(in thousands)														
Rural Infrastructure Finance:														
Internally Assigned Risk Rating:														
Acceptable	\$	—	\$	—	\$	—	\$	—	\$	470,659	\$	52,533	\$	523,192
Special mention ⁽¹⁾		—		—		—		—		—		—		—
Substandard ⁽²⁾		—		—		—		—		—		—		—
Total	\$	—	\$	—	\$	—	\$	—	\$	470,659	\$	52,533	\$	523,192
For the Year Ended:														
Current period charge-offs	\$	—	\$	—	\$	—	\$	—	\$	—	\$	—	\$	—
Current period recoveries		—		—		—		—		—		—		—
Current period Rural Infrastructure net charge-offs	\$	—	\$	—	\$	—	\$	—	\$	—	\$	—	\$	—
⁽¹⁾ Assets in the "Special mention" category generally have potential weaknesses due to performance issues but are currently considered to be adequately secured.														
⁽²⁾ Substandard assets have a well-defined weakness or weaknesses and there is a distinct possibility that some loss will be sustained if deficiencies are not corrected.														

As of December 31, 2021

	Year of Origination:						Revolving Loans - Amortized Cost Basis	Total
	2021	2020	2019	2018	2017	Prior		
	(in thousands)							
Agricultural Finance:								
Internally Assigned Risk Rating:								
Acceptable	\$ 376,027	\$ 537,521	\$ 244,365	\$ 188,452	\$ 235,865	\$1,013,937	\$ 252,039	\$2,848,206
Special mention ⁽¹⁾	—	5,270	—	6,808	3,154	38,042	2,354	55,628
Substandard ⁽²⁾	—	1,307	724	5,038	12,793	37,326	3,734	60,922
Total	\$ 376,027	\$ 544,098	\$ 245,089	\$ 200,298	\$ 251,812	\$1,089,305	\$ 258,127	\$2,964,756

For the Year Ended:

Current period charge-offs	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —
Current period recoveries	—	—	—	—	—	—	—	—
Current period Agricultural Finance net charge-offs	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>

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

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

As of December 31, 2021

	As of December 31, 2021							Revolving Loans - Amortized Cost Basis	Total
	Year of Origination:								
	2021	2020	2019	2018	2017	Prior			
	(in thousands)								
Rural Infrastructure Finance:									
Internally Assigned Risk Rating:									
Acceptable	\$ —	\$ —	\$ —	\$ —	\$ —	\$ 499,594	\$ 57,243	\$ 556,837	
Special mention ⁽¹⁾	—	—	—	—	—	—	—	—	
Substandard ⁽²⁾	—	—	—	—	—	—	—	—	
Total	\$ —	\$ —	\$ —	\$ —	\$ —	\$ 499,594	\$ 57,243	\$ 556,837	

For the Year Ended:

Current period charge-offs	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —
Current period recoveries	—	—	—	—	—	—	—	—
Current period Rural Infrastructure net charge-offs	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>

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

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

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, 2022 and 2021, 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, 2022

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

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

Assets and Liabilities Measured at Fair Value as of December 31, 2021

	Level 1	Level 2	Level 3 ⁽¹⁾	Total
	(in thousands)			
Recurring:				
Assets:				
Investment Securities:				
Available-for-sale:				
Floating rate auction-rate certificates backed by Government guaranteed student loans	\$ —	\$ —	\$ 19,254	\$ 19,254
Floating rate Government/GSE guaranteed mortgage-backed securities	—	2,178,831	—	2,178,831
Fixed rate GSE guaranteed mortgage-backed securities	—	458,837	—	458,837
Fixed rate U.S. Treasuries	1,179,469	—	—	1,179,469
Total Available-for-sale Investment Securities	1,179,469	2,637,668	19,254	3,836,391
Farmer Mac Guaranteed Securities:				
Available-for-sale:				
AgVantage	—	—	6,316,145	6,316,145
Farmer Mac Guaranteed Securities	—	—	12,414	12,414
Total Farmer Mac Guaranteed Securities	—	—	6,328,559	6,328,559
USDA Securities:				
Trading	—	—	4,401	4,401
Total USDA Securities	—	—	4,401	4,401
Financial derivatives	73	6,008	—	6,081
Guarantee Asset	—	—	6,237	6,237
Total Assets at fair value	\$ 1,179,542	\$ 2,643,676	\$ 6,358,451	\$ 10,181,669
Liabilities:				
Financial derivatives	\$ —	\$ 35,554	\$ —	\$ 35,554
Total Liabilities at fair value	\$ —	\$ 35,554	\$ —	\$ 35,554
Non-recurring:				
Assets				
Mortgage Servicing Rights	\$ —	\$ —	\$ 2,681	\$ 2,681
Total non-recurring assets at fair value	\$ —	\$ —	\$ 2,681	\$ 2,681

⁽¹⁾ Level 3 assets represent 25% of total assets and 62% of financial instruments measured at fair value.

There were no material assets or liabilities measured at fair value on a non-recurring basis as of December 31, 2022 or 2021.

Transfers in and/or out of the different levels within the fair value hierarchy are based on the fair values of the assets and liabilities as of the beginning of the reporting period. During the years ended December 31, 2022 and 2021, there were no transfers within the fair value hierarchy.

The following tables present additional information about assets and liabilities measured at fair value on a recurring basis for which Farmer Mac has used significant unobservable inputs to determine fair value. Net transfers in and/or out of Level 3 are based on the fair values of the assets and liabilities as of the beginning of the reporting period. There were no liabilities measured at fair value using significant unobservable inputs during the years ended December 31, 2022 and 2021.

