



TWO
HARBORS
INVESTMENT
CORP.

2022 ANNUAL REPORT





BUSINESS PROFILE

Founded in 2009, Two Harbors Investment Corp. has grown into a leading residential mortgage real estate investment trust (REIT). We have elected to be taxed as a REIT for U.S. federal income tax purposes. This tax status requires that we distribute at least 90% of our REIT taxable income to our stockholders on an annual basis. Our team is located in St. Louis Park, Minnesota and New York City. Our common stock is traded on the New York Stock Exchange under the symbol "TWO."

Our objective is to provide attractive risk-adjusted total return to our stockholders over the long term, primarily through dividends and secondarily through capital appreciation. We acquire and manage an investment portfolio of our target assets, which include the following:

- Agency RMBS, meaning residential mortgage-backed securities (RMBS) whose principal and interest payments are guaranteed by the Government National Mortgage Association (Ginnie Mae), the Federal National Mortgage Association (Fannie Mae), or the Federal Home Loan Mortgage Corporation (Freddie Mac);
- Mortgage servicing rights (MSR); and
- Other financial assets comprising approximately 5% to 10% of our portfolio.

We intend to maintain a well-balanced portfolio consisting of our target assets, with a focus on managing various associated risks, including interest rate, prepayment, credit, mortgage spread and financing risk. The preservation of book value is of paramount importance to our ability to generate total return on an ongoing basis.

AGENCY RMBS + MSR ADVANTAGE

AGENCY RMBS

Agency RMBS are securities collateralized by residential fixed rate mortgage loans, adjustable rate mortgage loans or derivatives thereof.

Payments of principal and interest on Agency RMBS are guaranteed by Ginnie Mae, Fannie Mae, or Freddie Mac. Our investments in Agency RMBS generally take the form of either Specified Pools or TBA contracts.

Specified Pools are Agency RMBS collateralized by loans that have similar characteristics, such as loan balance, FICO score, loan-to-value ratio or geography. Specified pool prepayment speeds are generally more stable than generic RMBS pools.

To-be-announced forward contracts (TBAs) are agreements for the purchase (long notional positions) or sale (short notional positions) of Agency RMBS. TBAs may be used as a means of deploying capital until targeted investments are available or to take advantage of temporary displacements, funding advantages or valuation differentials in the marketplace.

Agency RMBS are financed primarily through repurchase agreements.

MORTGAGE SERVICING RIGHTS (MSR)

MSR entitle the servicer to receive compensation in return for performing servicing activities for the underlying mortgage loan. Our MSR business leverages our core competencies in prepayment and interest rate risk management and the MSR assets provide a hedge to our Agency RMBS, in both interest rate and mortgage spreads.

We acquire MSR through established relationships with originators, brokers, and other sellers in both bulk packages and regular daily flow commitments. We are a GSE-approved servicer and only own conventional MSR. Although we own the MSR, we do not directly service the mortgage loans underlying the MSR but rather contract with appropriately licensed third party subservicers to perform substantially all servicing functions.

MSR assets are financed through a combination of repurchase agreements, revolving credit facilities and collateralized securitization transactions.





DEAR FELLOW STOCKHOLDERS

2022 provided one of the most challenging market environments in decades, marked by unprecedented volatility across all asset classes. This environment provided the opportunity to demonstrate the value in Two Harbors' model: that our strategy of pairing Agency residential mortgage-backed securities (RMBS) with mortgage servicing rights (MSR), along with the active management of our portfolio, can dampen volatility. Notwithstanding the difficult market conditions, I am proud of our achievements for the year, and I believe the company is well-positioned for success moving forward.

MARKETS AND PORTFOLIO UPDATE

In response to inflation levels not seen since the 1980s, the Federal Reserve raised interest rates by 425 basis points in 2022, considerably more than the market anticipated at the beginning of the year. In addition, mortgage spreads ranged from near record tight to record wide levels during the year.

At the beginning of 2022, as mortgages hovered near record tight levels, we meaningfully reduced our leverage and RMBS exposure, and increased our allocation to MSR through several large bulk deals. This virtually eliminated our net mortgage spread risk and helped to insulate the portfolio from what ended up being a large widening in mortgage spreads.

As interest rates repriced sharply higher, we subsequently adjusted our to-be-announced (TBA) pool position up-in-coupon, thereby improving the hedging correlation of our MSR and taking advantage of very strong dollar rolls. As mortgage spreads increased in the second quarter, we determined that our underweight position was no longer justified by the attractive fundamentals available in the market, and we increased leverage to a neutral posture. While our decision to increase leverage may have been premature, as mortgages cheapened further in September and October, we deliberately allowed our leverage to move higher to an overweight position, before adjusting back to a more neutral position after spreads tightened significantly, thereby capturing most of that positive performance.

Heading into 2023, we continued to rotate up-in-coupon in Agency RMBS given their attractive nominal yields and option-adjusted spreads. Regarding MSR supply, it is worth noting that 2022 annual transaction volume set a record at just over \$600 billion in unpaid principal balance (UPB), a 32% increase over the prior year. A particularly interesting supply and demand imbalance in the MSR market has developed in the fourth quarter and into 2023. As rates have risen, and origination volumes have slowed, many mortgage companies are motivated to sell MSR. At the same time, some large MSR holders have publicly announced their decision to step back from the MSR market, focusing on customers with

whom they have more than a single touchpoint. Given this, there is an opportunity to acquire MSR with very favorable return characteristics, and we plan to opportunistically allocate more capital to MSR purchases in the first half of 2023.

KEY ACHIEVEMENTS

We accomplished several important objectives during the year that we believe position our company for long-term success and will deliver value to you, our stockholders.

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- **First**, we announced that we are acquiring RoundPoint Mortgage Servicing Corporation, a residential mortgage loan servicer. By integrating RoundPoint's servicing capabilities into our existing strategy, we expect to achieve significant cost efficiencies related to the company's MSR portfolio, and we also expect there to be long-term opportunities to expand upon and leverage RoundPoint's existing servicing platform and capabilities to pursue additional business opportunities. We believe that the transaction can result in incremental annual pre-tax earnings of approximately \$20 million, following the transfer of the company's MSR portfolio to RoundPoint. The transaction is expected to close in the third quarter of 2023.
-
- **Second**, we completed several important actions to optimize our liabilities and capital structure. We retired the remaining \$143.8 million of our 6.25% convertible senior notes due in 2022. We also repurchased 2.9 million shares of our preferred stock at a significant discount to par, contributing approximately \$0.26 per share to our common book value in the fourth quarter of 2022.
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- **Finally**, despite the difficult investment environment of 2022, we delivered value to stockholders through total dividends paid of \$2.64 per common share, equivalent to an average dividend yield of 13.8%.⁽¹⁾ While our common book value did decline in the year, from \$23.47 to \$17.72 per share, when including the \$2.64 per common share dividends paid, we realized a total economic return on common book value of (13.3%)⁽²⁾. While it is never satisfying to have a negative return, this performance compares very favorably to other Agency-focused peers and is a testament to our disciplined approach to managing investor capital.
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COMMITMENT TO OUR EMPLOYEES AND OUR COMMUNITIES

I strongly believe that our people are the foundation of our success. We have a dynamic, performance-based culture that is focused on driving our company forward and building long-term value for our stakeholders. We collectively lead and engage with each other with purpose and intent and draw strength from individuals with a breadth of backgrounds, knowledge and experiences. We have an unwavering commitment to promoting a diverse and inclusive culture, with over 50% of our employees in aggregate identifying as either female or racially/ethnically diverse. I'm very proud that Two Harbors has been recognized in 2022 as a "Top Workplace" by the Minneapolis Star Tribune, and we consider this recognition to be a testament to our employee engagement and collaborative culture.

⁽¹⁾ Average dividend yield is calculated based on the dividends declared in the given period, divided by the average daily closing share price during the given period.

⁽²⁾ Economic return on common book value is defined as the increase (decrease) in common book value per common share from the beginning to the end of the given period, plus dividends declared in the period, divided by common book value as of the beginning of the period.



Importantly, we take an active role in giving back to our communities. As a residential mortgage REIT, our team understands the important role that home ownership plays in our society, not just from an economic or investment standpoint, but to the health, safety and stability of our community members. We continue to emphasize the importance of supporting our local communities through our longstanding tradition of engagement with charitable organizations allied with the housing sector, particularly charities that offer housing support to families and children. We provided financial contributions to each of our charitable partnerships to assist in local relief through coordinating events to provide meals, supplies and other essential items to those in need.

LOOKING AHEAD

While retaining some caution, we believe that the Federal Reserve's actions will ultimately be successful, and we anticipate that market volatility will follow inflation lower and provide a tailwind for RMBS and MSR. I believe our portfolio is very well positioned for the current and expected market environment in 2023. While there will always be surprises in the mortgage market, our dedicated and experienced team stands ready to take advantage of the opportunities as they arise.

*ON BEHALF OF OUR TEAM
AND THE BOARD OF DIRECTORS,
I THANK YOU FOR YOUR
INTEREST IN AND SUPPORT
OF TWO HARBORS.*



Sincerely,

William Greenberg

President and
Chief Executive Officer



AN INTERVIEW

WITH NEWLY APPOINTED CIO, NICK LETICA

WHAT IS YOUR BACKGROUND AND HOW DID YOU FIND YOUR WAY TO TWO HARBORS?

I've been involved in the Agency mortgage space for more than thirty years, both on the buy- and sell-side. Many of my previous roles focused on MBS trading and hedging in various contexts, all the while developing and implementing models and strategies that balance risk and profitability. I was fortunate enough to have been introduced to Bill Greenberg by a mutual friend, and it was quickly apparent that my experience and investment approach paired well with that of Two Harbors. I have joined a highly skilled and accomplished team and I'm confident in our ability to navigate opportunities and challenges as they arise in today's rapidly changing market conditions.

WHAT IS YOUR INVESTMENT PHILOSOPHY FOR TWO HARBORS' PORTFOLIO?

Grounded in the core competencies of understanding and managing interest rate and prepayment risk, our philosophy is focused on generating long-term value for our stockholders. We dynamically manage our investment portfolio of Agency RMBS and MSR, which helped our performance in 2022. We do this with an acute focus on mitigating risks through prudently using leverage and hedging our interest rate and mortgage spread exposures.

WHAT HAVE BEEN YOUR KEY PRIORITIES SINCE JOINING TWO HARBORS?

First and foremost, my priority has been working with our investment team on navigating an extremely volatile and challenging market environment. Within the past year, the market experienced both near record tight and record wide spreads. We actively managed our positioning in Agency RMBS and MSR to adjust our exposures to benefit returns when market conditions became extraordinary.

We've also been focused on growing our investments in MSR. With the acquisition of residential mortgage loan servicer RoundPoint Mortgage Servicing Corporation, which is expected to close in the third quarter of 2023, we believe that we will be able to realize several benefits related to our MSR portfolio. These benefits include: (1) incremental annual pre-tax earnings of approximately \$20 million, following the transfer of our MSR portfolio to RoundPoint; (2) greater control over our MSR portfolio by acting as our own servicer; and (3) long-term opportunities to expand on RoundPoint's existing servicing platform.

WHAT DO YOU SEE AS THE GREATEST OPPORTUNITY FOR THE MORTGAGE MARKET IN 2023?

Broadly speaking, I'm excited by the current landscape of wide spreads for RMBS combined with attractive opportunities to acquire more MSR. The suspension of the Federal Reserve's purchasing of MBS concurrent with the rise in interest rates and volatility, widened nominal MBS spreads by 80bp in 2022 to around the 90th percentile over a 20-year history. Current levered return of MBS are very supportive of our strategy. As we discussed in our fourth quarter 2022 earnings call, there is a record amount of MSR supply coming to market due to a combination of factors. We believe we are uniquely positioned to capitalize on this opportunity in our Agency plus MSR strategy.



CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS: Certain statements in this Annual Report that are neither reported financial results nor other historical information are forward-looking statements. Forward-looking statements are not guarantees of future performance and involve risks and uncertainties, including those described in our Annual Report on Form 10-K for the year ended December 31, 2022, and any subsequent Quarterly Reports on Form 10-Q, under the caption "Risk Factors." Our actual results and our plans and objectives may differ materially from those expressed in any forward-looking statements expressed herein, and you are cautioned not to place undue reliance on them.

TWO HARBORS INVESTMENT CORP., a Maryland corporation, is a real estate investment trust that invests in residential mortgage-backed securities, mortgage servicing rights and other financial assets. Two Harbors is headquartered in St. Louis Park, Minnesota.

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

Commission File Number 001-34506

TWO HARBORS INVESTMENT CORP.

(Exact Name of Registrant as Specified in Its Charter)

Maryland

(State or Other Jurisdiction of
Incorporation or Organization)

27-0312904

(I.R.S. Employer
Identification No.)

1601 Utica Avenue South, Suite 900

St. Louis Park, Minnesota

(Address of Principal Executive Offices)

55416

(Zip Code)

(612) 453-4100

(Registrant's Telephone Number, Including Area Code)

Securities Registered Pursuant to Section 12(b) of the Act:

Title of Each Class:	Trading Symbol(s)	Name of Exchange on Which Registered:
Common Stock, par value \$0.01 per share	TWO	New York Stock Exchange
8.125% Series A Cumulative Redeemable Preferred Stock	TWO PRA	New York Stock Exchange
7.625% Series B Cumulative Redeemable Preferred Stock	TWO PRB	New York Stock Exchange
7.25% Series C Cumulative Redeemable Preferred Stock	TWO PRC	New York Stock Exchange

Securities registered pursuant to Section 12(g) of the Act: **None**

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, 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.

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.

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements.

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10D-1(b).

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes No

As of June 30, 2022, the aggregate market value of the registrant's common stock held by non-affiliates of the registrant was approximately \$1.7 billion based on the closing sale price as reported on the NYSE on that date.

As of February 21, 2023, there were 96,616,279 shares of common stock, par value \$0.01 per share, issued and outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive Proxy Statement for the 2023 Annual Meeting of Stockholders, which will be filed with the Securities and Exchange Commission under Regulation 14A within 120 days after the end of registrant's fiscal year covered by this Annual Report, are incorporated by reference into Part III.

TWO HARBORS INVESTMENT CORP.
2022 ANNUAL REPORT ON FORM 10-K

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PART I

Item 1. Business

Overview

Two Harbors Investment Corp. is a Maryland corporation focused on investing in, financing and managing Agency residential mortgage-backed securities, or Agency RMBS, mortgage servicing rights, or MSR, and other financial assets, which we collectively refer to as our target assets. We operate as a real estate investment trust, or REIT, as defined under the Internal Revenue Code of 1986, as amended, or the Code. The terms “Two Harbors,” “we,” “our,” “us” and the “company” refer to Two Harbors Investment Corp. and its subsidiaries as a consolidated entity.

We were incorporated on May 21, 2009 and commenced operations as a publicly traded company on October 28, 2009, upon completion of a merger with Capitol Acquisition Corp., or Capitol, which became our wholly owned indirect subsidiary as a result of the merger. Our common stock is listed on the New York Stock Exchange, or NYSE, under the symbol “TWO”.

Our objective is to provide attractive risk-adjusted total return to our stockholders over the long term, primarily through dividends and secondarily through capital appreciation. We acquire and manage an investment portfolio of our target assets, which include the following:

- Agency RMBS, meaning RMBS whose principal and interest payments are guaranteed by a U.S. government agency, such as the Government National Mortgage Association (or Ginnie Mae), or a U.S. government sponsored enterprise, or GSE, such as the Federal National Mortgage Association (or Fannie Mae) or the Federal Home Loan Mortgage Corporation (or Freddie Mac);
- MSR; and
- Other financial assets comprising approximately 5% to 10% of the portfolio.

We seek to deploy moderate leverage as part of our investment strategy. We generally finance our Agency RMBS through short- and long-term borrowings structured as repurchase agreements. We also finance our MSR through revolving credit facilities, repurchase agreements, term notes payable and convertible senior notes.

We have elected to be treated as a REIT for U.S. federal income tax purposes. To qualify as a REIT, we are required to meet certain investment and operating tests and annual distribution requirements. We generally will not be subject to U.S. federal income taxes on our taxable income to the extent that we annually distribute all of our net taxable income to stockholders, do not participate in prohibited transactions and maintain our intended qualification as a REIT. However, certain activities that we may perform may cause us to earn income which will not be qualifying income for REIT purposes. We have designated certain of our subsidiaries as taxable REIT subsidiaries, or TRSs, as defined in the Code, to engage in such activities, and we may form additional TRSs in the future. We also operate our business in a manner that will permit us to maintain our exemption from registration under the Investment Company Act of 1940, as amended, or the 1940 Act.

Our team of investment professionals has broad experience in managing our target assets and has demonstrated the ability to generate attractive risk-adjusted returns under different market conditions and cycles. We have extensive long-term relationships with financial intermediaries, including prime brokers, investment banks, broker-dealers and asset custodians. We believe these relationships enhance our ability to source, finance, protect and hedge our investments and, thus, enable us to succeed in various credit and interest rate environments. We also benefit from our risk management, accounting, operations, legal, compliance and information technology teams.

On August 2, 2022, Matrix Financial Services Corporation, or Matrix, one of our wholly owned subsidiaries, entered into a definitive stock purchase agreement to acquire RoundPoint Mortgage Servicing Corporation, or RoundPoint, from Freedom Mortgage Corporation. In connection with the acquisition, Matrix has agreed to pay a purchase price upon closing in an amount equal to the tangible net book value of RoundPoint, plus a premium amount of \$10.5 million, subject to certain additional post-closing adjustments. In connection with the transaction, RoundPoint will divest its retail origination business as well as its RPX servicing exchange platform. Matrix also agreed to engage RoundPoint as a servicer prior to the closing date and began transferring loans to RoundPoint in the fourth quarter of 2022. Upon closing, all servicing licenses and operational capabilities will remain with RoundPoint, and RoundPoint will become a wholly owned subsidiary of Matrix. The parties expect to close the transaction in 2023, subject to the satisfaction of customary closing conditions and the receipt of required regulatory and GSE approvals.

Note Regarding Forward-Looking Statements

This Annual Report on Form 10-K contains, or incorporates by reference, not only historical information, but also forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, or the Securities Act, and Section 21E of the Securities Exchange Act of 1934, or the Exchange Act, and that are subject to the safe harbors created by such sections. Forward-looking statements involve numerous risks and uncertainties. Our actual results may differ from our beliefs, expectations, estimates, and projections and, consequently, you should not rely on these forward-looking statements as predictions of future events. Forward-looking statements are not historical in nature and can be identified by words such as “anticipate,” “estimate,” “will,” “should,” “expect,” “target,” “believe,” “intend,” “seek,” “plan,” “goals,” “future,” “likely,” “may,” and similar expressions or their negative forms, or by references to strategy, plans, or intentions. These forward-looking statements are subject to risks and uncertainties, including, among other things, those described in this Annual Report on Form 10-K under the caption “Risk Factors.” Other risks, uncertainties, and factors that could cause actual results to differ materially from those projected are described below and may be described from time to time in reports we file with the Securities and Exchange Commission, or the SEC, including our Quarterly Reports on Form 10-Q and Current Reports on Form 8-K. Forward-looking statements speak only as of the date they are made, and we undertake no obligation to update or revise any such forward-looking statements, whether as a result of new information, future events, or otherwise.

Important factors, among others, that may affect our actual results include:

- changes in interest rates and the market value of our target assets;
- changes in prepayment rates of mortgages underlying our target assets;
- the state of the credit markets and other general economic conditions, particularly as they affect the price of earning assets, the credit status of borrowers and home prices;
- legislative and regulatory actions affecting our business;
- the availability and cost of our target assets;
- the availability and cost of financing for our target assets, including repurchase agreement financing, revolving credit facilities, term notes and convertible notes;
- the impact of any increases in payment delinquencies and defaults on the mortgages comprising and underlying our target assets, including additional servicing costs and servicing advance obligations on the MSR assets we own;
- changes in liquidity in the market for real estate securities, the re-pricing of credit risk in the capital markets, inaccurate ratings of securities by rating agencies, rating agency downgrades of securities, and increases in the supply of real estate securities available-for-sale;
- changes in the values of securities we own and the impact of adjustments reflecting those changes on our consolidated statements of comprehensive loss and balance sheets, including our stockholders’ equity;
- our ability to generate cash flow from our target assets;
- our ability to effectively execute and realize the benefits of strategic transactions and initiatives we have pursued or may in the future pursue;
- our ability to recognize the benefits of our pending acquisition of RoundPoint Mortgage Servicing Corporation;
- our decision to terminate our Management Agreement with PRCM Advisers LLC and the ongoing litigation related to such termination;
- changes in the competitive landscape within our industry, including changes that may affect our ability to attract and retain personnel;
- our exposure to legal and regulatory claims, penalties or enforcement activities, including those arising from our ownership and management of MSR and prior securitization transactions;
- our exposure to counterparties involved in our MSR business and prior securitization transactions and our ability to enforce representations and warranties made by them;
- our ability to acquire MSR and successfully operate our seller-servicer subsidiary and oversee the activities of our subservicers;
- our ability to manage various operational and regulatory risks associated with our business;
- interruptions in or impairments to our communications and information technology systems;
- our ability to maintain appropriate internal controls over financial reporting;
- our ability to establish, adjust and maintain appropriate hedges for the risks in our portfolio;
- our ability to maintain our REIT qualification for U.S. federal income tax purposes; and
- limitations imposed on our business due to our REIT status and our status as exempt from registration under the 1940 Act.

This Annual Report on Form 10-K may contain statistics and other data that, in some cases, have been obtained or compiled from information made available by mortgage loan servicers and other third-party service providers.

Our Business

Our Investment Strategy

Our investment objective is to provide attractive risk-adjusted total return to our stockholders over the long term, primarily through dividends and secondarily through capital appreciation. We intend to achieve this objective by constructing a well-balanced portfolio consisting of Agency RMBS, MSR and other financial assets, with a focus on managing various associated risks, including interest rate, prepayment, credit, mortgage spread and financing risk. The preservation of book value is of paramount importance to our ability to generate total return on an ongoing basis.

Our investment team makes investment decisions based on a rigorous asset selection process that takes into consideration a variety of factors, including expected cash yield, risk-adjusted returns, current and projected credit fundamentals, current and projected macroeconomic considerations, current and projected supply and demand, credit and market risk concentration limits, liquidity, cost of financing and financing availability. It is our intention to select our assets in such a way as to maintain our REIT qualification and our exemption from registration under the 1940 Act.

Our Target Assets

Our portfolio includes assets that are primarily sensitive to changes in interest rates, prepayments and mortgage spreads, including but not limited to Agency RMBS, MSR and related hedging transactions. These assets have minimal exposure to the underlying credit performance of the investments. Our portfolio is managed as a whole and our resources are allocated and financial performance is assessed on a consolidated basis. Our target asset classes are as follows:

Agency RMBS

Agency RMBS collateralized by fixed rate mortgage loans, adjustable-rate mortgage (or ARM) loans or hybrid mortgage loans, or derivatives thereof, including:

- mortgage pass-through certificates;
- collateralized mortgage obligations;
- uniform mortgage-backed securities;
- Freddie Mac gold certificates;
- Fannie Mae certificates;
- Ginnie Mae certificates;
- “to-be-announced” forward contracts, or TBAs, which are pools of mortgages with specific investment terms to be issued by Ginnie Mae, Fannie Mae or Freddie Mac at a future date; and
- interest-only and inverse interest-only securities.

MSR

The right to control the servicing of residential mortgage loans, receive the servicing income therefrom and the obligation to service the loans in accordance with relevant standards; the actual servicing functions are outsourced to appropriately licensed third-party subservicers, which service the loans in their own names.

Other assets may include financial and mortgage-related assets other than our target assets, including non-Agency securities (securities that are not issued or guaranteed by Ginnie Mae, Fannie Mae or Freddie Mac) and certain non-hedging transactions that may produce non-qualifying income for purposes of the REIT gross income tests.

Our Investment Activities

Our Agency RMBS portfolio is comprised primarily of fixed rate mortgage-backed securities backed by single-family and multi-family mortgage loans. All of our principal and interest Agency RMBS are Fannie Mae or Freddie Mac mortgage pass-through certificates or collateralized mortgage obligations, or Ginnie Mae mortgage pass-through certificates, which are backed by the guarantee of the U.S. government. The majority of these securities consist of whole pools in which we own all of the investment interests in the securities.

One of our wholly owned subsidiaries holds the requisite approvals from Fannie Mae and Freddie Mac to own and manage MSR, which represent a contractual right to control the servicing of a mortgage loan, the obligation to service the loan in accordance with relevant standards and the right to collect a fee for the performance of servicing activities, such as collecting principal and interest from a borrower and distributing those payments to the owner of the loan. We do not directly service the mortgage loans underlying the MSR we acquire; rather, we contract with appropriately licensed third-party subservicers to handle substantially all servicing functions in the name of the subservicer for the loans underlying our MSR. As the servicer of record, however, we remain accountable to the GSEs for all servicing matters and, accordingly, provide substantial oversight of each of our subservicers. We believe MSR are a natural fit for our portfolio over the long term. Our MSR business leverages our core competencies in prepayment and credit risk analytics and the MSR assets may provide offsetting risks to our Agency RMBS, hedging both interest rate and mortgage spread risk.

In making our capital allocation decisions, we take into consideration a number of factors, including the opportunities available in the marketplace, the cost and availability of financing, and the cost of hedging interest rate, prepayment, credit and other portfolio risks. In the ordinary course of business, we make investment decisions and allocate capital in accordance with our views on the changing risk/reward dynamics in the market and in our portfolio. Going forward, we expect our capital to be fully allocated to our strategy of pairing Agency RMBS and MSR. We have expertise in mortgage credit and may choose to invest again in those assets should the opportunity arise.

Our Investment Guidelines

Our board of directors has approved the following investment guidelines:

- no investment shall be made that would cause us to fail to qualify as a REIT for U.S. federal income tax purposes;
- no investment shall be made that would cause us to be regulated as an investment company under the 1940 Act;
- we will primarily invest within our target assets, consisting primarily of Agency RMBS, non-Agency securities, residential mortgage loans, MSR and certain types of commercial real estate assets; approximately 5% to 10% of our portfolio may include other financial assets; and
- until appropriate investments can be identified, we will invest available cash in interest-bearing and short-term investments that are consistent with (i) our intention to qualify as a REIT and (ii) our exemption from investment company status under the 1940 Act.

These investment guidelines may be changed from time to time by our board of directors in its discretion without the approval of our stockholders.

Within the constraints of the foregoing investment guidelines, we have broad authority to select, finance and manage our investment portfolio. As a general matter, our investment strategy is designed to enable us to:

- build an investment portfolio consisting of Agency RMBS, MSR and other financial assets that will generate attractive returns while having a moderate risk profile;
- manage financing, interest, prepayment rate, credit and similar risks;
- capitalize on discrepancies in the relative valuations in the mortgage and housing markets; and
- provide regular quarterly dividend distributions to stockholders.

Within the requirements of the investment guidelines, we make determinations as to the percentage of our assets that will be invested in each of our target assets. Our investment decisions depend on prevailing market conditions and may change over time in response to opportunities available in different interest rate, economic and credit environments. As a result, we cannot predict the percentage of our assets that will be invested in any of our target asset classes at any given time. We believe that the diversification of our portfolio of assets and the flexibility of our strategy, combined with the expertise of our investment team, will enable us to achieve attractive risk-adjusted total return under a variety of market conditions and economic cycles.

Financing Strategy

We deploy moderate leverage to fund the acquisition of our target assets and increase potential returns to our stockholders. We are not required to maintain any particular leverage ratio. The amount of leverage we deploy for particular investments in our target assets depends upon a variety of factors, including without limitation: general economic, political and financial market conditions; the anticipated liquidity and price volatility of our assets; the gap between the duration of assets and liabilities, including hedges; the availability and cost of financing our assets; our opinion of the credit worthiness of financing counterparties; the health of the U.S. residential mortgage and housing markets; our outlook for the level, slope and volatility of interest rates; the credit quality of the loans underlying our target assets; the rating assigned to securities; and our outlook for asset spreads relative to the London Interbank Offered Rate, or LIBOR, curve, the Secured Overnight Financing Rate, or SOFR, curve, the Overnight Index Swap Rate, or OIS, the U.S. federal funds rate, and other benchmark rate curves.

Our primary financing sources for Agency RMBS are repurchase agreements. Repurchase agreements are financings pursuant to which one party, the seller/borrower, sells assets to the repurchase agreement counterparty, the buyer/lender, for an agreed price with the obligation to repurchase the assets from the buyer at a future date and at a price different than the original purchase price, with the difference representing the borrowing rate (typically based on an index plus a spread consistent with those demanded in the market). The amount of financing available under a repurchase agreement is limited to a specified percentage of the estimated market value of the assets. The difference between the sale price and repurchase price is the interest expense of financing under a repurchase agreement. Under repurchase agreement financing arrangements, if the value of the collateral decreases, the buyer could require the seller to provide additional cash collateral to re-establish the ratio of value of the collateral to the amount of borrowing (*i.e.*, a margin call). In the current economic climate, lenders under repurchase agreements generally advance approximately 95% to 97% of the market value of the Agency RMBS financed (a discount from market value, generally referred to as a haircut, of 3% to 5%).

To finance MSR assets and related servicing advance obligations, we may enter into repurchase agreements, revolving credit facilities and securitization transactions collateralized by the value of the MSR and/or servicing advances pledged and with borrowing rates typically based on an index plus a spread consistent with those demanded in the market. If the value of our MSR and/or servicing advances pledged as collateral for the agreements decreases, the respective lender could require us to provide additional collateral or cash as collateral to re-establish the ratio of value of the collateral to the amount of the debt outstanding. Due to certain GSE requirements, we may be restricted as to the frequency in which we are able to pledge additional MSR and/or servicing advance collateral to counterparties. As a result, we may choose to over-collateralize certain financing arrangements in order to avoid having to provide cash as additional collateral. Lenders generally advance approximately 60% to 70% of the market value of the MSR financed (*i.e.*, a haircut of 30% to 40%) and 80% to 95% of the value of servicing advances financed (*i.e.*, a haircut of 5% to 20%), depending on the type of advance (*e.g.*, corporate, escrow).

One of our subsidiary trust entities, MSR Issuer Trust, was formed for the purpose of financing MSR through securitization, pursuant to which, through two of our wholly owned subsidiaries, MSR is pledged to MSR Issuer Trust and in return, MSR Issuer Trust issues term notes to qualified institutional buyers and a variable funding note, or VFN, to one of the subsidiaries, in each case secured on a *pari passu* basis. In connection with the transaction, we also entered into a repurchase facility that is secured by the VFN issued in connection with the MSR securitization transaction, which is collateralized by our MSR.

A significant decrease in the advance rate or an increase in the haircut could result in us having to sell assets in order to meet additional margin requirements by the lender. We expect to mitigate our risk of margin calls under financing arrangements by deploying leverage at an amount that is below what could be used under current advance rates.

In order to reduce our exposure to risks associated with lender counterparty concentration, we generally seek to diversify our exposure by entering into repurchase agreements with multiple counterparties. At December 31, 2022, we had \$8.6 billion of outstanding balances under repurchase agreements with 20 counterparties, with a maximum net exposure (the difference between the amount loaned to us, including interest payable, and the value of the assets pledged by us as collateral, including accrued interest receivable on such assets) to any single lender of \$158.3 million, or 7.2% of stockholders' equity.

Interest Rate Hedging and Risk Management Strategy

We may enter into a variety of derivative and non-derivative instruments to economically hedge interest rate risk or "duration mismatch (or gap)" by adjusting the duration of our floating-rate borrowings into fixed-rate borrowings to more closely match the duration of our assets. This particularly applies to borrowing agreements with maturities or interest rate resets of less than six months. Typically, the interest receivable terms (*i.e.*, LIBOR, OIS or SOFR) of certain derivatives match the terms of the underlying debt, resulting in an effective conversion of the rate of the related borrowing agreement from floating to fixed. The objective is to manage the cash flows associated with current and anticipated interest payments on borrowings, as well as the ability to roll or refinance borrowings at the desired amount by adjusting the duration. To help manage the adverse impact of interest rate changes on the value of our portfolio as well as our cash flows, we may, at times, enter into various forward contracts, including short securities, TBAs, options, futures, swaps, caps, credit default swaps and total return swaps. In executing on our current interest rate risk management strategy, we have entered into TBAs, interest rate swap and swaption agreements, futures and options on futures. In addition, because MSR are negative duration assets, they may provide a hedge to interest rate exposure on our Agency RMBS portfolio. In hedging interest rate risk, we seek to reduce the risk of losses on the value of our investments that may result from changes in interest rates in the broader markets, improve risk-adjusted returns and, where possible, obtain a favorable spread between the yield on our assets and the cost of our financing.

Human Capital

We believe that our people are the foundation of our success. We are dedicated to providing human capital management best practices that evolve with the needs of our business and our people. We are committed to attracting and retaining the industry's top talent by providing competitive wages and benefits and cultivating a workplace environment in which all of our employees can thrive and contribute. As of December 31, 2022, we had 97 full time equivalent employees based out of our two office locations in Minneapolis, Minnesota and New York, New York.

Compensation and Benefits. We use market data to benchmark and guide our compensation practices to ensure that our compensation program is industry standard, competitive and rewarding, while at the same time aligning the interests of our employees with those of our stockholders. In addition to competitive wages and salaries, our compensation programs are designed to attract and retain talented professionals. Our overall package includes cash bonus and equity incentive compensation opportunities, a 401(k) plan and profit-sharing contribution, employer-paid health benefits, health savings and dependent care flexible spending accounts, generous paid time off, short- and long-term disability insurance, a variety of personal and family leave options, life-planning financial and legal resources, and other voluntary supplemental benefits.

Professional Development. We encourage the professional development of our people through regular leadership development training, talent management and tuition reimbursement programs. We also offer a wide variety of educational opportunities through our educational platforms, Two Harbors University and a learning management system. We encourage collaboration and teamwork to ensure mutual understanding of responsibilities, priorities and expectations. We thoughtfully plan for our collective success by aligning individual employee and company goals.

Health, Safety and Well-being. We sponsor a number of programs and events that emphasize the health and well-being of our employees, including relational, financial, emotional and physical. We promote a culture of health and well-being through employee assistance program services, comprehensive health care benefits and resources for preventative health, such as reduced-fee health club memberships. Throughout the course of the COVID-19 pandemic, we have put the health and safety of our employees and their families first, initially supporting comprehensive work-from-home policies and subsequently implementing a work-life integration and flexibility policy after our return to the office in-person. In addition, we established enhanced safety measures and precautions in both of our offices as recommended by the federal, state and our local agencies.

Workplace Culture. We strive to foster a workplace culture where every individual on our team brings their unique perspectives, abilities and experiences which contribute to driving our organizational value. We are committed to supporting the engagement and leadership of a diverse workforce, with over 50% in aggregate identifying as either female or racially/ethnically diverse and providing opportunities for collaboration, development and career growth. We conduct an annual pulse survey which provides valuable insights from employees on topics involving culture, diversity and inclusion, education, benefits and engagement, and pride ourselves on having a strong participation rate. We also offer a flexible work environment, providing employees the opportunity to balance their professional obligations with that of their personal.

Charitable Partnerships. We are committed to strengthening our local communities through the support of charitable organizations allied with the housing sector, and in particular those that provide housing support to families and children in need. Examples of our support include partnerships with AEON, Simpson Housing and Habitat for Humanity. In addition, we match dollar-for-dollar the cash donations made by our employees to our charitable partnerships.

Operating and Regulatory Structure

Our business is subject to extensive regulation by U.S. federal and state governmental authorities, and self-regulatory organizations. We are required to comply with numerous federal and state laws, including those described below. The laws, rules and regulations comprising this regulatory framework change frequently, as can the interpretation and enforcement of existing laws, rules and regulations. Some of the laws, rules and regulations to which we are subject are intended primarily to safeguard and protect consumers, rather than stockholders or creditors. On occasion, we may receive requests from U.S. federal and state agencies for records, documents and information regarding our policies, procedures and practices regarding our business activities. We incur significant ongoing costs to comply with these regulations.

REIT Qualification

We elected to be taxed as a REIT under the Code, commencing with our taxable period ended December 31, 2009. Our qualification as a REIT depends upon our ability to meet on a continuing basis, through actual investment and operating results, various complex requirements under the Code relating to, among other things, the sources of our gross income, the composition and value of our assets, our distribution levels and the diversity of ownership of our shares. We believe that we are organized in conformity with the requirements for qualification and taxation as a REIT under the Code, and we conduct our operations in a manner which will enable us to continue to meet the requirements for qualification and taxation as a REIT. Certain activities that we may perform may cause us to earn income that will not be qualifying income for REIT purposes. We have designated certain of our subsidiaries as TRSs to engage in such activities, and we may in the future form additional TRSs.

As long as we continue to qualify as a REIT, we generally will not be subject to U.S. federal income tax on the REIT taxable income we distribute currently to our stockholders. If we fail to qualify as a REIT in any taxable year and do not qualify for certain statutory relief provisions, we will be subject to U.S. federal income tax at regular corporate rates and may be precluded from qualifying as a REIT for the subsequent four taxable years following the year during which we lost our REIT qualification. Even if we qualify for taxation as a REIT, we may be subject to certain U.S. federal, state and local taxes on our income or property.

Investment Company Act of 1940

We conduct our operations so that we are not required to register as an investment company under the 1940 Act. If we were to fall within the definition of an investment company, we would be unable to conduct our business as described in this Annual Report on Form 10-K.

Section 3(a)(1)(A) of the 1940 Act defines an investment company as any issuer that “is or holds itself out as being engaged primarily in the business of investing, reinvesting or trading in securities.” Section 3(a)(1)(C) of the 1940 Act also defines an investment company as any issuer that “is engaged or proposes to engage in the business of investing, reinvesting, owning, holding or trading in securities and owns or proposes to acquire investment securities having a value exceeding 40% of the value of the issuer’s total assets (exclusive of U.S. government securities and cash items) on an unconsolidated basis.” Excluded from the term “investment securities,” among other things, are U.S. government securities and securities issued by majority-owned subsidiaries that are not themselves investment companies and are not relying on the exclusion from the definition of investment company set forth in Section 3(c)(1) or Section 3(c)(7) of the 1940 Act.