Table 13.2

Level 3 Assets and Liabilities Measured at Fair Value for the Year Ended December 31, 2022

	Beginning Balance	Purchases	Settlements	Allowance for Losses	Realized and unrealized losses included in Income	Unrealized losses included in Other Comprehensive Income	Ending Balance
	<i>(in thousands)</i>						
Recurring:							
Assets:							
Investment Securities:							
Available-for-sale:							
Floating rate auction-rate certificates backed by Government guaranteed student loans	\$ 19,254	\$ —	\$ —	\$ 19	\$ —	\$ (246)	\$ 19,027
Total available-for-sale	19,254	—	—	19	—	(246)	19,027
Farmer Mac Guaranteed Securities:							
Available-for-sale:							
AgVantage	6,316,145	3,411,665	(1,526,303)	(283)	(552,907)	(48,938)	7,599,379
Farmer Mac Guaranteed Securities	12,414	—	(1,675)	—	—	(2,892)	7,847
Total available-for-sale	6,328,559	3,411,665	(1,527,978)	(283)	(552,907)	(51,830)	7,607,226
USDA Securities:							
Trading	4,401	—	(2,583)	—	(51)	—	1,767
Total USDA Securities	4,401	—	(2,583)	—	(51)	—	1,767
Guarantee and commitment obligations:							
Guarantee Asset	6,237	—	(903)	—	(867)	—	4,467
Total Guarantee and commitment obligations	6,237	—	(903)	—	(867)	—	4,467
Total Assets at fair value	<u>\$ 6,358,451</u>	<u>\$3,411,665</u>	<u>\$ (1,531,464)</u>	<u>\$ (264)</u>	<u>\$ (553,825)</u>	<u>\$ (52,076)</u>	<u>\$ 7,632,487</u>

Level 3 Assets and Liabilities Measured at Fair Value for the Year Ended December 31, 2021

Level 5 Assets and Liabilities Measured at Fair Value for the Year Ended December 31, 2021							
	Beginning Balance	Purchases	Settlements	Allowance for Losses	Realized and unrealized losses included in Income	Unrealized gains included in Other Comprehensive Income	Ending Balance
	(in thousands)						
Recurring:							
Assets:							
Investment Securities:							
Available-for-sale:							
Floating rate auction-rate certificates backed by Government guaranteed student loans	\$ 19,171	\$ —	\$ —	\$ (16)	\$ —	\$ 99	\$ 19,254
Total available-for-sale	19,171	—	—	(16)	—	99	19,254
Farmer Mac Guaranteed Securities:							
Available-for-sale:							
AgVantage	6,947,701	1,143,115	(1,614,598)	47	(176,064)	15,944	6,316,145
Farmer Mac Guaranteed Securities	—	12,560	(263)	—	—	117	12,414
Total available-for-sale	6,947,701	1,155,675	(1,614,861)	47	(176,064)	16,061	6,328,559
USDA Securities:							
Trading	6,695	—	(2,178)	—	(116)	—	4,401
Total USDA Securities	6,695	—	(2,178)	—	(116)	—	4,401
Guarantee and commitment obligations:							
Guarantee Asset	—	6,237	—	—	—	—	6,237
Total Guarantee and commitment obligations	—	6,237	—	—	—	—	6,237
Total Assets at fair value	\$ 6,973,567	\$ 1,161,912	\$ (1,617,039)	\$ 31	\$ (176,180)	\$ 16,160	\$ 6,358,451

Level 3 Assets and Liabilities Measured at Fair Value for the Year Ended December 31, 2020

	Beginning Balance	Purchases	Settlements	Allowance for Losses	Realized and unrealized gains included in Income	Unrealized gains included in Other Comprehensive Income	Ending Balance
	(in thousands)						
Recurring:							
Assets:							
Investment Securities:							
Available-for-sale:							
Floating rate auction-rate certificates backed by Government guaranteed student loans	\$ 18,912	\$ —	\$ —	\$ (36)	\$ —	\$ 295	\$ 19,171
Total available-for-sale	18,912	—	—	(36)	—	295	19,171
Farmer Mac Guaranteed Securities:							
Available-for-sale:							
AgVantage	7,143,025	974,237	(1,397,861)	(309)	202,706	25,903	6,947,701
Total available-for-sale	7,143,025	974,237	(1,397,861)	(309)	202,706	25,903	6,947,701
USDA Securities:							
Trading	8,913	—	(2,269)	—	51	—	6,695
Total USDA Securities	8,913	—	(2,269)	—	51	—	6,695
Total Assets at fair value	\$ 7,170,850	\$ 974,237	\$ (1,400,130)	\$ (345)	\$ 202,757	\$ 26,198	\$ 6,973,567

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, 2022 and 2021:

Table 13.3

Financial Instruments	As of December 31, 2022			
	Fair Value	Valuation Technique	Unobservable Input	Range (Weighted-Average)
			(in thousands)	
Assets:				
Investment securities:				
Floating rate auction-rate certificates backed by Government guaranteed student loans	\$ 19,027	Indicative bids	Range of broker quotes	96.8% - 96.8% (96.8%)
Farmer Mac Guaranteed Securities:				
AgVantage	\$ 7,599,379	Discounted cash flow	Discount rate	4.7% - 6.1% (5.1%)
Farmer Mac Guaranteed Securities	\$ 7,847	Discounted cash flow	Discount rate	4.8% - 5.3% (5.1%)
			CPR	8%
USDA Securities	\$ 1,767	Discounted cash flow	Discount rate	5.1% - 5.7% (5.3%)
			CPR	19% - 27% (25%)
Guarantee Asset	\$ 4,467	Discounted cash flow	Discount rate	5.4% - 5.9% (5.7%)
			CPR	8%
As of December 31, 2021				
Financial Instruments	Fair Value	Valuation Technique	Unobservable Input	Range (Weighted-Average)
			(in thousands)	
Assets:				
Investment securities:				
Floating rate auction-rate certificates backed by Government guaranteed student loans	\$ 19,254	Indicative bids	Range of broker quotes	98.0% - 98.0% (98.0%)
Farmer Mac Guaranteed Securities:				
AgVantage	\$ 6,316,145	Discounted cash flow	Discount rate	0.9% - 2.1% (1.7%)
Farmer Mac Guaranteed Securities	\$ 12,414	Discounted cash flow	Discount rate	2.3% - 2.8% (2.6%)
			CPR	8%
USDA Securities	\$ 4,401	Discounted cash flow	Discount rate	1.4% - 3.1% (2.8%)
			CPR	25% - 42% (39%)
Guarantee Asset	\$ 6,237	Discounted cash flow	Discount rate	5.4% - 5.8% (5.6%)
			CPR	7% - 12% (8%)

The significant unobservable input used in the fair value measurements of AgVantage Farmer Mac Guaranteed Securities is the discount rate commensurate with the risks involved. Typically, significant increases (decreases) in this input in isolation may result in materially lower (higher) fair value measurements. Generally, in a rising interest rate environment, Farmer Mac would expect average discount rates to increase. Conversely, in a declining interest rate environment, Farmer Mac would expect average discount rates to decrease. Prepayment rates are not presented in the table above for AgVantage

securities because they generally have fixed maturity dates when the secured general obligations are due and do not prepay.

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

Disclosures on Fair Value of Financial Instruments

The following table sets forth the estimated fair values and carrying values for financial assets, liabilities, and guarantees and commitments as of December 31, 2022 and 2021:

Table 13.4

	As of December 31, 2022		As of December 31, 2021	
	Fair Value	Carrying Amount	Fair Value	Carrying Amount
	(in thousands)			
Financial assets:				
Cash and cash equivalents	\$ 861,002	\$ 861,002	\$ 908,785	\$ 908,785
Investment securities	4,630,701	4,628,268	3,884,202	3,882,590
Farmer Mac Guaranteed Securities	8,573,781	8,628,380	8,360,293	8,361,798
USDA Securities	2,099,445	2,411,601	2,536,473	2,440,732
Loans	9,666,710	10,208,307	9,814,642	9,248,678
Financial derivatives	37,409	37,409	6,081	6,081
Guarantee and commitment fees receivable	50,653	47,151	42,533	45,538
Financial liabilities:				
Notes payable	23,591,330	24,469,113	22,716,791	22,713,771
Debt securities of consolidated trusts held by third parties	1,106,837	1,181,948	1,005,306	981,379
Financial derivatives	175,326	175,326	35,554	35,554
Guarantee and commitment obligations	50,083	46,582	40,920	43,926

The carrying value of cash and cash equivalents is a reasonable estimate of their approximate fair value and is classified as Level 1. The fair value of investments in U.S. Treasuries are valued based on unadjusted quoted prices in active markets and are classified as Level 1. A significant portion of Farmer Mac's investment portfolio is valued using a reputable nationally recognized third-party pricing service. The prices obtained are non-binding and generally representative of recent market trades and are classified as Level 2. Farmer Mac internally models the fair value of its loan portfolio, including loans held for investment and loans held for investment in consolidated trusts, Farmer Mac Guaranteed Securities, and USDA Securities by discounting the projected cash flows of these instruments at projected interest rates. The fair values are based on the present value of expected cash flows using management's best estimate of certain key assumptions, which include prepayment speeds, forward yield curves and discount rates commensurate with the risks involved. These fair value measurements do not take into consideration the fair value of the underlying property and are classified as Level 3. Financial derivatives primarily are valued using the market standard methodology of netting the discounted future fixed cash payments (or

receipts) and the discounted expected variable cash receipts (or payments) and are classified as Level 2. The fair value of the guarantee fees receivable/obligation and debt securities of consolidated trusts are estimated based on the present value of expected future cash flows of the underlying mortgage assets using management's best estimate of certain key assumptions, which include prepayments speeds, forward yield curves, and discount rates commensurate with the risks involved and are classified as Level 3. Notes payable are valued by discounting the expected cash flows of these instruments using a yield curve derived from market prices observed for similar agency securities and are also classified as Level 3. Because the cash flows of Farmer Mac's financial instruments may be interest rate path dependent, estimated fair values and projected discount rates for Level 3 financial instruments are derived using a Monte Carlo simulation model. Different market assumptions and estimation methodologies could significantly affect estimated fair value amounts.

14. BUSINESS SEGMENT REPORTING

The following table presents the alignment of the Farmer Mac's seven segments:

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

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

The following tables present core earnings for Farmer Mac's segments and a reconciliation to consolidated net income for the years ended December 31, 2022, 2021, and 2020.