We are organized as a holding company that conducts business primarily through our subsidiaries. Any business conducted through our subsidiaries will be conducted in such a manner as to ensure that we do not meet the definition of “investment company” because less than 40% of the value of our total assets on an unconsolidated basis would consist of “investment securities.”

To avoid registration as an investment company, certain of our subsidiaries rely on certain exemptions from the 1940 Act, including Section 3(c)(5)(C), which exempts entities that are “primarily engaged in the business of purchasing or otherwise acquiring mortgages and other liens on and interests in real estate.” Under the SEC staff’s current guidance, to qualify for this exemption, we must maintain (i) at least 55% of our assets in qualifying interests (referred to as the 55% Test) and (ii) at least 80% of our assets in qualifying interest plus other real estate related assets (referred to as the 80% Test). Qualifying interests for this purpose include mortgage loans and other assets, such as whole pool Agency and non-Agency RMBS, which are considered the functional equivalent of mortgage loans for the purposes of the 1940 Act. We expect each of our subsidiaries that may rely on Section 3(c)(5)(C) to invest at least 55% of its assets in qualifying interests in accordance with SEC staff guidance, and an additional 25% of its assets in either qualifying interests or other types of real estate related assets that do not constitute qualifying interests. We believe that we conduct our business so that we are exempt from the 1940 Act under Section 3(c)(5)(C), but rapid changes in the values of our assets could disrupt prior efforts to conduct our business to meet the 55% Test and the 80% Test. Our efforts to comply with the 55% Test and the 80% Test could require us to acquire or dispose of certain assets at unfavorable prices and limit our ability to pursue certain investment opportunities.

Mortgage Industry Regulation

Although we do not originate or service residential mortgage loans, we must comply with various federal and state laws, rules and regulations as a result of owning MSR. These rules generally focus on consumer protection and include, among others, rules promulgated under the Dodd-Frank Wall Street Reform and Consumer Protection Act, or the Dodd-Frank Act, and the Gramm-Leach-Bliley Financial Modernization Act of 1999, or the Gramm-Leach-Bliley Act. We are also required to maintain qualifications, registrations and licenses in certain states in order to own certain of our assets. These requirements can and do change as statutes and regulations are enacted, promulgated or amended, or as regulatory guidance or interpretations evolve or change, and the trend in recent years among federal and state lawmakers and regulators has been toward increasing laws, regulations and investigative proceedings in relation to the mortgage industry generally.

The Dodd-Frank Act significantly changed the regulation of financial institutions and the financial services industry, including the mortgage industry. The Dodd-Frank Act tasked many agencies with issuing a variety of new regulations, including rules related to mortgage origination, mortgage servicing, securitization transactions and derivatives. The Dodd-Frank Act also created the Consumer Financial Protection Bureau, or the CFPB, which has broad rulemaking authority with respect to many of the federal consumer protection laws applicable to the mortgage industry. In addition to its rulemaking authority, the CFPB has supervision, examination and enforcement authority over consumer financial products and services by certain non-depository institutions, including our company. The CFPB has issued a series of rules and related guidance as part of ongoing efforts to enhance consumer protections and create uniform standards for the mortgage lending and servicing industries. These rules include requirements addressing how lenders must evaluate a consumer’s ability to repay a mortgage loan, specific disclosures and communications that must be made to consumers at various stages in the mortgage lending and servicing processes, and specific actions servicers must take at various stages in a loan’s life cycle, including providing assistance to consumers who encounter financial hardship and struggle to make their mortgage payment. These rules have led to increased costs to originate and service loans across the mortgage industry, greater regulatory scrutiny of originators, servicers and other mortgage industry participants from federal and state regulators and increased litigation and complaints against these participants from both consumers and government officials.

The Gramm-Leach-Bliley Act imposes obligations on us to safeguard the information we maintain on mortgage loan borrowers and imposes restrictions on our ability to share that information with third parties and affiliates. In addition, a growing number of states have passed or enhanced laws to further protect borrower information, including laws that regulate the use and storage of personally identifiable information, require notifications to borrowers if the security of their personal information is breached, or require us to encrypt personal information when it is transmitted and stored electronically. These evolving federal and state laws require the ongoing review of our operations, increase our compliance costs, and affect our ability to use and share information with third parties as part of our business.

We have implemented and will continue to implement policies, procedures and, as applicable, information technology systems in order to ensure ongoing compliance with the laws, rules and regulations applicable to our business. We have incurred and expect to incur ongoing operational costs to comply with such laws, rules and regulations.

Competition

Our comprehensive income depends, in large part, on our ability to acquire assets at favorable spreads over our borrowing costs. In acquiring our target assets, we compete with other REITs, specialty finance companies, savings and loan associations, banks, mortgage bankers, insurance companies, mutual funds, institutional investors, investment banking firms, financial institutions, governmental agencies, mortgage loan servicers, asset management firms and other entities. Some of these entities may not be subject to the same regulatory constraints that we are (*e.g.*, REIT compliance or maintaining an exemption under the 1940 Act). Many of our competitors are significantly larger than us, have access to greater capital and other resources and may have other advantages over us. In addition, some of our competitors may have higher risk tolerances or different risk assessments, which could allow them to consider a wider variety of investments and establish different counterparty relationships than us. Further, we may from time-to-time face competition from government agencies, such as the Federal Reserve, in connection with initiatives designed to stimulate the U.S. economy or the mortgage market. Market conditions may from time to time attract more competitors for certain of our target assets, which will not only affect the supply of assets but may also increase the competition for sources of financing for these assets. An increase in the competition for sources of funding could adversely affect the availability and cost of financing, and thereby adversely affect our financial results.

Available Information

Our website can be found at www.twoharborsinvestment.com. We make available, free of charge on our website, our annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and any amendments to those reports, as are filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act, as well as our proxy statement with respect to our annual meeting of stockholders, as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. Our Exchange Act reports filed with, or furnished to, the SEC are also available at the SEC's website at www.sec.gov. The content of any website referred to in this Annual Report on Form 10-K is not incorporated by reference into this Form 10-K unless expressly noted.

We also make available, free of charge, the charters for our Audit Committee, Compensation Committee, Nominating and Corporate Governance Committee and Risk Oversight Committee, as well as our Corporate Governance Guidelines, Code of Business Conduct and Ethics, Whistleblowing Procedures and Stockholder Communications Policy. Within the time period required by the SEC and the NYSE, we will post on our website any amendment to the Code of Ethics and any waiver applicable to any executive officer, director or senior officer (as defined in the Code of Ethics).

Our Investor Relations Department can be contacted at:

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Item 1A. Risk Factors

The following is a summary of the significant risk factors known to us that we believe could have a material adverse effect on our business, financial condition and results of operations. In addition to understanding the key risks described below, investors should understand that it is not possible to predict or identify all risk factors and, consequently, the following is not a complete discussion of all potential risks or uncertainties.

Risks Related to Our Business and Operations

Difficult conditions in the residential mortgage and real estate markets, the financial markets and the economy generally may adversely impact our business, results of operations and financial condition.

Our results of operations are materially affected by conditions in the residential mortgage and real estate markets, the financial markets and the economy generally. In past years, concerns about the COVID-19 pandemic, unemployment, the availability and cost of credit, rising government debt levels, inflation, energy costs, global supply chain disruptions, climate change, global economic lethargy, warfare, geopolitical unrest across various regions worldwide, European sovereign debt issues, U.S. budget debates, federal government shutdowns and international trade disputes, have from time to time contributed to increased volatility and uncertainty in the economy and financial markets. Adverse developments with respect to any of these markets may have an impact on new demand for homes and on homeowners' ability to make their mortgage payments, which may compress home ownership rates and weigh heavily on future home price performance. There is a strong correlation between home price growth rates (or losses) and mortgage loan delinquencies. Any stagnation in or deterioration of the residential mortgage or real estate markets may limit our ability to acquire our target assets on attractive terms or cause us to experience losses related to our assets.

The COVID-19 pandemic and government actions to mitigate its spread and economic impact could have a material adverse effect on our business, results of operations and financial condition.

The COVID-19 pandemic caused significant disruptions to the U.S. and global economies and contributed to volatility and negative pressure in financial markets. The impact of the pandemic and measures by governments and other authorities around the world to prevent its spread have negatively impacted our business, and the worsening of COVID-19 pandemic conditions, or the occurrence of any new public health crisis, may in the future negatively impact our business. The occurrence of any such event may, among other things, cause volatility in and disrupt the operations of financial markets, result in elevated delinquencies rates amongst mortgage loan borrowers, prompt large scale asset purchases by the Federal Reserve in order to stabilize the mortgage market and lead to the adoption of new rules and regulations to support impacted individuals, such as mortgage loan forbearance and modification programs. There can be no assurance as to how the COVID-19 pandemic, any new public health crisis or actions taken by governments and other authorities in response thereto may in the future affect our business or the efficiency, liquidity and stability of the financial and mortgage markets.

Our business model depends in part upon the continuing viability of Fannie Mae and Freddie Mac, or similar institutions, and any changes to their structure or creditworthiness could have an adverse impact on us.

We purchase Agency RMBS that are protected from the risk of default on the underlying mortgages by guarantees from Fannie Mae, Freddie Mac or, in the case of Ginnie Mae securities, the U.S. government. In 2008, the U.S. government and U.S. Treasury undertook a series of actions designed to stabilize these GSEs, including placing them into a federal conservatorship. In December 2009, the U.S. government committed virtually unlimited capital to ensure the continued existence of Fannie Mae and Freddie Mac. There is no assurance that such capital will continue to be available or that the GSEs will honor their guarantees or other obligations. If these GSEs fail to honor their guarantees, the value of any Agency RMBS guaranteed by the GSEs that we hold would decline.

The continued flow of residential mortgage-backed securities from the GSEs is essential to the operation of the mortgage markets in their current form, and crucial to our business model. A number of legislative proposals have been introduced in recent years that would phase out or reform the GSEs. It is not possible to predict the scope and nature of the actions that the U.S. government will ultimately take with respect to the GSEs. Although any phase out or reform would likely take several years to implement, if the structure of Fannie Mae or Freddie Mac were altered, or if they were eliminated altogether, the amount and type of Agency RMBS and other mortgage-related assets available for investment would be significantly affected. A reduction in supply of Agency RMBS and other mortgage-related assets would result in increased competition for those assets and likely lead to a significant increase in the price for our target assets. Additionally, market uncertainty with respect to the treatment of the GSEs could have the effect of reducing the actual or perceived quality of, and therefore the market value for, the Agency RMBS that we currently hold in our portfolio.

We operate in a highly regulated environment and may be adversely affected by changes in federal and state laws and regulations.

We operate in a highly regulated environment and are subject to the rules, regulations, approvals, licensing, reporting and examination requirements of various federal, state and local authorities. Any change in applicable federal, state or local laws, rules and regulations, or the interpretation or enforcement thereof, could have a substantial impact on our assets, operating expenses, business strategies and results of operations. Our inability or failure to comply with the rules, regulations or reporting requirements, to obtain or maintain approvals and licenses applicable to our businesses, or to satisfy annual or periodic examinations may impact our ability to do business and expose us to fines, penalties or other claims and, as a result, could harm our business.

Federal and state regulation of the mortgage industry is complex and constantly evolving, and changes to applicable rules, regulations and guidance may adversely impact our business.

Although we do not originate or service residential mortgage loans, we must comply with various federal and state rules, regulations and guidance as a result of owning MSR. These requirements include, among other things, the Dodd-Frank Act, the Gramm-Leach-Bliley Act and the CARES Act. We are also required to maintain qualifications, registrations and licenses in certain states in order to own certain of our assets. These requirements can and do change as statutes and regulations are enacted, promulgated or amended, or as regulatory guidance or interpretations evolve or change.

The Dodd-Frank Act and its implementing regulations, as well as other federal and state rules, regulations and guidance that govern mortgage servicing, combine to create a complex and constantly evolving regulatory environment, and the failure by us, or our servicers, to comply with these requirements may result in fines or the suspension or revocation of the qualifications, registrations and licenses necessary to operate as an owner of MSR. New or modified regulations at the federal or state level to address concerns on a variety of fronts, including impacts from the COVID-19 pandemic, potential impacts from climate change, fair and equitable access to housing and consumer data privacy and security concerns, could increase our operational expenses or otherwise enhance regulatory supervision and enforcement efforts. Ongoing efforts to enhance cooperation between federal and state regulators could also contribute to increased industry scrutiny.

We expect to continue to incur the operational and system costs necessary to maintain processes to ensure our compliance with applicable rules and regulations as well as to monitor compliance by our business partners. Additional rules and regulations implemented by the CFPB and state regulators, as well as any changes to existing rules, could lead to changes in the way we conduct our business and increased costs of compliance.

We operate in a highly competitive market and we may not be able to compete successfully.

We operate in a highly competitive market. Our profitability depends, in large part, on our ability to acquire a sufficient supply of our target assets at favorable prices. In acquiring assets, we compete with a variety of investors, including other mortgage REITs, specialty finance companies, public and private investment funds, asset managers, commercial and investment banks, broker-dealers, commercial finance and insurance companies, the GSEs, mortgage servicers and other financial institutions. In addition, the Federal Reserve has in the past committed to purchase unlimited amounts of Agency RMBS and other assets in order to stabilize the financial markets. Many of our competitors are substantially larger and may have greater financial, technical, marketing and other resources than we do. Competition for our target assets may lead to the price of such assets increasing and their availability decreasing, which may limit our ability to generate desired returns, reduce our earnings and, in turn, decrease the cash available for distribution to our stockholders.

Our executive officers and other key employees are critical to our success and the loss of any executive officer or key employee may materially adversely affect our business.

We operate in a highly specialized industry and our success is dependent upon the efforts, experience, diligence, skill, and deep knowledge of our business and historical operations of our executive officers and key employees, as well as their industry knowledge and relationships. The departure of any of our executive officers and/or key employees could have a material adverse effect on our operations and performance.

We may change any of our strategies, policies or procedures without stockholder consent.

We may change any of our strategies, policies or procedures with respect to investments, asset allocation, growth, operations, indebtedness, financing strategy and distributions at any time without the consent of stockholders. Changes in strategy could also result in the elimination of certain investments and business activities that we no longer view as attractive or in alignment with our business model. Shifts in strategy may increase our exposure to credit risk, interest rate risk, financing risk, default risk, regulatory risk and real estate market fluctuations. We also cannot assure you that we will be able to effectively execute on or realize the potential benefits of changes in strategy. Any such changes could adversely affect our financial condition, risk profile, results of operations, the market price of our common stock and our ability to make distributions to stockholders.

Our risk management policies and procedures may not be effective.

We have established and maintain risk management policies and procedures designed to identify, monitor and mitigate financial risks, such as credit risk, interest rate risk, prepayment risk and liquidity risk, as well as operational and compliance risks related to our business, assets and liabilities. These policies and procedures may not sufficiently identify all of the risks to which we are or may become exposed or mitigate the risks we have identified. Any expansion of our business activities may result in our being exposed to risks to which we have not previously been exposed or may increase our exposure to certain types of risks. Alternatively, any narrowing of our business activities may increase the concentration of our exposure to certain types of risk. Any failure to effectively identify and mitigate the risks to which we are exposed could have an adverse effect on our business, results of operations and financial condition.

Maintaining our exemptions from registration as an investment company under the 1940 Act imposes limits on our operations.

We intend to conduct our operations so as not to become required to register as an investment company under the 1940 Act. Section 3(a)(1)(A) of the 1940 Act defines an investment company as any issuer that is or holds itself out as being engaged primarily in the business of investing, reinvesting or trading in securities. We are organized as a holding company that conducts its businesses primarily through our subsidiaries. We intend to conduct the operations of Two Harbors and its subsidiaries so that they do not come within the definition of an investment company, either because less than 40% of the value of their total assets on an unconsolidated basis will consist of “investment securities” or because they meet certain other exceptions or exemptions set forth in the 1940 Act based on the nature of their business purpose and activities.

Certain of our subsidiaries may rely upon the exemption set forth in Section 3(c)(5)(C) of the 1940 Act, which is available for entities “primarily engaged in the business of purchasing or otherwise acquiring mortgages and other liens on and interests in real estate.” This exemption generally means that at least 55% of each such subsidiary’s portfolio must be comprised of qualifying assets and at least 80% of its portfolio must be comprised of qualifying assets and real estate-related assets under the 1940 Act. Qualifying assets for this purpose include mortgage loans and other assets, such as whole pool Agency and non-Agency RMBS, which are considered the functional equivalent of mortgage loans for the purposes of the 1940 Act. We expect each of our subsidiaries relying on Section 3(c)(5)(C) to invest at least 55% of its assets in whole pool Agency RMBS and other interests in real estate that constitute qualifying assets in accordance with SEC staff guidance and an additional 25% of its assets in either qualifying assets and other types of real estate related assets that do not constitute qualifying assets.

As a result of the foregoing restrictions, we are limited in our ability to make or dispose of certain investments. To the extent the SEC publishes new or different guidance with respect to these matters, we may be required to adjust our strategy accordingly. Although we monitor the portfolios of our subsidiaries that may rely on the Section 3(c)(5)(C) exemption periodically, there can be no assurance that such subsidiaries will be able to maintain this exemption.

Loss of our 1940 Act exemptions would adversely affect us, the market price of shares of our common stock and our ability to distribute dividends, and could result in the termination of certain of our financing or other agreements.

As described above, we intend to conduct operations so that we are not required to register as an investment company under the 1940 Act. Although we monitor our portfolio and our activities periodically, there can be no assurance that we will be able to maintain our exemption from investment company registration under the 1940 Act. Furthermore, any modifications to the 1940 Act exemption rules or interpretations may require us to change our business and operations in order for us to continue to rely on such exemption. If we were no longer able to qualify for exemptions from registration under the 1940 Act, we could be required to restructure our activities or the activities of our subsidiaries, including effecting sales of assets in a manner that, or at a time when, we would not otherwise choose, which could negatively affect the value of our common stock, the sustainability of our business model, and our ability to make distributions. Such sales could occur during adverse market conditions, and we could be forced to accept prices below that which we believe are appropriate. The loss of our 1940 Act exemptions may also result in a default under or permit certain of our counterparties to terminate the many repurchase agreements, financing facilities or other agreements we have in place.

The lack of liquidity of our assets may adversely affect our business, including our ability to value, finance and sell our assets.

We have and may in the future acquire assets or other instruments with limited or no liquidity, including securities, MSR and other instruments that are not publicly traded. Market conditions could also significantly and negatively affect the liquidity of our assets. It may be difficult or impossible to obtain third-party pricing on such illiquid assets and validating third-party pricing for illiquid assets may be more subjective than more liquid assets. Illiquid assets typically experience greater price volatility, as a ready market may not exist for such assets, and such assets can be more difficult to value.

Any illiquidity in our assets may make it difficult for us to sell such assets if the need or desire arises. The ability to quickly sell certain of our target assets, such as certain securities and MSR, may be constrained by a number of factors, including a small number of willing buyers, lack of transparency as to current market terms and price, and time delays resulting from the buyer’s desire to conduct due diligence on the assets, negotiation of a purchase and sale agreement, compliance with any applicable contractual or regulatory requirements, and for certain assets like MSR, operational and compliance considerations. Consequently, even if we identify a buyer for certain of our securities and MSR, there is no assurance that we would be able to sell such assets in a timely manner if the need or desire arises.

Assets that are illiquid are typically more difficult and costly to finance. As a result, we may be required to finance the assets at unattractive rates or hold them on our balance sheet without the use of leverage. Assets tend to become less liquid during times of financial stress, which is often the time that liquidity is most needed. To the extent that we use leverage to finance assets that later become illiquid, we may lose that leverage if the financing counterparty determines that the collateral is no longer sufficient to secure the financing, or the counterparty could reduce the amount of money that it is willing to lend against the asset.

We use leverage in executing our business strategy, which may adversely affect the return on our assets and may reduce cash available for distribution to our stockholders, as well as increase losses when economic conditions are unfavorable.

We use leverage to finance many of our investments and to enhance our financial returns. Through the use of leverage, we may acquire positions with market exposure significantly greater than the amount of capital committed to the transaction. It is not uncommon for investors in Agency RMBS to obtain leverage equal to ten or more times equity through the use of repurchase agreement financing. Subject to market conditions, we anticipate that we may deploy, on a debt-to-equity basis, up to ten times leverage on our Agency RMBS; however, there is no specific limit on the amount of leverage that we may use.

Leverage will magnify both the gains and the losses of our positions. Leverage will increase our returns as long as we earn a greater return on investments purchased with borrowed funds than our cost of borrowing such funds. However, if we use leverage to acquire an asset and the value of the asset decreases, the leverage will increase our losses. Even if the asset increases in value, if the asset fails to earn a return that equals or exceeds our cost of borrowing, leverage will decrease our returns.

We may be required to post large amounts of cash as collateral or margin to secure our leveraged positions, including on our MSR financing facilities. In the event of a sudden, precipitous drop in value of our financed assets, we might not be able to liquidate assets quickly enough to repay our borrowings, further magnifying losses. Even a small decrease in the value of a leveraged asset may require us to post additional margin or cash collateral. This may adversely affect our financial condition and results of operations and decrease the cash available to us for distributions to stockholders.

We depend on repurchase agreements and other credit facilities to execute our business plan and any limitation on our ability to access funding through these sources could have a material adverse effect on our results of operations, financial condition and business.

Our ability to purchase and hold assets is affected by our ability to secure repurchase agreements and other credit facilities on acceptable terms. We currently have repurchase agreements, revolving credit facilities and other credit facilities in place with numerous counterparties, but we can provide no assurance that lenders will continue to provide us with sufficient financing through the repurchase markets or otherwise. In addition, with respect to MSR financing, there can be no assurance that the GSEs will consent to such transactions or consent on terms consistent with prior MSR financing transactions. Because repurchase agreements and similar credit facilities are generally short-term commitments of capital, changing conditions in the financing markets may make it more difficult for us to secure continued financing during times of market stress.

Our ability to efficiently access financing through our repurchase agreements or otherwise may be adversely impacted by counterparty requirements regarding the type of assets that may be sold and the timing and process for such sales. Counterparty review and approval processes may delay the timing in which funding may be provided, or preclude funding altogether. For MSR, delays may also occur due to the need to obtain GSE approval of the collateral to be posted, the need for third-party valuations of the MSR collateral or the agreement of the relevant servicers to be party to the financing agreement. Our lenders also may revise their eligibility requirements for the types of assets they are willing to finance or the terms of such financings, based on, among other factors, the regulatory environment and their management of perceived risk.

Changes in the financing markets could adversely affect the marketability of the assets in which we invest, and this could negatively affect the value of our assets. If our lenders are unwilling or unable to provide us with financing, or if the financing is only available on terms that are uneconomical or otherwise not satisfactory to us, we could be forced to sell assets when prices are depressed. The amount of financing we receive under our repurchase agreements, revolving credit facilities or other credit facilities will be directly related to the lenders' valuation of the assets that secure the outstanding borrowings. If a lender determines that the value of the assets has decreased, it typically has the right to initiate a margin call, requiring us to transfer additional assets to such lender, or repay a portion of the outstanding borrowings. We may be forced to sell assets at significantly depressed prices to meet margin calls and to maintain liquidity at levels satisfactory to the counterparty, which could cause us to incur losses. Moreover, to the extent that we are forced to sell assets because of the availability of financing or changes in market conditions, other market participants may face similar pressures, which could exacerbate a difficult market environment and result in significantly greater losses on the sale of such assets. In an extreme case of market duress, a market may not exist for certain of our assets at any price.

Although we generally seek to reduce our exposure to lender concentration-related risk by entering into financing relationships with multiple counterparties, we are not required to observe specific diversification criteria, except as may be set forth in the investment guidelines adopted by our board of directors. To the extent that the number of or net exposure under our lending arrangements may become concentrated with one or more lenders, the adverse impacts of defaults or terminations by such lenders may be significantly greater.

Our inability to meet certain financial covenants related to our repurchase agreements, revolving credit facilities or other credit facilities could adversely affect our financial condition, results of operations and cash flows.

In connection with certain of our repurchase agreements, revolving credit facilities and other credit facilities, we are required to comply with certain financial covenants, the most restrictive of which are disclosed within Item 7, “*Management’s Discussion and Analysis of Financial Conditions and Results of Operations*” of this Annual Report on Form 10-K. Compliance with these financial covenants will depend on market factors and the strength of our business and operating results. Failure to comply with our financial covenants could result in an event of default, termination of the lending facility, acceleration of all amounts owing under the lending facility, and may give the counterparty the right to exercise certain other remedies under the lending agreement, including without limitation the sale of the asset subject to repurchase at the time of default, unless we were able to negotiate a waiver. In addition, we may be subject to cross-default provisions under certain financing facilities that could cause an event of default under such financing facilities to be triggered by events of default under other financing arrangements.

If a counterparty to a repurchase agreement defaults on its obligation to resell the underlying security back to us at the end of the repurchase agreement term, or if we default on our obligations under the repurchase agreement, we may incur losses.

When we enter into repurchase agreements, we sell the assets to lenders and receive cash from the lenders. The lenders are obligated to resell the same assets back to us at the end of the term of the repurchase agreement. Because the cash that we receive from the lender when we initially sell the assets to the lender is less than the value of those assets (the difference being the “haircut”), if the lender defaults on its obligation to resell the same assets back to us, we would incur a loss on the repurchase agreement equal to the amount of the haircut (assuming there was no change in the value of the securities). Further, if we default on our obligations under a repurchase agreement, the lender will be able to terminate the repurchase agreement and may cease entering into any other repurchase agreements with us. If a default occurs under any of our repurchase agreements and a lender terminates one or more of its repurchase agreements, we may need to enter into replacement repurchase agreements with different lenders. There can be no assurance that we will be successful in entering into such replacement repurchase agreements on the same terms as the repurchase agreements that were terminated or at all.

Our rights under our repurchase agreements are subject to the effects of bankruptcy laws in the event of the bankruptcy or insolvency of us or our lenders under the repurchase agreements.

In the event of our insolvency or bankruptcy, certain repurchase agreements may qualify for special treatment under the U.S. Bankruptcy Code, the effect of which, among other things, would be to allow the lender under the applicable repurchase agreement to avoid the automatic stay provisions of the U.S. Bankruptcy Code and to foreclose on the collateral agreement without delay. In the event of the insolvency or bankruptcy of a lender during the term of a repurchase agreement, the lender may be permitted, under applicable insolvency laws, to repudiate the contract, and our claim against the lender for damages may be treated simply as an unsecured creditor claim. In addition, if the lender is a broker or dealer subject to the Securities Investor Protection Act of 1970, or an insured depository institution subject to the Federal Deposit Insurance Act, our ability to exercise our rights to recover our assets under a repurchase agreement or to be compensated for any damages resulting from the lender's insolvency may be further limited by those statutes. These claims would be subject to significant delay and, if and when received, may be substantially less than the damages we actually incur.

The impairment or negative performance of other financial institutions could adversely affect us.

We have exposure to and routinely execute transactions with numerous counterparties in the financial services industry, including broker-dealers, commercial banks, investment banks, investment funds and other institutions. The operations of U.S. and global financial services institutions are highly interconnected and a decline in the financial condition of one or more financial services institutions may expose us to credit losses or defaults, limit our access to liquidity or otherwise disrupt the operation of our businesses. While we regularly assess our exposure to different counterparties, the performance and financial strength of specific institutions are subject to rapid change, the timing and extent of which cannot be known.

We may not have the ability to raise funds necessary to pay principal amounts owed upon maturity of our outstanding convertible senior notes or to purchase such notes upon a fundamental change.

We have issued and outstanding \$287.5 million aggregate principal amount of 6.25% convertible senior notes due January 2026. To the extent these notes are not converted into common stock by the noteholders prior to their maturity date, we will be obligated to repay the principal amount of all outstanding notes upon maturity. In addition, if a fundamental change occurs (as described in the supplemental indenture governing the notes), noteholders have the right to require us to purchase for cash any or all of their notes. We may not have sufficient funds available at the time we are required to repay principal amounts or to purchase the notes upon a fundamental change, and we may not be able to raise additional capital or arrange necessary financing in order to make such payments on terms that are acceptable to us, if at all.

An increase in our borrowing costs relative to the interest that we receive on our leveraged assets may adversely affect our profitability.

As our repurchase agreements and other short-term borrowings mature, we must enter into new borrowings, find other sources of liquidity or sell assets. An increase in short-term interest rates at the time that we seek to enter into new borrowings would reduce the spread between the returns on our assets and the cost of our borrowings. This would adversely affect the returns on our assets, which might reduce earnings and, in turn, cash available for distribution to stockholders.

We are highly dependent on information technology, and system failures or security breaches could disrupt our business.

Our business is highly dependent on information technology. In the ordinary course of our business, we may store sensitive data, including our proprietary business information and that of our business partners, and personally identifiable information of mortgage borrowers, on our networks. The secure maintenance and transmission of this information is critical to our operations. Computer malware, viruses, ransomware and phishing attacks remain widespread and are increasingly sophisticated. We are from time to time the target of attempted cyber threats. We continuously monitor and develop our information technology networks and infrastructure to prevent, detect, address and mitigate the risk of unauthorized access, misuse, computer viruses and other events that could have a security impact. Despite these security measures, our information technology and infrastructure may be vulnerable to attacks by hackers or breached due to employee error, malfeasance or other disruptions. Any such breach could compromise our networks and the information stored there could be accessed, publicly disclosed, lost or stolen. Any such access, disclosure or other loss of information could result in legal claims or proceedings, liability under laws that protect the privacy of personal information, regulatory penalties, disruption to our operations, or disruption to our trading activities or damage our reputation, which could have a material adverse effect on our financial results and negatively affect the market price of our common stock and our ability to pay dividends to stockholders.

The resources required to protect our information technology and infrastructure, and to comply with the laws and regulations related to data and privacy protection, are subject to uncertainty. Even in circumstances where we are able to successfully protect such technology and infrastructure from attacks, we may incur significant expenses in connection with our responses to such attacks. Government and regulatory scrutiny of the measures taken by companies to protect against cybersecurity attacks has resulted in heightened cybersecurity requirements and additional regulatory oversight. Any of the foregoing may adversely impact our results of operations and financial condition.

We enter into hedging transactions that expose us to contingent liabilities in the future, which may adversely affect our financial results or cash available for distribution to stockholders.

We engage in transactions intended to hedge against various risks to our portfolio, including the exposure to changes in interest rates. The extent of our hedging activity varies in scope based on, among other things, the level and volatility of interest rates, the type of assets held and other market conditions. Although these transactions are intended to reduce our exposure to various risks, hedging may fail to adequately protect or could adversely affect us because, among other things: available hedges may not correspond directly with the risks for which protection is sought; the duration of the hedge may not match the duration of the related liability; the amount of income that a REIT may earn from certain hedging transactions is limited by U.S. federal income tax provisions; the credit quality of a hedging counterparty may be downgraded to such an extent that it impairs our ability to sell or assign our side of the hedging transaction; and the hedging counterparty may default on its obligations.

Subject to maintaining our qualification as a REIT and satisfying the criteria for no-action relief from the Commodity Futures Trading Commission's commodity pool operator registration rules, there are no current limitations on the hedging transactions that we may undertake. Our hedging transactions could require us to fund large cash payments in certain circumstances (e.g., the early termination of the hedging instrument caused by an event of default or other early termination event, or a demand by a counterparty that we make increased margin payments). Our ability to fund these obligations will depend on the liquidity of our assets and our access to capital at the time. The need to fund these obligations could adversely affect our financial condition. Further, hedging transactions, which are intended to limit losses, may actually result in losses, which would adversely affect our earnings and could in turn reduce cash available for distribution to stockholders.

Our financial results may experience greater fluctuations due to our decision not to elect hedge accounting treatment on our derivative instruments.

We have elected to not qualify for hedge accounting treatment under Accounting Standards Codification (ASC) 815, *Derivatives and Hedging*, or ASC 815, for our current derivative instruments. The economics of our derivative hedging transactions are not affected by this election; however, our earnings (losses) for U.S. generally accepted accounting principles, or U.S. GAAP, purposes may be subject to greater fluctuations from period to period as a result of this accounting treatment for changes in fair value of derivative instruments or for the accounting of the underlying hedged assets or liabilities in our financial statements, as it does not necessarily align with the accounting used for derivative instruments.

We depend on third-party service providers, including mortgage loan servicers, for a variety of services related to our business. We are, therefore, subject to the risks associated with third-party service providers.

We depend on a variety of services provided by third-party service providers related to our investments in Agency RMBS and MSR, as well as for general operating purposes. For example, we rely on the mortgage servicers who service the mortgage loans underlying our Agency RMBS and MSR to, among other things, collect principal and interest payments on such mortgage loans and perform loss mitigation services in accordance with applicable laws and regulations. Mortgage servicers and other service providers, such as trustees, bond insurance providers, due diligence vendors and document custodians, may fail to perform or otherwise not perform in a manner that promotes our interests.

Recent enhancements have been made to legislation and regulations intended to assist borrowers struggling to continue making their contractual mortgage payments. These requirements may delay, reduce or prevent foreclosures through, among other things, loan modifications and other loss mitigation measures, but they may also result in reduced value of the related mortgage loans, including those underlying our Agency RMBS and MSR. Mortgage servicers may be required or otherwise incentivized by federal or state governments to pursue such actions designed to assist mortgagors, including loan modifications, forbearance plans and other actions intended to prevent foreclosure. While these actions may be beneficial to borrowers, they may not be in the best interests of the beneficial owners of the mortgage loans. As a consequence of the foregoing, our business, financial condition and results of operations may be adversely affected.

In addition, in connection with our ownership of MSR, we possess personally identifiable information that is shared with third-party service providers, including our mortgage servicers, as required or permitted by law. In the event the information technology networks and infrastructure of our third-party service providers is breached, we may be liable for losses suffered by individuals whose personal information is stolen as a result of such breach and any such liability could be material. Even if we are not liable for such losses, any breach of these third-party systems could expose us to material costs related to notifying affected individuals or other parties and providing credit monitoring services, as well as to regulatory fines or penalties.

We may be subject to fines, penalties or other enforcement actions based on the conduct of third-party mortgage loan servicers who service the loans underlying the MSR we acquire or our failure to conduct appropriate oversight of these servicers.

We contract with third-party mortgage loan servicers to perform the actual day-to-day servicing obligations on the mortgage loans underlying our MSR. We and the mortgage loan servicers operate in a highly regulated industry and are required to comply with various federal, state and local laws and regulations, which includes the obligation to oversee our third-party mortgage servicers to assess their compliance with these laws and regulations. Although the servicing activity is conducted primarily in the name of the mortgage loan servicers, to the extent these servicers fail to comply with applicable laws and regulations, we could be subject to governmental actions such as denial, suspension or revocation of licenses, be fined or otherwise subject to regulatory enforcement action, or incur losses or be subject to lawsuits.

Our ability to own and manage MSR is subject to terms and conditions established by the GSEs, which are subject to change.

Our subsidiary's continued approval from the GSEs to own and manage MSR is subject to compliance with each of their respective selling and servicing guidelines, minimum capital requirements and other conditions they may impose from time to time at their discretion. Failure to meet such guidelines and conditions could result in the unilateral termination of our subsidiary's approved status by one or more GSEs or result in the acceleration and termination of our MSR financing facilities. In addition, the implementation of more restrictive or operationally intensive guidance may increase the costs associated with owning and managing MSR as well as our ability to finance MSR.

Our securitization activities expose us to risk of litigation, which may materially and adversely affect our business and financial condition.

In connection with our securitization transactions, we prepare disclosure documentation, including term sheets and offering memorandums, which contain disclosures regarding the securitization transactions and the assets securitized. If our disclosure documentation is alleged or found to contain inaccuracies or omissions, we may be liable under federal securities laws, state securities laws or other applicable laws for damages to third parties that invest in these securitization transactions, including in circumstances in which we relied on a third party in preparing accurate disclosures, or we may incur other expenses and costs in connection with disputing these allegations or settling claims.

We may be subject to representation and warranty risk in our capacity as an owner of MSR as well as in connection with our prior securitization transactions and our sales of MSR and other assets.

The MSR we acquire may be subject to existing representations and warranties made to the applicable investor (including, without limitation, the GSEs) regarding, among other things, the origination and prior servicing of those mortgage loans, as well as future servicing practices following our acquisition of such MSR. If such representations and warranties are inaccurate, we may be obligated to repurchase certain mortgage loans or indemnify the applicable investor for any losses suffered as a result of the origination or prior servicing of the mortgage loans. As such, the applicable investor will have direct recourse to us for such origination and/or prior servicing issues.

In connection with our prior securitization transactions and with the sales of our MSR and other assets from time to time, we may have been or may be required to make representations and warranties to the purchasers of the assets regarding certain characteristics of those assets. If our representations and warranties are inaccurate, we may be obligated to repurchase the assets or indemnify the applicable purchaser, which may result in a loss. Even if we obtain representations and warranties from the parties from whom we acquired the asset, as applicable, they may not correspond with the representations and warranties we make or may otherwise not protect us from losses. Additionally, the loan originator or other parties from whom we acquired the MSR may be insolvent or otherwise unable to honor their respective indemnification or repurchase obligations for breaches of representation and warranties.

Completion of the proposed acquisition of RoundPoint Mortgage Servicing Corporation remains subject to conditions that we cannot control.

Our proposed acquisition of RoundPoint Mortgage Servicing Corporation, or RoundPoint, is subject to various closing conditions, including the receipt of certain regulatory and GSE approvals. There are no assurances that all of the conditions necessary to complete the acquisition of RoundPoint will be satisfied or that the conditions will be satisfied within the anticipated time frame.

We may fail to realize all of the expected benefits of the proposed acquisition of RoundPoint or those benefits may take longer to realize than expected.

The full benefits of the proposed acquisition of RoundPoint may not be realized as expected or may not be achieved within the anticipated time frame, or at all. Failure to achieve the anticipated benefits of the acquisition of RoundPoint could adversely affect our business, results of operations and financial condition.

In addition, we have devoted and expect to continue to devote significant attention and resources prior to closing to prepare for the post-closing operation of the combined company. Following the closing, we will be required to devote significant attention and resources to successfully integrate RoundPoint's operations into our existing business operations. This integration process may disrupt our business and, if ineffective, would limit the anticipated benefits of the acquisition of RoundPoint.

Legal matters related to the termination of our Management Agreement with PRCM Advisers may adversely affect our business, results of operations, and/or financial condition.