Table 14.1

Core Earnings by Business Segment
For the Year Ended December 31, 2022

	Agricultural Finance		Rural Infrastructure		Treasury				
	Farm & Ranch	Corporate AgFinance	Rural Utilities	Renewable Energy	Funding	Investments	Corporate	Reconciling Adjustments	Consolidated Net Income
	<i>(in thousands)</i>								
Net interest income	\$ 133,218	\$ 29,209	\$ 16,175	\$ 2,483	\$ 96,613	\$ (6,758)	\$ —	\$ —	\$ 270,940
Less: reconciling adjustments ⁽¹⁾⁽²⁾⁽³⁾	(4,161)	—	(103)	—	(11,147)	—	—	15,411	—
Net effective spread	129,057	29,209	16,072	2,483	85,466	(6,758)	—	15,411	—
Guarantee and commitment fees	16,718	139	1,238	49	—	—	—	(5,104)	13,040
Other income/(expense) ⁽³⁾	1,420	261	—	—	—	—	3	23,447	25,131
Total revenues	147,195	29,609	17,310	2,532	85,466	(6,758)	3	33,754	309,111
(Provision for)/release of losses	(1,463)	(2,136)	2,751	(494)	—	19	—	—	(1,323)
Release of reserve for losses	247	—	270	—	—	—	—	—	517
Operating expenses	(819)	—	—	—	—	—	(81,807)	—	(82,626)
Total non-interest expense	(572)	—	270	—	—	—	(81,807)	—	(82,109)
Core earnings before income taxes	145,160	27,473	20,331	2,038	85,466	(6,739)	(81,804)	33,754 ⁽⁴⁾	225,679
Income tax (expense)/benefit	(30,482)	(5,768)	(4,268)	(428)	(17,949)	1,416	17,033	(7,089)	(47,535)
Core earnings before preferred stock dividends	114,678	21,705	16,063	1,610	67,517	(5,323)	(64,771)	26,665 ⁽⁴⁾	178,144
Preferred stock dividends	—	—	—	—	—	—	(27,165)	—	(27,165)
Segment core earnings/(losses)	\$ 114,678	\$ 21,705	\$ 16,063	\$ 1,610	\$ 67,517	\$ (5,323)	\$ (91,936)	\$ 26,665 ⁽⁴⁾	\$ 150,979
Total Assets	\$14,623,596	\$1,541,151	\$5,867,517	\$ 219,609	\$ —	\$ 4,806,010	\$ 275,227	\$ —	27,333,110
Total on- and off-balance sheet program assets at principal balance	\$17,728,792	\$1,603,507	\$6,359,613	\$ 230,170	\$ —	\$ —	\$ —	\$ —	25,922,082

- (1) Includes the amortization of premiums and discounts on assets consolidated at fair value, originally included in interest income, to reflect core earnings amounts.
- (2) Includes the reclassification of interest income and interest expense from consolidated trusts owned by third parties to guarantee and commitment fees, to reflect management's view that the net interest income Farmer Mac earns is effectively a guarantee fee.
- (3) Includes the reclassification of interest expense related to interest rate swaps not designated as hedges, which are included in "Gains on financial derivatives" on the consolidated financial statements, to determine the effective funding cost for each operating segment.
- (4) Net adjustments to reconcile to the corresponding income measures: core earnings before income taxes reconciled to income before income taxes; core earnings before preferred stock dividends reconciled to net income; and segment core earnings reconciled to net income attributable to common stockholders.

Core Earnings by Business Segment
For the Year Ended December 31, 2021

	Agricultural Finance		Rural Infrastructure		Treasury				
	Farm & Ranch	Corporate AgFinance	Rural Utilities	Renewable Energy	Funding	Investments	Corporate	Reconciling Adjustments	Consolidated Net Income
	<i>(in thousands)</i>								
Net interest income	\$ 118,289	\$ 27,081	\$ 8,224	\$ 1,219	\$ 66,581	\$ 557	\$ —	\$ —	\$ 221,951
Less: reconciling adjustments ⁽¹⁾⁽²⁾⁽³⁾	(4,753)	—	(157)	—	3,627	—	—	1,283	—
Net effective spread	113,536	27,081	8,067	1,219	70,208	557	—	1,283	—
Guarantee and commitment fees	16,178	48	1,287	20	—	—	—	(4,864)	12,669
Gain on sale of mortgage loans	6,539	—	—	—	—	—	—	—	6,539
Other income/(expense) ⁽³⁾	1,966	—	5	—	—	—	(291)	851	2,531
Total revenues	138,219	27,129	9,359	1,239	70,208	557	(291)	(2,730)	243,690
Release of/(provision for) losses	1,574	(210)	(291)	(198)	—	(15)	—	—	860
Provision for reserve for losses	1,034	—	293	—	—	—	—	—	1,327
Operating expenses	—	—	—	—	—	—	(73,416)	—	(73,416)
Total non-interest expense	1,034	—	293	—	—	—	(73,416)	—	(72,089)
Core earnings before income taxes	140,827	26,919	9,361	1,041	70,208	542	(73,707)	(2,730) ⁽⁴⁾	172,461
Income tax (expense)/benefit	(29,574)	(5,653)	(1,965)	(219)	(14,744)	(114)	15,325	572	(36,372)
Core earnings before preferred stock dividends	111,253	21,266	7,396	822	55,464	428	(58,382)	(2,158) ⁽⁴⁾	136,089
Preferred stock dividends	—	—	—	—	—	—	(24,677)	—	(24,677)
Segment core earnings/(losses)	\$ 111,253	\$ 21,266	\$ 7,396	\$ 822	\$ 55,464	\$ 428	\$ (83,059)	\$ (2,158) ⁽⁴⁾	\$ 111,412
Total Assets	\$13,112,193	\$1,507,848	\$5,344,707	\$ 87,553	\$ —	\$ 5,012,827	\$ 55,881	\$ —	\$ 25,121,009
Total on- and off-balance sheet program assets at principal balance	\$16,094,640	\$1,537,834	\$5,895,226	\$ 86,763	\$ —	\$ —	\$ —	\$ —	\$ 23,614,463