On August 14, 2020, our Management Agreement with PRCM Advisers terminated and we thereafter became a self-managed company. In connection with the termination of our Management Agreement, PRCM Advisers filed a complaint in federal court that alleges, among other things, the misappropriation of trade secrets in violation of both the Defend Trade Secrets Act and New York common law, breach of contract, breach of the implied covenant of good faith and fair dealing, unfair competition and business practices, unjust enrichment, conversion, and tortious interference with contract. The complaint seeks, among other things, an order enjoining the company from making any use of or disclosing PRCM Advisers' trade secret, proprietary, or confidential information; damages in an amount to be determined at a hearing and/or trial; disgorgement of the company's wrongfully obtained profits; and fees and costs incurred by PRCM Advisers in pursuing the action. Our board of directors believes the complaint is without merit and that the company has complied with the terms of the Management Agreement. However, the results of litigation are inherently uncertain. It is possible that a court could enjoin us from using certain intellectual property. In addition, any damages or costs and fees that may be awarded to PRCM Advisers related to the litigation may be significant. While we dispute and intend to vigorously defend against the claims set forth in the complaint, it is possible that the results of the litigation with PRCM Advisers may adversely affect our business, results of operations, and/or financial condition.

Risks Related To Our Assets

Declines in the market values of our assets may adversely affect our results of operations and financial condition.

A substantial portion of our assets are classified for accounting purposes as "available-for-sale." Changes in the market values of those assets will be directly charged or credited to stockholders' equity. As a result, a decline in values may result in connection with factors that are out of our control and adversely affect our book value. Moreover, if the decline in value of an available-for-sale security is other than temporary, such decline will reduce our earnings.

In addition, some of the assets in our portfolio are not publicly traded. The fair value of securities and other assets that are not publicly traded may not be readily determinable. We value these assets quarterly at fair value, as determined in accordance with ASC 820, *Fair Value Measurements and Disclosures*, which may include unobservable inputs. Because such valuations are subjective, the fair value of certain of our assets may fluctuate over short periods of time and our determinations of fair value may differ materially from the values that would have been used if a ready market for these securities existed. We may be adversely affected if our determinations regarding the fair value of these assets are materially higher than the values that we ultimately realize upon their disposal.

Changes in mortgage prepayment rates may adversely affect the value of our assets.

The value of our assets is affected by prepayment rates on mortgage loans, and our investment strategy includes making investments based on our expectations regarding prepayment rates. A prepayment rate is the measurement of how quickly borrowers pay down the unpaid principal balance of their loans or how quickly loans are otherwise brought current, modified, liquidated or charged off. With respect to our securities portfolio, typically the value of a mortgage-backed security includes market assumptions regarding the speed at which the underlying mortgages will be prepaid. Faster than expected prepayments could adversely affect our profitability, including in the following ways:

- We may purchase securities that have a higher interest rate than the market interest rate at the time. In exchange for this higher interest rate, we may pay a premium over the par value to acquire the security. In accordance with U.S. GAAP, we may amortize this premium over the estimated term of the security. If the security is prepaid in whole or in part prior to its maturity date, however, we may be required to expense the premium that was prepaid at the time of the prepayment.
- A substantial portion of our adjustable-rate Agency RMBS may bear interest rates that are lower than their fully indexed rates, which are equivalent to the applicable index rate plus a margin. If an adjustable-rate security is prepaid prior to or soon after the time of adjustment to a fully-indexed rate, we will have held that security while it was least profitable and lost the opportunity to receive interest at the fully indexed rate over the remainder of its expected life.
- If we are unable to acquire new Agency RMBS similar to the prepaid security, our financial condition, results of operations and cash flows could suffer.

Changes in prepayment rates also significantly affect the value of MSR because such rights are priced on an assumption of a stable repayment rate. If the prepayment rate is significantly greater than expected, the fair value of the MSR could decline and we may be required to record a non-cash charge, which would have a negative impact on our financial results. Furthermore, a significant increase in the prepayment rate could materially reduce the ultimate cash flows we receive from MSR, and we could ultimately receive substantially less than what we paid for such assets.

Prepayment rates may be affected by a number of factors including mortgage rates, the availability of mortgage credit, the relative economic vitality of the area in which the related properties are located, the remaining life of the loans, the size of the remaining loans, the servicing of mortgage loans, changes in tax laws, other opportunities for investment, homeowner mobility and other economic, social, geographic, demographic and legal factors. Consequently, prepayment rates cannot be predicted with certainty. If we make erroneous assumptions regarding prepayment rates in connection with our investment decisions, we may experience significant losses.

Our delayed delivery transactions, including TBAs, subject us to certain risks, including price risks and counterparty risks.

We may purchase Agency RMBS through delayed delivery transactions, including TBAs. In a delayed delivery transaction, we enter into a forward purchase agreement with a counterparty to purchase either (i) an identified Agency RMBS, or (ii) a to-be-issued (or “to-be-announced”) Agency RMBS with certain terms. As with any forward purchase contract, the value of the underlying Agency RMBS may decrease between the contract date and the settlement date. Furthermore, a transaction counterparty may fail to deliver the underlying Agency RMBS at the settlement date.

It may be uneconomical to roll our TBA dollar roll transactions or we may be unable to meet margin calls on our TBA contracts, which could negatively affect our financial condition and results of operations.

We utilize TBA dollar roll transactions as a means of investing in and financing Agency RMBS. TBA contracts enable us to purchase or sell, for future delivery, Agency RMBS with certain principal and interest terms and certain types of collateral, but the specific securities to be delivered are not identified until shortly before the TBA settlement date. Prior to settlement of the TBA contract we may choose to move the settlement of the securities to a later date by entering into an offsetting position (referred to as a “pair off”), net settling the paired off positions for cash, and simultaneously purchasing a similar TBA contract for a later settlement date, collectively referred to as a “dollar roll”. The Agency RMBS purchased for a forward settlement date under the TBA contracts are typically priced at a discount to Agency RMBS for settlement in the current month. This difference (or discount) is referred to as the “price drop.” The price drop is the economic equivalent of net interest carry income on the underlying Agency RMBS over the roll period (interest income less implied financing cost) and is commonly referred to as a “dollar roll income.” Consequently, dollar roll transactions and such forward purchase of Agency RMBS represent a form of financing and increase our “at-risk” leverage.

Under certain market conditions, TBA dollar roll transactions may result in negative carry income whereby the Agency RMBS purchased for a forward settlement date under TBA contract are priced at a premium to Agency RMBS for settlement in the current month. Under such conditions, it may be uneconomical to roll our TBA positions prior to the settlement date, and we may have to take physical delivery of the underlying securities and settle our obligations for cash. We may not have sufficient funds or alternative financing sources available to settle such obligations. In addition, pursuant to the margin provisions established by the Mortgage-Backed Securities Division (MBSD) of the FICC, we are subject to margin calls on our TBA contracts. Further, our prime brokerage agreements may require us to post additional margin above the levels established by the MBSD. Any failure to procure adequate financing to settle our obligations or meet margin calls under our TBA contracts could result in defaults or force us to sell assets under adverse market conditions or through foreclosure and adversely affect our financial condition and results of operations.

Increases in interest rates could adversely affect the value of our assets and cause our interest expense to increase.

Our operating results depend in large part on the difference between the income from our assets and financing costs. We anticipate that, in many cases, the income from our assets will respond more slowly to interest rate fluctuations than the cost of our borrowings. Consequently, changes in interest rates, particularly short-term interest rates, may significantly influence our financial results.

Interest rates are highly sensitive to many factors, including governmental monetary and tax policies, domestic and international economic and political considerations and other factors beyond our control. We cannot predict the impact that any future actions or non-actions by the Federal Reserve with respect to the federal funds rate or otherwise may have on the markets or the economy. Interest rate fluctuations present a variety of risks, including the risk of a narrowing of the difference between asset yields and borrowing rates, flattening or inversion of the yield curve and fluctuating prepayment rates.

We endeavor to hedge our exposure to changes in interest rates, but there can be no assurances that our hedges will be successful, or that we will be able to enter into or maintain such hedges. As a result, interest rate fluctuations can cause significant losses, reductions in income, and limitations on our cash available for distribution to stockholders.

An increase in interest rates may cause a decrease in the availability of certain of our target assets, which could adversely affect our ability to acquire target assets that satisfy our investment objectives and to generate income and pay dividends.

Rising interest rates generally reduce the demand for mortgage loans due to the higher cost of borrowing. A reduction in the volume of mortgage loans originated may affect the volume of certain target assets available to us, which could adversely affect our ability to acquire assets that satisfy our investment and business objectives. Rising interest rates may also cause certain target assets that were issued prior to an interest rate increase to provide yields that are below prevailing market interest rates. If rising interest rates cause us to be unable to acquire a sufficient volume of our target assets with a yield that is above our borrowing cost, our ability to satisfy our investment objectives and to generate income and pay dividends may be materially and adversely affected.

The value of our Agency RMBS and MSR may be adversely affected by deficiencies in servicing and foreclosure practices, as well as related delays in the foreclosure process.

Deficiencies in servicing and foreclosure practices among servicers of residential mortgage loans have raised and may in the future raise concerns relating to such practices. The integrity of servicing and foreclosure processes is critical to the value of our Agency RMBS and MSR, and our financial results could be adversely affected by deficiencies in the conduct of those processes. For example, delays in the foreclosure process that may result from improper servicing practices may adversely affect the values of, and our losses on, our mortgage-related assets. Foreclosure delays may also result in the curtailment of payments to the GSEs, thereby resulting in additional expense and reducing the amount of funds available for distribution to investors. We continue to monitor and review the issues raised by improper servicing practices. While we cannot predict exactly how servicing, loss mitigation and foreclosure matters or any resulting litigation, regulatory actions or settlement agreements will affect our business, there can be no assurance that these matters will not have an adverse impact on our results of operations and financial condition.

We are required to make servicing advances that can be subject to delays in recovery or may not be recoverable.

During any period in which a borrower is not making payments on a loan underlying our MSR, we may be required under our servicing agreements with the GSEs to advance our own funds to meet some combination of contractual principal and interest remittance requirements, property taxes and insurance premiums, legal expenses and other protective advances. We may also be required under these agreements to advance funds to maintain, repair and market real estate properties. In certain situations, our contractual obligations may require us to make certain advances for which we may not be reimbursed. In addition, in the event a loan underlying our MSR defaults or becomes delinquent, or the mortgagor is allowed to enter into a forbearance, the repayment of advances may be delayed, which may adversely affect our liquidity. Any significant increase in required servicing advances, material delays in our receipt of advance reimbursements or the ineligibility of advances for reimbursement could have an adverse impact on our financial condition and cash flows.

Risks Related to Our Organization and Structure

Certain provisions of Maryland law could inhibit changes in control.

Certain provisions of the Maryland General Corporation Law, or MGCL, may have the effect of deterring a third party from making a proposal to acquire us or of impeding a change in control under circumstances that otherwise could provide the holders of shares of our common stock with the opportunity to realize a premium over the then-prevailing market price of such shares. We are subject to the “business combination” provisions of the MGCL that, subject to limitations, prohibit certain business combinations between our company and an “interested stockholder” (as defined under the MGCL) or an affiliate thereof for five years after the most recent date on which the stockholder becomes an interested stockholder. In addition, the “unsolicited takeover” provisions of the MGCL (Title 3, Subtitle 8 of the MGCL) permit our board of directors, without stockholder approval and regardless of what is currently provided in our charter or bylaws, to implement takeover defenses, some of which we do not currently have. These provisions may have the effect of inhibiting a third party from making an acquisition proposal for our company or of delaying, deferring or preventing a change in control of our company.

Our authorized but unissued shares of common and preferred stock and the ownership limitations contained in our charter may prevent a change in control.

Our charter authorizes Two Harbors to issue additional authorized but unissued shares of common or preferred stock. In addition, our board of directors may, without stockholder approval, amend our charter to increase or decrease the aggregate number of shares of our stock or the number of shares of stock of any class or series that Two Harbors has the authority to issue and classify or reclassify any unissued shares of common or preferred stock and set the terms of the classified or reclassified shares. As a result, our board may establish a series of shares of common or preferred stock that could delay or prevent a transaction or a change in control that might be in the best interests of stockholders.

In addition, our charter contains restrictions limiting the ownership and transfer of shares of our common stock and other outstanding shares of capital stock. The relevant sections of our charter provide that, subject to certain exceptions, ownership of shares of our common stock by any person is limited to 9.8% by value or by number of shares, whichever is more restrictive, of our outstanding shares of common stock (the common share ownership limit), and no more than 9.8% by value or number of shares, whichever is more restrictive, of our outstanding capital stock (the aggregate share ownership limit). The common share ownership limit and the aggregate share ownership limit are collectively referred to herein as the “ownership limits.” These charter provisions will restrict the ability of persons to purchase shares in excess of the relevant ownership limits.

Our charter contains provisions that make removal of our directors difficult, which could make it difficult for stockholders to effect changes in management.

Our charter provides that, subject to the rights of any series of preferred stock, a director may be removed only by the affirmative vote of at least two-thirds of all the votes entitled to be cast generally in the election of directors. Our charter and bylaws provide that vacancies generally may be filled only by a majority of the remaining directors in office, even if less than a quorum. These requirements make it more difficult to change management by removing and replacing directors and may prevent a change in control that is in the best interests of stockholders.

Our rights and stockholders’ rights to take action against directors and officers are limited, which could limit recourse in the event of actions not in the best interests of stockholders.

As permitted by Maryland law, our charter eliminates the liability of its directors and officers to Two Harbors and its stockholders for money damages, except for liability resulting from: actual receipt of an improper benefit or profit in money, property or services; or a final judgment based upon a finding of active and deliberate dishonesty by the director or officer that was material to the cause of action adjudicated.

In addition, pursuant to our charter we have agreed contractually to indemnify our present and former directors and officers for actions taken by them in those capacities to the maximum extent permitted by Maryland law. Further, our bylaws require us to indemnify each present or former director or officer, to the maximum extent permitted by Maryland law, who is made, or threatened to be made, a party to any proceeding because of his or her service to Two Harbors. As part of these indemnification obligations, we may be obligated to fund the defense costs incurred by our directors and officers.

Our amended and restated bylaws designate certain Maryland courts as the sole and exclusive forum for certain types of actions and proceedings that may be initiated by our stockholders.

Our amended and restated bylaws provide that, unless we consent in writing to the selection of an alternative forum, the Circuit Court for Baltimore City, Maryland, or, if that Court does not have jurisdiction, the United States District Court for the District of Maryland, Baltimore Division, shall be the sole and exclusive forum for the following: any derivative action or proceeding brought on behalf of the company; any action asserting a claim of breach of any duty owed by any of our directors, officers or other employees to the company or to our stockholders; any action asserting a claim against the company or any of our directors, officers or other employees arising pursuant to any provision of the MGCL or our charter or bylaws; or any action asserting a claim against the company or any of our directors, officers or other employees that is governed by the internal affairs doctrine. This choice of forum provision may limit a stockholder's ability to bring a claim in a judicial forum that the stockholder believes is favorable for disputes with us or our directors, officers or other employees, which may discourage lawsuits against us and our directors, officers and employees.

Risks Related to Our Securities

Future issuances and sales of shares of our common stock may depress the market price of our common stock or have adverse consequences for our stockholders.

We may issue additional shares of our common stock in public offerings, private placements as well as through equity awards to our directors, officers and employees pursuant to our Second Restated 2009 Equity Incentive Plan or our 2021 Equity Incentive Plan. Additionally, shares of our common stock have also been reserved for issuance in connection with the conversion of our 6.25% convertible senior notes due 2026 and our Series A, Series B and Series C preferred stock. We cannot predict the effect, if any, of future issuances or sales of our common stock on the market price of our common stock. We also cannot predict the amounts and timing of equity awards to be issued pursuant to our equity incentive plans, nor can we predict the amount and timing of any conversions of our convertible senior notes due January 2026 or our Series A, Series B and Series C preferred stock into shares of our common stock. Any stock offerings, awards or conversions resulting in the issuance of substantial amounts of common stock, or the perception that such awards or conversions could occur, may adversely affect the market price for our common stock.

Any future offerings of our securities could dilute our existing stockholders and may rank senior for purposes of dividend and liquidating distributions.

We may from time to time issue securities which may rank senior and/or be dilutive to our stockholders. For example, our senior unsecured notes due January 2026 are convertible into shares of our common stock at the election of the noteholder, and our Series A, Series B and Series C preferred shares may be converted into shares of our common stock following the occurrence of certain events, as set forth in the articles supplementary for each series. Any election by noteholders or preferred stockholders to convert their notes or preferred shares into shares of our common stock will dilute the interests of other common stockholders.

In the future, we may again elect to raise capital through the issuance of convertible or non-convertible debt or common or preferred equity securities. Upon liquidation, holders of our debt securities and preferred stock, if any, and lenders with respect to other borrowings will be entitled to our available assets prior to the holders of our common stock. Convertible debt and convertible preferred stock may have anti-dilution provisions which are unfavorable to our common stockholders. Because our decision to issue debt or equity securities in any future offering will depend on market conditions and other factors beyond our control, we cannot predict or estimate the amount, timing or nature of our future offerings. Thus, our stockholders bear the risk of our future offerings reducing the market price of our common stock and diluting the value of their holdings.

We have not established a minimum distribution payment level and we cannot assure you of our ability to pay distributions in the future.

We intend to continue to pay quarterly distributions and to make distributions to our stockholders in an amount such that we distribute all or substantially all of our REIT taxable income in each year. We have not established a minimum distribution payment level and our ability to pay distributions may be adversely affected by a number of factors, including the risk factors described herein. All distributions will be made, subject to Maryland law, at the discretion of our board of directors and will depend on our earnings, our financial condition, any debt covenants, maintenance of our REIT qualification and other factors as our board of directors may deem relevant. We cannot assure you that we will achieve results that will allow us to make a specified level of cash distributions and distributions in future periods may be significantly lower than in prior quarterly periods.

The market price of our common stock could fluctuate and could cause you to lose a significant part of your investment.

The market price of our common stock may be highly volatile. In addition, the trading volume in our common stock may fluctuate and cause significant price variations to occur. If the market price of our common stock declines significantly, you may be unable to resell your shares of our common stock at a gain. We cannot assure you that the market price of our common stock will not fluctuate or decline significantly in the future.

The market price of our common stock may be influenced by many factors, including without limitation: changes in financial estimates by analysts; fluctuations in our results of operations or financial condition or the results of operations or financial condition of companies perceived to be similar to us; general economic and financial and real estate market conditions; changes in market valuations of similar companies; monetary policy and regulatory developments in the U.S.; and additions or departures of key personnel.

Tax Risks

Our failure to qualify as a REIT would subject us to U.S. federal income tax and potentially increased state and local taxes, which would reduce the amount of our income available for distribution to our stockholders.

We operate in a manner that will enable us to qualify as a REIT and have elected to be taxed as a REIT for U.S. federal income tax purposes commencing with our taxable year ended December 31, 2009. We have not requested and do not intend to request a ruling from the Internal Revenue Service, or IRS, that we qualify as a REIT. The U.S. federal income tax laws governing REITs and the assets they hold are complex, and judicial and administrative interpretations of the U.S. federal income tax laws governing REIT qualification are limited. To continue to qualify as a REIT, we must meet, on an ongoing basis, various tests regarding the nature of our assets and income, the ownership of our outstanding shares, and the amount of our distributions. Moreover, new legislation, court decisions, administrative guidance or actions by federal agencies or others to modify or re-characterize our assets may make it more difficult or impossible for us to qualify as a REIT. Thus, while we intend to operate so that we qualify as a REIT, no assurance can be given that we will so qualify for any particular year.

If we fail to qualify as a REIT in any taxable year, and do not qualify for certain statutory relief provisions, we would be required to pay U.S. federal income tax on our taxable income, and distributions to our stockholders would not be deductible by us in determining our taxable income. Furthermore, if we fail to maintain our qualification as a REIT, we no longer would be required to distribute substantially all of our net taxable income to stockholders.

Complying with REIT requirements may cause us to forego otherwise attractive investment opportunities or financing or hedging strategies.

In order to qualify as a REIT for U.S. federal income tax purposes, we must continually satisfy various tests on an annual and quarterly basis regarding the sources of our income, the nature and diversification of our assets, the amounts we distribute to stockholders and the ownership of our stock. To meet these tests, we may be required to forego investments we might otherwise make. We may be required to make distributions to stockholders at disadvantageous times. Thus, compliance with the REIT requirements may hinder our investment performance.

Complying with REIT requirements may force us to liquidate otherwise profitable assets.

In order to continue to qualify as a REIT, we must ensure that at the end of each calendar quarter, at least 75% of the value of our assets consists of cash, cash items, government securities and designated real estate assets, including certain mortgage loans and shares in other REITs. Subject to certain exceptions, our ownership of securities, other than government securities and securities that constitute real estate assets, generally cannot include more than 10% of the outstanding voting securities of any one issuer or more than 10% of the total value of the outstanding securities of any one issuer. In addition, in general, no more than 5% of the value of our total assets, other than government securities and securities that constitute real estate assets, can consist of the securities of any one issuer, no more than 20% of the value of our total assets can be represented by securities of one or more TRSs, and no more than 25% of the value of our total assets can consist of debt of “publicly offered” REITs that is not secured by real property or interests in real property. If we fail to comply with these requirements at the end of any calendar quarter, we must generally correct such failure within 30 days after the end of such calendar quarter to avoid losing our REIT qualification. As a result, we may be required to liquidate otherwise profitable assets prematurely, which could reduce our return on assets, which could adversely affect our results of operations and financial condition.

Potential characterization of distributions or gain on sale may be treated as unrelated business taxable income to tax exempt investors.

If (i) all or a portion of our assets are subject to the rules relating to taxable mortgage pools, (ii) we are a “pension held REIT,” (iii) a tax exempt stockholder has incurred debt to purchase or hold our common stock, or (iv) we purchase residual REMIC interests that generate “excess inclusion income,” then a portion of the distributions to and, in the case of a stockholder described in clause (iii), gains realized on the sale of common stock by such tax exempt stockholder may be subject to U.S. federal income tax as unrelated business taxable income under the Code.

Complying with REIT requirements may limit our ability to hedge effectively.

The REIT provisions of the Code may limit our ability to hedge our assets and liabilities. Any income from a hedging transaction will not constitute gross income for purposes of the 75% or 95% gross income test if we properly identify the transaction as specified in applicable Treasury Regulations and we enter into such transaction (i) in the normal course of our business primarily to manage risk of interest rate or price changes or currency fluctuations with respect to borrowings made or to be made, or ordinary obligations incurred or to be incurred, to acquire or carry real estate assets or (ii) primarily to manage risk of currency fluctuations with respect to any item of income or gain that would be qualifying income under the 75% or 95% gross income tests. To the extent that we enter into other types of hedging transactions, the income from those transactions is likely to be treated as non-qualifying income for purposes of both of these gross income tests. As a result of these rules, we intend to limit our use of advantageous hedging techniques or implement those hedges through a TRS. This could increase the cost of our hedging activities.

The failure of our Agency RMBS that are subject to a repurchase agreement to qualify as real estate assets would adversely affect our ability to qualify as a REIT.

We may enter into repurchase agreements under which we will nominally sell certain of our Agency RMBS to a counterparty and simultaneously enter into an agreement to repurchase the sold assets. We believe that we will be treated for U.S. federal income tax purposes as the owner of the securities that are the subject of any such agreement notwithstanding that such agreement may transfer record ownership of the assets to the counterparty during the term of the agreement. It is possible, however, that the IRS could assert that we did not own the securities during the term of the repurchase agreement, in which case we could fail to qualify as a REIT.

REIT distribution requirements could adversely affect our ability to execute our business plan and may require us to incur debt, sell assets or take other actions to make such distributions.

In order to continue to qualify as a REIT, we must distribute to stockholders, each calendar year, at least 90% of our REIT taxable income (including certain items of non-cash income), determined without regard to the deduction for dividends paid and excluding net capital gain. To the extent that we satisfy the 90% distribution requirement, but distribute less than 100% of our taxable income, we will be subject to U.S. federal corporate income tax on our undistributed income. In addition, we will incur a 4% nondeductible excise tax on the amount, if any, by which our distributions in any calendar year are less than a minimum amount specified under U.S. federal income tax law.

We intend to distribute our net income to stockholders in a manner intended to satisfy the 90% distribution requirement and to avoid both corporate income tax and the 4% nondeductible excise tax. Our taxable income may substantially exceed our net income as determined by U.S. GAAP or differences in timing between the recognition of taxable income and the actual receipt of cash may occur in which case we may have taxable income in excess of cash flow from our operating activities. In such event, we may generate less cash flow than taxable income in a particular year and find it difficult or impossible to meet the REIT distribution requirements.

Our qualification as a REIT may depend on the accuracy of legal opinions or advice rendered or given or statements by the issuers of assets we acquire, including with respect to the treatment of our TBA securities and transactions for tax purposes.

When purchasing securities, we may rely on opinions or advice of counsel for the issuer of such securities, or statements made in related offering documents, for purposes of determining, among other things, whether such securities represent debt or equity securities for U.S. federal income tax purposes, the value of such securities, and also to what extent those securities constitute qualified real estate assets for purposes of the REIT asset tests and produce qualified income for purposes of the 75% gross income test. In addition, we may from time to time obtain and rely upon opinions of counsel regarding the qualification of certain assets and income as real estate assets. The inaccuracy of any such opinions, advice or statements may adversely affect our ability to qualify as a REIT and result in significant corporate-level tax.

We may utilize TBAs as a means of investing and financing Agency RMBS. There is no direct authority with respect to the qualification of TBAs as real estate assets or U.S. government securities for purposes of the 75% asset test or the qualification of income or gains from dispositions of TBAs as gains from the sale of real property (including interests in real property and interests in mortgages on real property) or other qualifying income for purposes of the 75% gross income test. We intend to treat our TBAs as qualifying assets for purposes of the 75% asset test, to the extent set forth in an opinion from Sidley Austin LLP substantially to the effect that, for purposes of the 75% asset test, our ownership of TBAs should be treated as ownership of the underlying Agency RMBS, and to treat income and gains from our TBAs as qualifying income for purposes of the 75% gross income test, to the extent set forth in an opinion from Sidley Austin LLP substantially to the effect that, for purposes of the 75% gross income test, any gain recognized by us in connection with the settlement of our TBAs should be treated as gain from the sale or disposition of the underlying Agency RMBS. Such opinions of counsel are not binding on the IRS, and there can be no assurance that the IRS will not successfully challenge the conclusions set forth therein.

Our ownership of, and relationship with, our TRSs will be restricted and a failure to comply with the restrictions would jeopardize our REIT status and may result in the application of a 100% excise tax.

A REIT may own up to 100% of the stock of one or more TRSs. A TRS may earn income that would not be qualifying REIT income if earned directly by the parent REIT. Both the TRS and the REIT must jointly elect to treat the subsidiary as a TRS. A corporation of which a TRS directly or indirectly owns more than 35% of the voting power or value of the stock will automatically be treated as a TRS. Overall, no more than 20% of the value of a REIT's total assets may consist of stock or securities of one or more TRSs. The value of our interests in and thus the amount of assets held in a TRS may also be restricted by our need to qualify for an exclusion from regulation as an investment company under the Investment Company Act.

Any domestic TRS we own will pay U.S. federal, state and local income tax at regular corporate rates. In addition, the TRS rules limit the deductibility of interest paid or accrued by a TRS to its parent REIT to assure that the TRS is subject to an appropriate level of corporate taxation. The rules also impose a 100% excise tax on certain transactions between a TRS and its parent REIT that are not conducted on an arm's-length basis. Although we monitor our investments in and transactions with TRSs, there can be no assurance that we will be able to comply with the limitation on the value of our TRSs discussed above or to avoid application of the 100% excise tax discussed above.

Dividends payable by REITs generally do not qualify for the reduced tax rates on dividend income from regular corporations, which could adversely affect the value of our shares.

The maximum U.S. federal income tax rate for dividends payable to domestic stockholders that are individuals, trusts and estates is 20%. Dividends payable by REITs, however, are generally not eligible for these reduced rates. Although the reduced U.S. federal income tax rate applicable to dividend income from regular corporate dividends does not adversely affect the taxation of REITs or dividends paid by REITs, the more favorable rates applicable to regular corporate dividends could cause investors who are individuals, trusts and estates to perceive investments in REITs to be relatively less attractive than investments in the stocks of non-REIT corporations that pay dividends, which could adversely affect the value of the shares of REITs, including our shares of common stock.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

We lease administrative office space in New York and Minnesota. We do not own, lease or utilize any physical properties that would be considered material to our business and operations.

Item 3. Legal Proceedings

From time to time, we may be involved in various legal and regulatory matters that arise in the ordinary course of business. As previously disclosed, on July 15, 2020, we provided PRCM Advisers with a notice of termination of the Management Agreement for "cause" in accordance with Section 15(a) of the Management Agreement. We terminated the Management Agreement for "cause" on the basis of certain material breaches and certain events of gross negligence on the part of PRCM Advisers in the performance of its duties under the Management Agreement. On July 21, 2020, PRCM Advisers filed a complaint against us in the United States District Court for the Southern District of New York, or the Court. Subsequently, Pine River Domestic Management L.P. and Pine River Capital Management L.P. were added as plaintiffs to the matter. As amended, the complaint, or the Federal Complaint, alleges, among other things, the misappropriation of trade secrets in violation of both the Defend Trade Secrets Act and New York common law, breach of contract, breach of the implied covenant of good faith and fair dealing, unfair competition and business practices, unjust enrichment, conversion, and tortious interference with contract. The Federal Complaint seeks, among other things, an order enjoining us from making any use of or disclosing PRCM Advisers' trade secret, proprietary, or confidential information; damages in an amount to be determined at a hearing and/or trial; disgorgement of our wrongfully obtained profits; and fees and costs incurred by the plaintiffs in pursuing the action. We have filed our answer to the Federal Complaint and made counterclaims against PRCM Advisers and Pine River Capital Management L.P. On May 5, 2022, the plaintiffs filed a motion for judgment on the pleadings, seeking judgment in their favor on all but one of our counterclaims and on one of our affirmative defenses. We have opposed the motion for judgment on the pleadings, which is pending with the Court. Discovery has commenced and is ongoing. Our board of directors believes the Federal Complaint is without merit and that we have fully complied with the terms of the Management Agreement.

Item 4. Mine Safety Disclosures

None.

PART II

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

Market Information

Our common stock is listed on the NYSE under the symbol "TWO". As of February 21, 2023, 96,616,279 shares of common stock were issued and outstanding.

On September 21, 2022, our board of directors approved a one-for-four reverse stock split of our outstanding shares of common stock. The reverse stock split was effected on November 1, 2022 at 5:01 p.m. Eastern Time. At the effective time, every four issued and outstanding shares of our common stock were converted into one share of common stock. No fractional shares were issued in connection with the reverse stock split; instead, each stockholder holding fractional shares was entitled to receive, in lieu of such fractional shares, cash in an amount determined on the basis of the volume weighted average price of our common stock on the NYSE on November 1, 2022. In connection with the reverse stock split, the number of authorized shares of our common stock was also reduced on a one-for-four basis, from 700,000,000 to 175,000,000. The par value of each share of common stock remained unchanged. All per share amounts, common shares outstanding and common equity-based awards for all periods presented have been adjusted on a retroactive basis to reflect the reverse stock split.

Holdings

As of February 17, 2023, there were 517 registered holders and approximately 112,512 beneficial owners of our common stock.

Dividends

We have historically paid dividends on our common stock. All dividend distributions are authorized by our board of directors, in its discretion, and will depend on such items as our REIT taxable income, financial condition, maintenance of REIT status, and other factors that the board of directors may deem relevant from time to time. The holders of our common stock share proportionally on a per share basis in all declared dividends on our common stock. Dividends cannot be paid on our common stock unless we have paid full cumulative dividends on all classes of our preferred stock. We have paid full cumulative dividends on all classes of our preferred stock from the respective dates of issuance through December 31, 2022. We intend to continue to pay quarterly dividends on our common stock and to distribute to our common stockholders as dividends 100% of our REIT taxable income, on an annual basis.

We have not established a minimum dividend distribution level for our common stock. See Item 1A, "*Risk Factors*" and Item 7, "*Management's Discussion and Analysis of Financial Conditions and Results of Operations*" of this Annual Report on Form 10-K for information regarding the sources of funds used for dividends and for a discussion of factors, if any, which may adversely affect our ability to pay dividends in 2023 and thereafter.

Our stock transfer agent and registrar is Equiniti Trust Company. Requests for information from Equiniti Trust Company can be sent to Equiniti Trust Company, P.O. Box 64856, St. Paul, MN 55164-0856 and their telephone number is 1-800-468-9716.

Securities Authorized for Issuance under Equity Compensation Plans

Our Second Restated 2009 Equity Incentive Plan and our 2021 Equity Incentive Plan, or the Equity Incentive Plans, were adopted by our board of directors and approved by our stockholders for the purpose of enabling us to provide equity compensation to attract and retain qualified directors, officers, advisers, consultants and other personnel. The Equity Incentive Plans are administered by the compensation committee of our board of directors and permit the grants of restricted common stock, restricted stock units, or RSUs, performance-based awards (including performance share units, or PSUs), phantom shares, dividend equivalent rights and other equity-based awards. For a detailed description of the Equity Incentive Plans, see Note 17 - *Equity Incentive Plans* of the consolidated financial statements included under Item 8 of this Annual Report on Form 10-K.

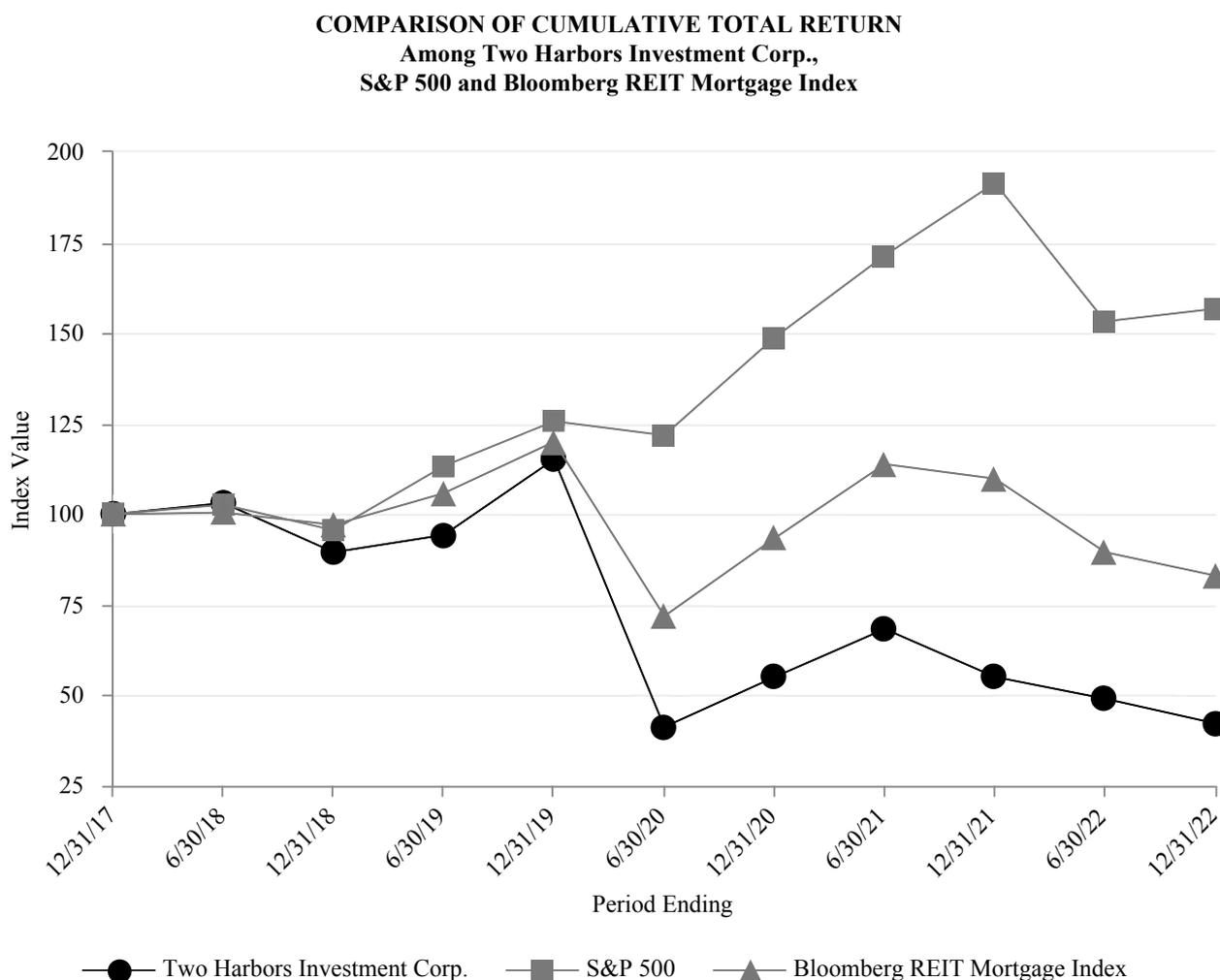
The following table presents certain information about the Equity Incentive Plans as of December 31, 2022:

Plan Category	December 31, 2022		
	Number of securities to be issued upon exercise of outstanding options, warrants and rights	Weighted-average exercise price of outstanding options, warrants and rights	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in the first column of this table)
Equity compensation plans approved by stockholders ⁽¹⁾	—	\$ —	4,223,261
Equity compensation plans not approved by stockholders	—	—	—
Total	—	\$ —	4,223,261

(1) For a detailed description of the Equity Incentive Plans, see Note 17 - *Equity Incentive Plans* of the consolidated financial statements included under Item 8 of this Annual Report on Form 10-K.

Performance Graph

The following graph compares a stockholder's cumulative total return, assuming \$100 invested at December 31, 2017, with all reinvestment of dividends, as if such amounts had been invested in: (i) our common stock; (ii) the stocks included in the Standard and Poor's 500 Stock Index, or S&P 500; and (iii) the stocks included in the Bloomberg REIT Mortgage Index.