- (1) Includes the amortization of premiums and discounts on assets consolidated at fair value, originally included in interest income, to reflect core earnings amounts.
- (2) Includes the reclassification of interest income and interest expense from consolidated trusts owned by third parties to guarantee and commitment fees, to reflect management's view that the net interest income Farmer Mac earns is effectively a guarantee fee.
- (3) Includes the reclassification of interest expense related to interest rate swaps not designated as hedges, which are included in "Gains on financial derivatives" on the consolidated financial statements, to determine the effective funding cost for each operating segment.
- (4) Net adjustments to reconcile to the corresponding income measures: core earnings before income taxes reconciled to income before income taxes; core earnings before preferred stock dividends reconciled to net income; and segment core earnings reconciled to net income attributable to common stockholders.

Core Earnings by Business Segment
For the Year Ended December 31, 2020

	Agricultural Finance		Rural Infrastructure		Treasury			Reconciling Adjustments	Consolidated Net Income
	Farm & Ranch	Corporate AgFinance	Rural Utilities	Renewable Energy	Funding	Investments	Corporate		
	(in thousands)								
Net interest income	\$ 96,355	\$ 21,441	\$ 7,083	\$ 303	\$ 71,706	\$ (1,040)	\$ —	\$ —	\$ 195,848
Less: reconciling adjustments ⁽¹⁾⁽²⁾⁽³⁾	(6,197)	—	(207)	—	7,512	—	—	(1,108)	—
Net effective spread	90,158	21,441	6,876	303	79,218	(1,040)	—	(1,108)	—
Guarantee and commitment fees	17,800	5	1,345	—	—	—	—	(6,601)	12,549
Other income/(expense) ⁽³⁾	3,652	—	32	—	—	—	(534)	2,594	5,744
Total revenues	111,610	21,446	8,253	303	79,218	(1,040)	(534)	(5,115)	214,141
(Provision for)/release of losses	(2,941)	36	(4,763)	(110)	—	(27)	—	—	(7,805)
Provision for reserve for losses	(80)	—	(170)	—	—	—	—	—	(250)
Operating expenses	—	—	—	—	—	—	(61,403)	—	(61,403)
Total non-interest expense	(80)	—	(170)	—	—	—	(61,403)	—	(61,653)
Core earnings before income taxes	108,589	21,482	3,320	193	79,218	(1,067)	(61,937)	(5,115) ⁽⁴⁾	144,683
Income tax (expense)/benefit	(22,802)	(4,511)	(697)	(41)	(16,636)	224	13,082	1,074	(30,307)
Core earnings before preferred stock dividends	85,787	16,971	2,623	152	62,582	(843)	(48,855)	(4,041) ⁽⁴⁾	114,376
Preferred stock dividends	—	—	—	—	—	—	(17,805)	—	(17,805)
Loss on retirement of preferred stock	—	—	—	—	—	—	—	(1,667)	(1,667)
Segment core earnings/(losses)	\$ 85,787	\$ 16,971	\$ 2,623	\$ 152	\$ 62,582	\$ (843)	\$ (66,660)	\$ (5,708) ⁽⁴⁾	\$ 94,904
Total Assets	\$12,373,781	\$1,663,581	\$4,760,585	\$ 73,493	\$ —	\$ 5,415,596	\$ 43,292	\$ —	\$ 24,330,328
Total on- and off-balance sheet program assets at principal balance	\$14,872,894	\$1,664,115	\$5,314,051	\$ 73,035	\$ —	\$ —	\$ —	\$ —	\$ 21,924,095

- (1) Includes the amortization of premiums and discounts on assets consolidated at fair value, originally included in interest income, to reflect core earnings amounts.
- (2) Includes the reclassification of interest income and interest expense from consolidated trusts owned by third parties to guarantee and commitment fees, to reflect management's view that the net interest income Farmer Mac earns is effectively a guarantee fee.
- (3) Includes the reclassification of interest expense related to interest rate swaps not designated as hedges, which are included in "Gains on financial derivatives" on the consolidated financial statements, to determine the effective funding cost for each operating segment.
- (4) Net adjustments to reconcile to the corresponding income measures: core earnings before income taxes reconciled to income before income taxes; core earnings before preferred stock dividends reconciled to net income; and segment core earnings reconciled to net income attributable to common stockholders.

15. REVISION OF PRIOR PERIOD FINANCIAL STATEMENTS

Farmer Mac revised certain prior period financial statements to correct an error related to the recognition of accrual of interest for derivative contracts cleared through the swap clearinghouse, the CME. Farmer Mac determined that the error was immaterial to these previous consolidated financial statements, taken as a whole. Although Farmer Mac has concluded these errors are immaterial to the previously issued consolidated financial statements, Farmer Mac has corrected this error by revising the accompanying consolidated financial statements. Farmer Mac will also correct previously reported financial information

for such immaterial errors in future filings, as applicable. The following tables summarize the effect of the revision on each financial statement line item:

Revised Consolidated Balance Sheet

	As of December 31, 2021		
	As previously Reported	Adjustments	As Revised
	(in thousands)		
Assets			
Financial Derivatives, at fair value	\$ 19,139	\$ (13,058)	\$ 6,081
Interest Receivable	177,355	(11,751)	165,604
Deferred Tax Asset, net	15,558	311	15,869
Prepaid Expenses and Other Assets	45,318	16	45,334
Total Assets	<u>\$ 25,145,491</u>	<u>\$ (24,482)</u>	<u>\$ 25,121,009</u>
Liabilities			
Notes Payable	\$ 22,716,156	\$ (2,385)	\$ 22,713,771
Financial Derivatives, at fair value	34,248	1,306	35,554
Accrued Interest Payable	83,992	(24,989)	59,003
Accounts Payable and Accrued Expenses	79,427	(7,701)	71,726
Total Liabilities	<u>\$ 23,941,078</u>	<u>\$ (33,769)</u>	<u>\$ 23,907,309</u>
Equity			
Retained Earnings	\$ 579,270	\$ 9,287	\$ 588,557
Total Equity	1,204,413	9,287	1,213,700
Total Liabilities and Equity	<u>\$ 25,145,491</u>	<u>\$ (24,482)</u>	<u>\$ 25,121,009</u>

Revised Consolidated Statements of Operations

	For the Year Ended December 31, 2021			For the Year Ended December 31, 2020		
	As previously Reported	Adjustments	As Revised	As previously Reported	Adjustments	As Revised
	(in thousands)					
Interest Income:						
Farmer Mac Guaranteed Securities and USDA Securities	\$ 163,547	\$ 1,176	\$ 164,723	\$ 227,691	\$ 5,260	\$ 232,951
Total interest income	424,789	1,176	425,965	503,534	5,260	508,794
Net interest income	220,775	1,176	221,951	190,588	5,260	195,848
Non-interest income/(expense):						
(Losses)/gains on financial derivatives	(3,348)	3,672	324	(246)	1,990	1,744
Non-Interest Income	19,394	3,672	23,066	16,053	1,990	18,043
Income before income taxes	167,613	4,848	172,461	137,433	7,250	144,683
Income tax expense	35,353	1,019	36,372	28,785	1,522	30,307
Net Income	132,260	3,829	136,089	108,648	5,728	114,376
Net Income attributable to common stockholders	107,583	3,829	111,412	89,176	5,728	94,904

Revised Consolidated Statements of Comprehensive Income

	For the Year Ended December 31, 2021			For the Year Ended December 31, 2020		
	As previously Reported	Adjustments	As Revised	As previously Reported	Adjustments	As Revised
<i>(in thousands)</i>						
Net Income	\$ 132,260	\$ 3,829	\$ 136,089	\$ 108,648	\$ 5,728	\$ 114,376
Comprehensive Income	150,036	3,829	153,865	110,886	5,728	116,614

Revised Consolidated Statements of Equity

	Retained Earnings			Total Equity		
	As previously Reported	Adjustments	As Revised	As previously Reported	Adjustments	As Revised
<i>(in thousands)</i>						
Balance as of December 31, 2019	\$ 457,047	\$ (270)	\$ 456,777	\$ 799,276	\$ (270)	\$ 799,006
Net Income	108,648	5,728	114,376	108,648	5,728	114,376
Balance as of December 31, 2020	\$ 509,560	\$ 5,458	\$ 515,018	\$ 992,477	\$ 5,458	\$ 997,935
Net Income	132,260	3,829	136,089	132,260	3,829	136,089
Balance as of December 31, 2021	\$ 579,270	\$ 9,287	\$ 588,557	\$ 1,204,413	\$ 9,287	\$ 1,213,700

Revised Consolidated Statements of Cash Flows

	For the Year Ended December 31, 2021			For the Year Ended December 31, 2020		
	As previously Reported	Adjustments	As Revised	As previously Reported	Adjustments	As Revised
<i>(in thousands)</i>						
Cash flows from operating activities:						
Net income/(loss)	\$ 132,260	\$ 3,829	\$ 136,089	\$ 108,648	\$ 5,728	\$ 114,376
Adjustments to reconcile net income to net cash provided by operating activities:						
Net change in fair value of trading securities, hedged assets, and financial derivatives	203,758	1,943	205,701	(256,466)	15,921	(240,545)
Deferred income taxes	(1,960)	330	(1,630)	(2,406)	(420)	(2,826)
Net change in:						
Interest receivable	6,945	(2,499)	4,446	11,054	(735)	10,319
Other assets	(9,830)	—	(9,830)	(3,348)	(6,956)	(10,304)
Accrued interest payable	(8,746)	(780)	(9,526)	(14,221)	(8,511)	(22,732)
Other liabilities	2,378	(2,823)	(445)	5,866	(5,027)	839
Net cash provided by operating activities	436,412	—	436,412	(94,547)	—	(94,547)

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, 2022.

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, 2022.

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, 2022 that have materially affected, or are reasonably likely to materially affect, Farmer Mac's internal control over financial reporting.

Item 9B. Other Information

None.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections

Not Applicable.

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 14, 2023.

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 14, 2023.

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 14, 2023.

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 14, 2023.

PART IV

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 14, 2023.