Index	December 31,				
	2022	2021	2020	2019	2018
Two Harbors Investment Corp.	\$ 42.25	\$ 55.09	\$ 55.05	\$ 115.18	\$ 89.52
S&P 500	\$ 156.77	\$ 191.48	\$ 148.81	\$ 125.70	\$ 95.61
Bloomberg REIT Mortgage Index	\$ 83.05	\$ 109.82	\$ 93.38	\$ 120.03	\$ 97.09

Purchases of Equity Securities by the Issuer and Affiliated Purchasers

Our preferred share repurchase program allows for the repurchase of up to an aggregate of 5,000,000 shares of the company's preferred stock, which includes the 8.125% Series A Fixed-to-Floating Rate Cumulative Redeemable Preferred Stock, 7.625% Series B Fixed-to-Floating Rate Cumulative Redeemable Preferred Stock and 7.25% Series C Fixed-to-Floating Rate Cumulative Redeemable Preferred Stock. Preferred shares may be repurchased from time to time through privately negotiated transactions or open market transactions, pursuant to trading plans in accordance with Rule 10b5-1 under the Securities Exchange Act of 1934, as amended, or the Exchange Act, or by any combination of such methods. The manner, price, number and timing of preferred share repurchases are subject to a variety of factors, including market conditions and applicable SEC rules. The preferred share repurchase program does not require the purchase of any minimum number of shares, and, subject to SEC rules, purchases may be commenced or suspended at any time without prior notice. The preferred share repurchase program does not have an expiration date.

The following table reflects purchases of our 8.125% Series A Fixed-to-Floating Rate Cumulative Redeemable Preferred Stock, 7.625% Series B Fixed-to-Floating Rate Cumulative Redeemable Preferred Stock and 7.25% Series C Fixed-to-Floating Rate Cumulative Redeemable Preferred Stock under the preferred share repurchase program during the three months ended December 31, 2022:

Period	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans of Programs	Maximum Number of Shares that May Yet Be Purchased Under the Plans or Programs ⁽¹⁾
Series A Preferred Stock:				
October 1, 2022 through October 31, 2022	413,549	\$ 18.14	413,549	N/A
November 1, 2022 through November 30, 2022	—	—	—	N/A
December 1, 2022 through December 31, 2022	15,000	19.51	15,000	N/A
Total	428,549	\$ 18.18	428,549	N/A
Series B Preferred Stock:				
October 1, 2022 through October 31, 2022	756,846	\$ 17.48	756,846	N/A
November 1, 2022 through November 30, 2022	—	—	—	N/A
December 1, 2022 through December 31, 2022	30,000	18.42	30,000	N/A
Total	786,846	\$ 17.52	786,846	N/A
Series C Preferred Stock:				
October 1, 2022 through October 31, 2022	1,712,555	\$ 17.09	1,712,555	N/A
November 1, 2022 through November 30, 2022	—	—	—	N/A
December 1, 2022 through December 31, 2022	30,000	18.55	30,000	N/A
Total	1,742,555	\$ 17.12	1,742,555	N/A

(1) Our preferred share repurchase program allows for the repurchase of up to an aggregate of 5,000,000 shares of the company's preferred stock, which includes the 8.125% Series A Fixed-to-Floating Rate Cumulative Redeemable Preferred Stock, 7.625% Series B Fixed-to-Floating Rate Cumulative Redeemable Preferred Stock and 7.25% Series C Fixed-to-Floating Rate Cumulative Redeemable Preferred Stock. As of December 31, 2022, we had repurchased an aggregate of 2,957,950 preferred shares under the program and had remaining authorization to repurchase up to 2,042,050 of such securities.

Our common share repurchase program allows for the repurchase of up to an aggregate of 9,375,000 shares of the company's common stock. Common shares may be repurchased from time to time through privately negotiated transactions or open market transactions, pursuant to a trading plan in accordance with Rules 10b5-1 and 10b-18 under the Exchange Act or by any combination of such methods. The manner, price, number and timing of common share repurchases are subject to a variety of factors, including market conditions and applicable SEC rules. The common share repurchase program does not require the purchase of any minimum number of shares, and, subject to SEC rules, purchases may be commenced or suspended at any time without prior notice. The common share repurchase program does not have an expiration date. As of December 31, 2022, we had repurchased 3,043,575 common shares under the program for a total cost of \$201.5 million. We did not repurchase common shares during the three months ended December 31, 2022.

Item 6. [Reserved]

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

The following discussion and analysis should be read in conjunction with the consolidated financial statements and accompanying notes included elsewhere in this Annual Report on Form 10-K. This section of this Form 10-K generally discusses 2022 and 2021 items and year-to-year comparisons between 2022 and 2021. Discussions of 2020 items and year-to-year comparisons between 2021 and 2020 that are not included in this Form 10-K can be found in "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Part II, Item 7 of our Annual Report on Form 10-K for the fiscal year ended December 31, 2021.

General

We are a Maryland corporation focused on investing in and managing Agency residential mortgage-backed securities, or Agency RMBS, mortgage servicing rights, or MSR, and other financial assets, which we collectively refer to as our target assets. We operate as a real estate investment trust, or REIT, as defined under the Internal Revenue Code of 1986, as amended, or the Code.

Our objective is to provide attractive risk-adjusted total return to our stockholders over the long term, primarily through dividends and secondarily through capital appreciation. We acquire and manage an investment portfolio of our target assets, which include the following:

- Agency RMBS (which includes inverse interest-only Agency securities classified as “Agency Derivatives” for purposes of U.S. generally accepted accounting principles, or U.S. GAAP), meaning RMBS whose principal and interest payments are guaranteed by a U.S. government agency, such as the Government National Mortgage Association (or Ginnie Mae), or a U.S. government sponsored enterprise, or GSE, such as the Federal National Mortgage Association (or Fannie Mae) or the Federal Home Loan Mortgage Corporation (or Freddie Mac);
- MSR; and
- Other financial assets comprising approximately 5% to 10% of the portfolio.

Our Agency RMBS portfolio is comprised primarily of fixed rate mortgage-backed securities backed by single-family and multi-family mortgage loans. All of our principal and interest Agency RMBS are Fannie Mae or Freddie Mac mortgage pass-through certificates or collateralized mortgage obligations, or Ginnie Mae mortgage pass-through certificates, which are backed by the guarantee of the U.S. government. The majority of these securities consist of whole pools in which we own all of the investment interests in the securities.

Within our MSR business, we acquire MSR assets, which represent the right to control the servicing of residential mortgage loans and the obligation to service the loans in accordance with relevant standards, from high-quality originators. We do not directly service the mortgage loans underlying the MSR we acquire; rather, we contract with appropriately licensed third-party subservicers to handle substantially all servicing functions in the name of the subservicer. As the servicer of record, however, we remain accountable to the GSEs for all servicing matters and, accordingly, provide substantial oversight of each of our subservicers. We believe MSR are a natural fit for our portfolio over the long term. Our MSR business leverages our core competencies in prepayment and credit risk analytics and the MSR assets provide offsetting risks to our Agency RMBS, hedging both interest rate and mortgage spread risk.

On August 2, 2022, Matrix Financial Services Corporation, or Matrix, one of our wholly owned subsidiaries, entered into a definitive stock purchase agreement to acquire RoundPoint Mortgage Servicing Corporation, or RoundPoint, from Freedom Mortgage Corporation. In connection with the acquisition, Matrix has agreed to pay a purchase price upon closing in an amount equal to the tangible net book value of RoundPoint, plus a premium amount of \$10.5 million, subject to certain additional post-closing adjustments. In connection with the transaction, RoundPoint will divest its retail origination business as well as its RPX servicing exchange platform. Matrix also agreed to engage RoundPoint as a subservicer prior to the closing date and began transferring loans to RoundPoint in the fourth quarter of 2022. Upon closing, all servicing licenses and operational capabilities will remain with RoundPoint, and RoundPoint will become a wholly owned subsidiary of Matrix. The parties expect to close the transaction in 2023, subject to the satisfaction of customary closing conditions and the receipt of required regulatory and GSE approvals.

For the three months ended December 31, 2022, our net spread realized on the portfolio was lower than recent quarters due primarily to higher cost of financing due to rising interest rates, offset by higher coupon and lower amortization on Agency RMBS due to slower prepayment speeds and the higher yielding MSR making up a larger proportion of the portfolio. The following table provides the average portfolio yield and cost of financing on our assets for the three months ended December 31, 2022, and the four immediately preceding quarters:

	Three Months Ended				
	December 31, 2022	September 30, 2022	June 30, 2022	March 31, 2022	December 31, 2021
Average portfolio yield ⁽¹⁾	4.92%	4.61%	4.39%	3.90%	3.72%
Average cost of financing ⁽²⁾	3.95%	2.84%	1.13%	1.01%	0.73%
Net spread	0.97%	1.77%	3.26%	2.89%	2.99%

- (1) Average portfolio yield includes interest income on Agency RMBS and non-Agency securities and MSR servicing income, net of estimated amortization, and servicing expenses. Beginning with the three months ended June 30, 2022, average portfolio yield also includes the implied asset yield portion of dollar roll income on TBAs. MSR estimated amortization refers to the portion of change in fair value of MSR primarily attributed to the realization of expected cash flows (runoff) of the portfolio, which is deemed a non-GAAP measure due to the company's decision to account for MSR at fair value. TBA dollar roll income is the non-GAAP economic equivalent to holding and financing Agency RMBS using short-term repurchase agreements.
- (2) Average cost of financing includes interest expense and amortization of deferred debt issuance costs on borrowings under repurchase agreements (excluding those collateralized by U.S. Treasuries), revolving credit facilities, term notes payable and convertible senior notes and interest spread income/expense and amortization of upfront payments made or received upon entering into interest rate swap agreements. Beginning with the three months ended June 30, 2022, average cost of financing also includes the implied financing benefit/cost portion of dollar roll income on TBAs. TBA dollar roll income is the non-GAAP economic equivalent to holding and financing Agency RMBS using short-term repurchase agreements. Beginning with the three months ended September 30, 2022, average cost of financing also includes U.S. Treasury futures income, which represents the economic equivalent to holding and financing a relevant cheapest-to-deliver U.S. Treasury note or bond using short-term repurchase agreements.

We seek to deploy moderate leverage as part of our investment strategy. We generally finance our Agency RMBS through short- and long-term borrowings structured as repurchase agreements. We also finance our MSR through revolving credit facilities, repurchase agreements, term notes payable and convertible senior notes.

Our Agency RMBS, given their liquidity and high credit quality, are eligible for higher levels of leverage, while MSR, with less liquidity and/or more exposure to prepayment, utilize lower levels of leverage. As a result, our debt-to-equity ratio is determined by our portfolio mix as well as many additional factors, including the liquidity of our portfolio, the availability and price of our financing, the diversification of our counterparties and their available capacity to finance our assets, and anticipated regulatory developments. Our debt-to-equity ratio is also directly correlated to the composition of our portfolio; specifically, the higher percentage of Agency RMBS we hold, the higher our debt-to-equity ratio is. We may alter the percentage allocation of our portfolio among our target assets depending on the relative value of the assets that are available to purchase from time to time, including at times when we are deploying proceeds from offerings we conduct. See Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations - Financial Condition - Financing" for further discussion.

We recognize that investing in our target assets is competitive and we compete with other entities for attractive investment opportunities. We believe that our significant focus in the residential market, the extensive mortgage market expertise of our investment team, our operational capabilities to invest in MSR, our strong analytics and our disciplined relative value investment approach give us a competitive advantage versus our peers.

We have elected to be treated as a REIT for U.S. federal income tax purposes. To qualify as a REIT we are required to meet certain investment and operating tests and annual distribution requirements. We generally will not be subject to U.S. federal income taxes on our taxable income to the extent that we annually distribute all of our net taxable income to stockholders, do not participate in prohibited transactions and maintain our intended qualification as a REIT. However, certain activities that we may perform may cause us to earn income which will not be qualifying income for REIT purposes. We have designated certain of our subsidiaries as taxable REIT subsidiaries, or TRSs, as defined in the Code, to engage in such activities. We also operate our business in a manner that will permit us to maintain our exemption from registration under the Investment Company Act of 1940, as amended, or the 1940 Act. While we do not currently originate or directly service residential mortgage loans, certain of our subsidiaries have obtained the requisite licenses and approvals to own and manage MSR.

Factors Affecting our Operating Results

Our net interest income includes income from our securities portfolio, including the amortization of purchase premiums and accretion of purchase discounts. Net interest income, as well as our servicing income, net of subservicing expenses, will fluctuate primarily as a result of changes in market interest rates, our financing costs and prepayment speeds on our assets. Interest rates, financing costs and prepayment rates vary according to the type of investment, conditions in the financial markets, competition and other factors, none of which can be predicted with any certainty.

Fair Value Measurement

A significant portion of our assets and liabilities are reported at fair value and, therefore, our consolidated balance sheets and statements of comprehensive loss are significantly affected by fluctuations in market prices. At December 31, 2022, approximately 80.1% of our total assets, or \$10.8 billion, consisted of financial instruments recorded at fair value. See Note 10 - *Fair Value* to the consolidated financial statements, included in this Annual Report on Form 10-K, for descriptions of valuation methodologies used to measure material assets and liabilities at fair value and details of the valuation models, key inputs to those models and significant assumptions utilized. Although we execute various hedging strategies to mitigate our exposure to changes in fair value, we cannot fully eliminate our exposure to volatility caused by fluctuations in market prices.

Any temporary change in the fair value of our AFS securities, excluding certain AFS securities for which we have elected the fair value option, is recorded as a component of accumulated other comprehensive (loss) income and does not impact our reported income (loss) for U.S. GAAP purposes, or GAAP net income (loss). However, changes in the provision for credit losses on AFS securities are recognized immediately in GAAP net income (loss). Our GAAP net income (loss) is also affected by fluctuations in market prices on the remainder of our financial assets and liabilities recorded at fair value, including interest rate swap, cap and swaption agreements and certain other derivative instruments (*i.e.*, Agency to-be-announced securities, or TBAs, options on TBAs, futures, options on futures, and inverse interest-only securities), which are accounted for as derivative trading instruments under U.S. GAAP, fair value option elected AFS securities and MSR.

We have numerous internal controls in place to help ensure the appropriateness of fair value measurements. Significant fair value measures are subject to detailed analytics and management review and approval. Our entire investment portfolio reported at fair value is priced by third-party brokers and/or by independent pricing vendors. We generally receive three or more broker and vendor quotes on pass-through Agency P&I RMBS, and generally receive multiple broker or vendor quotes on all other securities, including interest-only Agency RMBS and inverse interest-only Agency RMBS. We also receive multiple vendor quotes for the MSR in our investment portfolio. For Agency RMBS, the third-party pricing vendors and brokers use pricing models that commonly incorporate such factors as coupons, primary and secondary mortgage rates, rate reset periods, issuer, prepayment speeds, credit enhancements and expected life of the security. For MSR, vendors use pricing models that generally incorporate observable inputs such as principal balance, note rate, geographical location, loan-to-value (LTV) ratios, FICO, appraised value and other loan characteristics, along with observed market yields and trading levels. Pricing vendors will customarily incorporate loan servicing cost, servicing fee, ancillary income, and earnings rate on escrow as observable inputs. Unobservable or model-driven inputs include forecast cumulative defaults, default curve, forecast loss severity and forecast voluntary prepayment.

We evaluate the prices we receive from both third-party brokers and pricing vendors by comparing those prices to actual purchase and sale transactions, our internally modeled prices calculated based on market observable rates and credit spreads, and to each other both in current and prior periods. We review and may challenge valuations from third-party brokers and pricing vendors to ensure that such quotes and valuations are indicative of fair value as a result of this analysis. We then estimate the fair value of each security based upon the median of the final broker quotes received, and we estimate the fair value of MSR based upon the average of prices received from third-party vendors, subject to internally-established hierarchy and override procedures.

We utilize “bid side” pricing for our Agency RMBS and, as a result, certain assets, especially the most recent purchases, may realize a markdown due to the “bid-offer” spread. To the extent that this occurs, any economic effect of this would be reflected in accumulated other comprehensive (loss) income.

Considerable judgment is used in forming conclusions and estimating inputs to our Level 3 fair value measurements. Level 3 inputs such as interest rate movements, prepayments speeds, credit losses and discount rates are inherently difficult to estimate. Changes to these inputs can have a significant effect on fair value measurements. Accordingly, there is no assurance that our estimates of fair value are indicative of the amounts that would be realized on the ultimate sale or exchange of these assets. At December 31, 2022, 23.1% of our total assets were classified as Level 3 fair value assets.

Critical Accounting Estimates

The preparation of financial statements in accordance with U.S. GAAP requires us to make certain judgments and assumptions, based on information available at the time of our preparation of the financial statements, in determining accounting estimates used in preparation of the statements. Accounting estimates are considered critical if the estimate requires us to make assumptions about matters that were highly uncertain at the time the accounting estimate was made and if different estimates reasonably could have been used in the reporting period or changes in the accounting estimate are reasonably likely to occur from period to period that would have a material impact on our financial condition, results of operations or cash flows. Our significant accounting policies are described in Note 2 to the consolidated financial statements, included under Item 8 of this Annual Report on Form 10-K. Our most critical accounting policies involve our fair valuation of AFS securities, MSR and derivative instruments.

The methods used by us to estimate fair value for AFS securities, MSR and derivative instruments may produce a fair value calculation that may not be indicative of net realizable value or reflective of future fair values. Furthermore, while we believe that our valuation methods are appropriate and consistent with other market participants, the use of different methodologies, or assumptions, to determine the fair value of certain financial instruments could result in a different estimate of fair value at the reporting date. We use prices obtained from third-party pricing vendors or broker quotes deemed indicative of market activity and current as of the measurement date, which in periods of market dislocation, may have reduced transparency. For more information on our fair value measurements, see Note 10 to the consolidated financial statements, included under Item 8 of this Annual Report on Form 10-K. Additionally, the key economic assumptions and sensitivity of the fair value of MSR to immediate adverse changes in these assumptions are presented in Note 5 to the consolidated financial statements, included under Item 8 of this Annual Report on Form 10-K.

Market Conditions and Outlook

Fixed-income volatility remained high throughout the fourth quarter of 2022, and the Federal Reserve, or Fed, continued to raise short-term rates to combat inflation, despite lower than expected inflation readings that provided some evidence that inflation was easing in response to prior rate hikes. During the quarter, the Fed raised the Federal Funds target rate by 150 basis points (75 basis points in each of November and December), in excess of the 116 basis points priced into the market at the beginning of the quarter. By December 31, 2022, the market's expectation for where short-term rates will be once the Fed finishes hiking rose by 43 basis points, to 4.97% in June 2023. Though the Fed raised rates more than expected and the market's expectations for forward rates continued to move higher, the deviations were smaller than in the prior quarter, indicating that market expectations were more closely aligned with the Fed. Interest rates on U.S. Treasuries rose slightly in the fourth quarter and the yield curve flattened, with the 2-year U.S. Treasury rate increasing by 15 basis points to 4.43% and the 10-year U.S. Treasury rate increasing by 5 basis points to 3.88%. The Standard and Poor's 500 Index, or the S&P 500, gained about 7% after losing close to 25% through the first three quarters of the year.