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 | — | <u>Title VIII of the Farm Credit Act of 1971, as most recently amended on June 18, 2020 (Previously filed as Exhibit 3.1 to Form 10-Q filed August 10, 2020).</u> |
| ** | 3.2 | — | <u>Amended and Restated By-Laws of the Registrant (includes correction to CEO's authority to appoint Treasurer compared to version previously filed as Exhibit 3.1 to Form 8-K filed August 17, 2022).</u> |
| * | 4.1 | — | <u>Specimen Certificate for Farmer Mac Class A Voting Common Stock (Previously filed as Exhibit 4.1 to Form 10-Q filed May 15, 2003).</u> |

*	4.2	—	<u>Specimen Certificate for Farmer Mac Class B Voting Common Stock (Previously filed as Exhibit 4.2 to Form 10-Q filed May 15, 2003).</u>
*	4.3	—	<u>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).</u>
*	4.4	—	<u>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).</u>
*	4.4.1	—	<u>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).</u>
*	4.5	—	<u>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).</u>
*	4.5.1	—	<u>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).</u>
*	4.6	—	<u>Specimen Certificate for 5.750% Non-Cumulative Preferred Stock, Series E (Previously filed as Exhibit 4.7 to Form 10-Q filed August 10, 2020).</u>
*	4.6.1	—	<u>Certificate of Designation of Terms and Conditions of 5.750% Non-Cumulative Preferred Stock, Series E (Previously filed as Exhibit 4.1 to Form 8-A filed May 20, 2020).</u>
*	4.7	—	<u>Specimen Certificate for 5.250% Non-Cumulative Preferred Stock, Series F (Previously filed as Exhibit 4.8 to Form 10-Q filed November 9, 2020).</u>
*	4.7.1	—	<u>Certificate of Designation of Terms and Conditions of 5.250% Non-Cumulative Preferred Stock, Series F (Previously filed as Exhibit 4.1 to Form 8-A filed August 20, 2020).</u>
*	4.8	—	<u>Specimen Certificate for 4.875% Non-Cumulative Preferred Stock, Series G (Previously filed as Exhibit 4.8 to Form 10-Q filed August 5, 2021).</u>
*	4.8.1	—	<u>Certificate of Designation of Terms and Conditions of 4.875% Non-Cumulative Preferred Stock, Series G (Previously filed as Exhibit 4.1 to Form 8-A filed May 27, 2021).</u>
*	4.9	—	<u>Description of the Registrant's securities that are registered under Section 12 of the Securities Exchange Act of 1934 (Previously filed as Exhibit 4.9 to Form 10-Q filed August 5, 2021).</u>
†*	10.1	—	<u>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, 2019).</u>
†*	10.1.1	—	<u>First Amendment to Amended Employment Agreement dated as of September 28, 2022 between Bradford T. Nordholm and the Registrant (Previously filed as Exhibit 10.1 to Form 8-K filed October 4, 2022).</u>
†*	10.2	—	<u>Form of Time-Based Restricted Stock Units Award Agreement for grants made to executive officers on or after March 2, 2021. (Previously filed as Exhibit 10.1 to Form 8-K filed March 8, 2021).</u>
†*	10.2.1	—	<u>Form of Time-Based Restricted Stock Units Award Agreement for grants made to directors on or after March 2, 2021 (Previously filed as Exhibit 10.2 to Form 8-K filed March 8, 2021).</u>
†*	10.2.2	—	<u>Amended and Restated 2008 Omnibus Incentive Plan (Previously filed as Exhibit 10.2 to Form 10-Q filed August 9, 2018).</u>
†*	10.2.3	—	<u>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).</u>
†*	10.2.4	—	<u>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).</u>
†*	10.2.5	—	<u>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).</u>
†*	10.2.6	—	<u>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).</u>
†*	10.2.7	—	<u>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).</u>
†*	10.2.8	—	<u>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).</u>
†*	10.2.9	—	<u>Form of Performance-Based Restricted Stock Award Agreement (Officers) under the 2008 Omnibus Incentive Plan for grants made from April 1, 2013 to March 31, 2015 (Previously filed as Exhibit 10.2 to Form 8-K filed April 5, 2013).</u>
†*	10.2.10	—	<u>Form of Performance-Based Restricted Stock Award Agreement (Officers) under the 2008 Omnibus Incentive Plan for grants made from April 1, 2015 to March 10, 2020 (Previously filed as Exhibit 10.2 to Form 8-K filed April 3, 2015).</u>
†*	10.2.11	—	<u>Form of Performance-Based Restricted Stock Agreement (Officers) under the 2008 Omnibus Form of Performance-Based Restricted Stock Agreement (Officers) under the 2008 Omnibus Incentive Plan for grants made on or after March 3, 2020 (Previously filed as Exhibit 10.1 to Form 8-K filed March 10, 2020).</u>

†*	10.2.12	<u>Form of Time-Based Restricted Stock Award Agreement (Officers) under the 2008 Omnibus Incentive Plan for grants made from April 1, 2013 to March 31, 2015 (Previously filed as Exhibit 10.2 to Form 8-K filed April 5, 2013).</u>
†*	10.2.13	<u>Form of Time-Based Restricted Stock Award Agreement (Officers) under the 2008 Omnibus Incentive Plan for grants made on or after April 1, 2015 (Previously filed as Exhibit 10.3 to Form 8-K filed on April 3, 2015).</u>
†*	10.2.14	<u>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).</u>
†*	10.3	<u>Federal Agricultural Mortgage Corporation Amended and Restated Executive Officer Severance Plan (effective January 16, 2020) (Previously filed as Exhibit 10.1 to Form 8-K filed January 23, 2020).</u>
†*	10.4	<u>Form of Participation Agreement to the Federal Agricultural Mortgage Corporation Amended and Restated Executive Officer Severance Plan (effective January 16, 2020) (Previously filed as Exhibit 10.2 to Form 8-K filed January 23, 2020).</u>
†*	10.5	<u>Nonqualified Deferred Compensation Plan (effective May 1, 2017) (Previously filed as Exhibit 10.2 to Form 10-Q filed May 10, 2017).</u>
†*	10.6	<u>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).</u>
†*	10.7	<u>Form of Indemnification Agreement for Directors (Previously filed as Exhibit 10.1 to Form 8-K filed April 9, 2008).</u>
†**	10.8	<u>Description of compensation agreement between the Registrant and its directors, effective January 1, 2023.</u>
*#	10.9	<u>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).</u>
*	10.9.1	<u>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).</u>
*	10.9.2	<u>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).</u>
*	10.10	<u>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).</u>
*	10.10.1	<u>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).</u>
*	10.10.2	<u>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).</u>
*	10.10.3	<u>Third 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 May 20, 2021 (Previously filed as Exhibit 10.1 to Form 8-K filed May 20, 2021).</u>
*	10.11	<u>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).</u>
*	10.12	<u>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).</u>
*	10.13	<u>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).</u>
*	10.14	<u>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).</u>
*	10.15	<u>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).</u>
*	10.16	<u>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).</u>
*	10.17	<u>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).</u>

*	10.18		<u>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).</u>
*	10.19		<u>Master Non-Recourse Loan Participation Agreement between National Rural Utilities Cooperative Finance Corporation and the Registrant, dated as of February 3, 2020 (Previously filed as Exhibit 10.1 to Form 8-K filed February 7, 2020).</u>
*	10.20		<u>Loan Participation and Servicing Agreement between National Rural Utilities Cooperative Finance Corporation and the Registrant, dated as of February 3, 2020 (Previously filed as Exhibit 10.2 to Form 8-K filed February 7, 2020).</u>
*	10.21		<u>Fourth 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 June 15, 2022 (Previously filed as Exhibit 10.1 to Form 8-K filed June 21, 2022).</u>
*	21		<u>List of the Registrant's subsidiaries (Previously filed as Exhibit 21 to Form 10-K filed March 8, 2018).</u>
**	31.1	—	<u>Certification of Registrant's principal executive officer relating to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2022, pursuant to Rule 13a-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.</u>
**	31.2	—	<u>Certification of Registrant's principal financial officer relating to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2022, pursuant to Rule 13a-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.</u>
**	32	—	<u>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, 2022, pursuant to 18 U.S.C. § 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.</u>
**	101.INS	—	Inline XBRL Instance Document - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document
**	101.SCH	—	Inline XBRL Taxonomy Extension Schema
**	101.CAL	—	Inline XBRL Taxonomy Extension Calculation
**	101.DEF	—	Inline XBRL Taxonomy Extension Definition
**	101.LAB	—	Inline XBRL Taxonomy Extension Label
**	101.PRE	—	Inline XBRL Taxonomy Extension Presentation
**	104	—	Cover Page Inline Interactive Data File - the cover page interactive data file does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document included as Exhibit 101

* Incorporated by reference to the indicated prior filing.

** Filed with this report.

Portions of this exhibit have been omitted pursuant to a request for confidential treatment.

† Management contract or compensatory plan.

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 24, 2023

By: Bradford T. Nordholm
President and Chief Executive Officer
(Principal Executive Officer)

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.

<u>Name</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Lowell L. Junkins</u> Lowell L. Junkins	Chair of the Board and Director	<u>February 24, 2023</u>
<u>/s/ Bradford T. Nordholm</u> Bradford T. Nordholm	President and Chief Executive Officer (Principal Executive Officer)	<u>February 24, 2023</u>
<u>/s/ Aparna Ramesh</u> Aparna Ramesh	Executive Vice President – Chief Financial Officer and Treasurer (Principal Financial Officer)	<u>February 24, 2023</u>
<u>/s/ Gregory N. Ramsey</u> Gregory N. Ramsey	Vice President – Controller (Principal Accounting Officer)	<u>February 24, 2023</u>

<u>Name</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Dennis L. Brack</u> Dennis L. Brack	Director	<u>February 24, 2023</u>
<u>/s/ Chester J. Culver</u> Chester J. Culver	Director	<u>February 24, 2023</u>
<u>/s/ Richard H. Davidson</u> Richard H. Davidson	Director	<u>February 24, 2023</u>
<u>/s/ Everett M. Dobrinski</u> Everett M. Dobrinski	Director	<u>February 24, 2023</u>
<u>/s/ James R. Engebretsen</u> James R. Engebretsen	Director	<u>February 24, 2023</u>
<u>/s/ Sara L. Faivre</u> Sara L. Faivre	Director	<u>February 24, 2023</u>
<u>/s/ Amy H. Gales</u> Amy H. Gales	Director	<u>February 24, 2023</u>
<u>/s/ Mitchell A. Johnson</u> Mitchell A. Johnson	Director	<u>February 24, 2023</u>
<u>/s/ Eric T. McKissack</u> Eric T. McKissack	Director	<u>February 24, 2023</u>
<u>/s/ Robert G. Sexton</u> Robert G. Sexton	Director	<u>February 24, 2023</u>
<u>/s/ Charles A. Stones</u> Charles A. Stones	Director	<u>February 24, 2023</u>
<u>/s/ Roy H. Tiarks</u> Roy H. Tiarks	Director	<u>February 24, 2023</u>
<u>/s/ Todd P. Ware</u> Todd P. Ware	Director	<u>February 24, 2023</u>
<u>/s/ LaJuana S. Wilcher</u> LaJuana S. Wilcher	Director	<u>February 24, 2023</u>

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FINANCING RURAL AMERICA®

1999 K Street, N.W.
Fourth Floor
Washington, DC 20006
Phone: 202.872.7700
or 800.879.3276

www.farmermac.com