Interest rate volatility and mortgage spreads peaked in October, then declined into quarter end. The better than expected CPI data (first reported on November 10th and then on December 13th) encouraged market participants that the Fed's actions were working and provided greater confidence that further rate hikes, while expected, were nearing an end. Spreads for mortgages ratcheted tighter in November, displacing July as the best month on record for the excess return of the Bloomberg U.S. MBS Index, and contributing to the seventh best quarterly performance in history. Nominal and option-adjusted spreads for current coupon RMBS had tightened by 30 and 37 basis points, respectively, to 128 and 30 basis points. Thirty-year mortgage rates declined by 28 basis points to finish at 6.42%, though still 330 basis points higher for the year, driving the MBS Refinance Index to its lowest level in two decades.

Funding markets for RMBS and MSR continued to function well. Spreads on repurchase agreement financing for RMBS increased marginally to SOFR plus 11 to 17 basis points with no signs of balance sheet stress.

We continue to believe that inflation will subside and expect volatility to decline in the first quarter of 2023, given the historically aggressive rate hikes by the Fed. Though mortgage spreads tightened over the quarter, they are still near the 90th percentile of long-term averages, and on a levered basis generate attractive long-term returns. Furthermore, should volatility fall, we expect mortgage spreads to tighten, adding to our portfolio's returns. With regard to MSR, continued slow prepayment rates on our existing portfolio should generate attractive long-term returns. Owing to a supply/demand imbalance driven by lower origination volumes and the decision of several market participants to step back from the MSR market, we intend to opportunistically allocate capital to acquire MSR at attractive prices in the first half of 2023. Taking all this into account, we are optimistic that our paired Agency RMBS and MSR portfolio strategy will deliver strong results.

The following table provides the carrying value of our investment portfolio by product type:

(dollars in thousands)	December 31, 2022		December 31, 2021	
Agency RMBS	\$ 7,653,576	71.0 %	\$ 7,149,399	76.1 %
Mortgage servicing rights	2,984,937	27.7 %	2,191,578	23.3 %
Agency Derivatives	15,176	0.1 %	40,911	0.5 %
Non-Agency securities	125,158	1.2 %	12,304	0.1 %
Total	<u>\$ 10,778,847</u>		<u>\$ 9,394,192</u>	

Prepayment speeds and volatility due to interest rates

Our portfolio is subject to market risks, primarily interest rate risk and prepayment risk. We seek to offset a portion of our Agency pool market value exposure through our MSR and interest-only Agency RMBS portfolios. During periods of decreasing interest rates with rising prepayment speeds, the market value of our Agency pools generally increases and the market value of our interest-only securities and MSR generally decreases. The inverse relationship occurs when interest rates rise and prepayments fall. Although 30-year mortgage rates fell modestly during the fourth quarter of 2022, most mortgages continue to have large refinancing disincentive. Reported prepayment speeds continued to decline during the quarter reflecting the drop in activity in the housing market owing to seasonality and a slowing economy. Looking forward, prepayment speeds are expected to slow further in the first quarter of 2023 as seasonal factors plunge to their lowest annual levels. In addition to changes in interest rates, changes in home price performance, key employment metrics and government programs, among other macroeconomic factors, can affect prepayment speeds. We believe our portfolio management approach, including our asset selection process, positions us to respond to a variety of market scenarios. Although we are unable to predict future interest rate movements, our strategy of pairing Agency RMBS with MSR, with a focus on managing various associated risks, including interest rate, prepayment, credit, mortgage spread and financing risk, is intended to generate attractive yields with a low level of sensitivity to changes in the yield curve, prepayments and interest rate cycles.

The following table provides the three-month average constant prepayment rate, or CPR, experienced by our Agency RMBS and MSR during the three months ended December 31, 2022, and the four immediately preceding quarters:

	Three Months Ended				
	December 31, 2022	September 30, 2022	June 30, 2022	March 31, 2022	December 31, 2021
Agency RMBS	5.9 %	9.1 %	14.2 %	17.3 %	27.7 %
Mortgage servicing rights	4.6 %	6.9 %	10.0 %	14.2 %	22.1 %

Our Agency RMBS are primarily collateralized by pools of fixed-rate mortgage loans. Our Agency portfolio also includes securities with implicit prepayment protection, including lower loan balances (securities collateralized by loans of less than \$200,000 in initial principal balance), higher LTVs (securities collateralized by loans with LTVs greater than or equal to 80%), certain geographic concentrations, loans secured by investor-owned properties and lower FICO scores. Our overall allocation of Agency RMBS and holdings of pools with specific characteristics are viewed in the context of our aggregate portfolio strategy, including MSR and related derivative hedging instruments. Additionally, the selection of securities with certain attributes is driven by the perceived relative value of the securities, which factors in the opportunities in the marketplace, the cost of financing and the cost of hedging interest rate, prepayment, credit and other portfolio risks. As a result, Agency RMBS capital allocation reflects management's flexible approach to investing in the marketplace.

The following tables provide the carrying value of our Agency RMBS portfolio by underlying mortgage loan rate type:

December 31, 2022								
(dollars in thousands)	Principal/ Current Face	Carrying Value	Weighted Average CPR ⁽¹⁾	% Prepayment Protected	Gross Weighted Average Coupon Rate	Amortized Cost	Allowance for Credit Losses	Weighted Average Loan Age (months)
Agency RMBS AFS:								
30-Year Fixed								
≤ 2.5%	\$ —	\$ —	— %	— %	— %	\$ —	\$ —	—
3.0%	—	—	— %	— %	— %	—	—	—
3.5%	—	—	— %	— %	— %	—	—	—
4.0%	1,459,733	1,382,120	3.9 %	100.0 %	4.6 %	1,474,169	—	20
4.5%	3,087,310	3,006,356	5.9 %	100.0 %	5.2 %	3,152,567	—	25
5.0%	2,439,709	2,430,470	6.5 %	100.0 %	5.7 %	2,506,339	—	10
≥ 5.5%	411,899	419,956	3.9 %	98.8 %	6.5 %	424,199	—	36
	<u>7,398,651</u>	<u>7,238,902</u>	<u>5.6 %</u>	<u>99.9 %</u>	<u>5.3 %</u>	<u>7,557,274</u>	<u>—</u>	<u>19</u>
Other P&I	382,626	378,558	1.3 %	88.5 %	5.4 %	379,837	—	30
Interest-only	963,865	36,116	8.1 %	— %	4.9 %	45,882	(6,785)	143
Agency Derivatives	196,457	15,176	8.4 %	— %	6.7 %	20,696	—	216
Total Agency RMBS	<u>\$ 8,941,599</u>	<u>\$ 7,668,752</u>		<u>98.7 %</u>		<u>\$ 8,003,689</u>	<u>\$ (6,785)</u>	

December 31, 2021								
(dollars in thousands)	Principal/ Current Face	Carrying Value	Weighted Average CPR ⁽¹⁾	% Prepayment Protected	Gross Weighted Average Coupon Rate	Amortized Cost	Allowance for Credit Losses	Weighted Average Loan Age (months)
Agency RMBS AFS:								
30-Year Fixed								
≤ 2.5%	\$ 1,243,928	\$ 1,271,382	5.9 %	— %	3.3 %	\$ 1,272,323	\$ —	3
3.0%	1,316,662	1,384,176	9.6 %	100.0 %	3.7 %	1,381,936	—	8
3.5%	739,922	789,499	27.3 %	100.0 %	4.2 %	769,989	—	29
4.0%	1,421,793	1,543,595	26.5 %	100.0 %	4.6 %	1,478,444	—	49
4.5%	1,307,504	1,435,877	27.7 %	100.0 %	5.0 %	1,373,076	—	47
5.0%	231,941	255,059	44.9 %	100.0 %	5.7 %	244,888	—	47
≥ 5.5%	93,544	106,687	15.7 %	93.1 %	6.4 %	99,655	—	172
	<u>6,355,294</u>	<u>6,786,275</u>	<u>20.5 %</u>	<u>81.2 %</u>	<u>4.3 %</u>	<u>6,620,311</u>	<u>—</u>	<u>31</u>
Other P&I	56,069	62,228	53.9 %	— %	6.5 %	61,739	—	224
Interest-only	3,198,447	300,896	20.2 %	— %	3.6 %	305,577	(12,851)	47
Agency Derivatives	247,101	40,911	18.6 %	— %	6.7 %	33,237	—	206
Total Agency RMBS	<u>\$ 9,856,911</u>	<u>\$ 7,190,310</u>		<u>76.6 %</u>		<u>\$ 7,020,864</u>	<u>\$ (12,851)</u>	

(1) Weighted average actual one-month CPR released at the beginning of the following month based on RMBS held as of the preceding month-end.

Our MSR business offers attractive spreads and has many risk reducing characteristics when paired with our Agency RMBS portfolio. The following table summarizes activity related to the unpaid principal balance, or UPB, of loans underlying our MSR portfolio for the three months ended December 31, 2022, and the four immediately preceding quarters:

(in thousands)	Three Months Ended				
	December 31, 2022	September 30, 2022	June 30, 2022	March 31, 2022	December 31, 2021
UPB at beginning of period	\$ 206,613,560	\$ 227,074,413	\$ 229,415,913	\$ 193,770,566	\$ 194,393,942
Purchases of mortgage servicing rights	2,677,674	4,448,870	5,720,323	45,136,996	13,562,240
Sales of mortgage servicing rights	—	(19,807,427)	—	—	9,065
Scheduled payments	(1,538,046)	(1,564,465)	(1,697,237)	(1,572,871)	(1,441,835)
Prepaid	(2,439,936)	(3,709,416)	(6,026,461)	(8,249,432)	(11,966,741)
Other changes	(436,559)	171,585	(338,125)	330,654	(786,105)
UPB at end of period	<u>\$ 204,876,693</u>	<u>\$ 206,613,560</u>	<u>\$ 227,074,413</u>	<u>\$ 229,415,913</u>	<u>\$ 193,770,566</u>

Counterparty exposure and leverage ratio

We monitor counterparty exposure amongst our broker, banking and lending counterparties on a daily basis. We believe our broker and banking counterparties are well-capitalized organizations, and we attempt to manage our cash balances across these organizations to reduce our exposure to any single counterparty.

As of December 31, 2022, we had entered into repurchase agreements with 39 counterparties, 20 of which had outstanding balances. In addition, we held short- and long-term borrowings under revolving credit facilities, long-term term notes payable and long-term unsecured convertible senior notes. As of December 31, 2022, the debt-to-equity ratio funding our AFS securities, MSR and Agency Derivatives, which includes unsecured borrowings under convertible senior notes, was 4.4:1.0.

As of December 31, 2022, we held \$683.5 million in cash and cash equivalents, approximately \$344.6 million of unpledged AFS securities and Agency derivatives, which includes \$343.0 million of unsettled Agency RMBS purchases, and \$7.6 million of unpledged non-Agency securities. As a result, we had an overall estimated unused borrowing capacity on our unpledged securities of approximately \$6.1 million. As of December 31, 2022, we held approximately \$26.9 million of unpledged MSR and \$51.2 million of unpledged servicing advances. Overall, on December 31, 2022, we had \$293.8 million unused committed and \$402.3 million unused uncommitted borrowing capacity on MSR financing facilities, and \$176.2 million in unused committed borrowing capacity on servicing advance financing facilities. Generally, unused borrowing capacity may be the result of our election not to utilize certain financing, as well as delays in the timing in which funding is provided, insufficient collateral or the inability to meet lenders' eligibility requirements for specific types of asset classes.

We also monitor exposure to our MSR counterparties. We may be required to make representations and warranties to investors in the loans underlying the MSR we own; however, some of our MSR were purchased on a bifurcated basis, meaning the representation and warranty obligations remain with the seller. If the representations and warranties we make prove to be inaccurate, we may be obligated to repurchase certain mortgage loans, which may impact the profitability of our portfolio. Although we obtain similar representations and warranties from the counterparty from which we acquired the relevant asset, if those representations and warranties do not directly mirror those we make to the investor, or if we are unable to enforce the representations and warranties against the counterparty for a variety of reasons, including the financial condition or insolvency of the counterparty, we may not be able to seek indemnification from our counterparties for any losses attributable to the breach.

LIBOR transition

The London Interbank Offered Rate, or LIBOR, has been used extensively in the U.S. and globally as a “benchmark” or “reference rate” for various commercial and financial contracts, including corporate and municipal bonds and loans, floating rate mortgages, asset-backed securities, consumer loans, and interest rate swaps and other derivatives. On March 5, 2021, Intercontinental Exchange Inc. announced that ICE Benchmark Administration Limited, the administrator of LIBOR, intends to stop publication of the majority of USD-LIBOR tenors on June 30, 2023. In the U.S., the Alternative Reference Rates Committee, or ARRC, has identified the Secured Overnight Financing Rate, or SOFR, as its preferred alternative rate for U.S. dollar-based LIBOR. SOFR is a measure of the cost of borrowing cash overnight, collateralized by U.S. Treasury securities, and is based on directly observable U.S. Treasury-backed repurchase transactions. Numerous industry wide and company-specific transitions as it relates to derivatives and cash markets exposed to LIBOR are in process, if not complete. The majority of our material contracts that are or were indexed to USD-LIBOR have been amended to transition to an alternative benchmark, where necessary. As of December 31, 2022, only the Company’s term notes incorporate LIBOR as the referenced rate and mature after the phase-out of LIBOR. However, the related agreements have provisions in place that provide for an alternative to LIBOR upon its phase-out. The Company has no other financing arrangements or derivative instruments that incorporate LIBOR as the referenced rate as of December 31, 2022. Additionally, each series of our fixed-to-floating preferred stock that becomes redeemable at the time the stock begins to pay a LIBOR-based rate has existing LIBOR cessation fallback language.

Summary of Results of Operations and Financial Condition

All per share amounts, common shares outstanding and common equity-based awards for all periods presented have been adjusted on a retroactive basis to reflect the reverse stock split.

Our book value per common share for U.S. GAAP purposes was \$17.72 at December 31, 2022, an increase from \$16.42 per common share at September 30, 2022, and a decrease from \$23.47 per common share at December 31, 2021. The rise in book value for the three months ended December 31, 2022 was primarily the result of mortgage spread tightening, as well as the repurchase of 2,957,950 shares of preferred stock, which contributed approximately \$0.26 to book value per common share. The decline in book value for the year ended December 31, 2022 was primarily the result of significant widening in mortgage spreads during the first nine months of the year, as the market reacted unfavorably to higher than expected inflation and aggressively hawkish words and actions from the Fed as it removed accommodation, offset by the positive fourth quarter developments noted above.

Our GAAP net loss attributable to common stockholders was \$262.4 million and GAAP net income attributable to common stockholders was \$186.8 million (\$(3.04) and \$2.13 per diluted weighted average share) for the three and twelve months ended December 31, 2022, respectively, as compared to GAAP net loss attributable to common stockholders of \$15.0 million and GAAP net income attributable to common stockholders of \$128.8 million (\$(0.18) and \$1.72 per diluted weighted average share) for the three and twelve months ended December 31, 2021, respectively.

With our accounting treatment for AFS securities, unrealized fluctuations in the market values of AFS securities, excluding certain AFS securities for which we have elected the fair value option and securities with an allowance for credit losses, do not impact our GAAP net income (loss) or taxable income but are recognized on our consolidated balance sheets as a change in stockholders’ equity under “accumulated other comprehensive (loss) income.” For the three months ended December 31, 2022, net unrealized gains on AFS securities recognized as other comprehensive income were \$106.7 million, which was the result of mortgage spread tightening. For the year ended December 31, 2022, net unrealized losses on AFS securities recognized as other comprehensive loss were \$893.6 million, which was driven by significant underperformance of fixed income markets in general and widening mortgage spreads, particularly in the third quarter. Additionally, we reclassify unrealized gains and losses on AFS securities in accumulated other comprehensive (loss) income to net income (loss) upon the recognition of any realized gains and losses on sales as individual securities are sold. For the three and twelve months ended December 31, 2022 we reclassified \$316.0 million and \$428.5 million in unrealized losses, respectively, on sold AFS securities from accumulated other comprehensive (loss) income to (loss) gain on investment securities on the consolidated statements of comprehensive loss.

In total, we recognized other comprehensive income of \$422.7 million for the three months ended December 31, 2022 and other comprehensive loss of \$465.1 million for the year ended December 31, 2022. Combined with GAAP net loss attributable to common stockholders of \$262.4 million and GAAP net income attributable to common stockholders of \$186.8 million for the three and twelve months ended December 31, 2022, respectively, this resulted in comprehensive income attributable to common stockholders of \$160.2 million and comprehensive loss attributable to common stockholders of \$278.3 million for the three and twelve months ended December 31, 2022, respectively.

The following tables present the components of our comprehensive loss for the three and twelve months ended December 31, 2022 and 2021:

(in thousands, except share data)	Three Months Ended		Year Ended	
Income Statement Data:	December 31,		December 31,	
	2022	2021	2022	2021
	(unaudited)			
Interest income:				
Available-for-sale securities	\$ 83,712	\$ 32,729	\$ 272,230	\$ 167,310
Other	15,591	276	23,310	1,287
Total interest income	99,303	33,005	295,540	168,597
Interest expense:				
Repurchase agreements	81,975	4,562	167,455	25,774
Revolving credit facilities	21,854	5,050	51,814	22,425
Term notes payable	6,906	3,251	19,514	12,936
Convertible senior notes	4,892	7,295	19,612	28,038
Total interest expense	115,627	20,158	258,395	89,173
Net interest (expense) income	(16,324)	12,847	37,145	79,424
Other (loss) income:				
(Loss) gain on investment securities	(347,450)	1,626	(603,937)	121,617
Servicing income	160,926	125,511	603,911	468,406
(Loss) gain on servicing asset	(64,085)	(131,828)	425,376	(114,941)
Gain on interest rate swap and swaption agreements	—	36,989	29,499	42,091
Gain (loss) on other derivative instruments	53,301	(11,565)	9,310	(251,283)
Other income (loss)	112	1,856	(5)	(3,845)
Total other (loss) income	(197,196)	22,589	464,154	262,045
Expenses:				
Servicing expenses	25,272	21,582	94,119	86,250
Compensation and benefits	7,411	6,396	40,723	35,041
Other operating expenses	15,540	6,648	42,005	28,759
Total expenses	48,223	34,626	176,847	150,050
(Loss) income before income taxes	(261,743)	810	324,452	191,419
Provision for income taxes	8,480	2,104	104,213	4,192
Net (loss) income	(270,223)	(1,294)	220,239	187,227
Dividends on preferred stock	(12,365)	(13,747)	(53,607)	(58,458)
Gain on repurchase and retirement of preferred stock	20,149	—	20,149	—
Net (loss) income attributable to common stockholders	\$ (262,439)	\$ (15,041)	\$ 186,781	\$ 128,769
Basic (loss) earnings per weighted average common share	\$ (3.04)	\$ (0.18)	\$ 2.15	\$ 1.72
Diluted (loss) earnings per weighted average common share	\$ (3.04)	\$ (0.18)	\$ 2.13	\$ 1.72
Dividends declared per common share	\$ 0.60	\$ 0.68	\$ 2.64	\$ 2.72
Weighted average number of shares of common stock:				
Basic	86,391,405	83,775,184	86,179,418	74,443,000
Diluted	86,391,405	83,775,184	96,076,175	74,510,884

(in thousands)	Three Months Ended		Year Ended	
Income Statement Data:	December 31,		December 31,	
	2022	2021	2022	2021
	(unaudited)			
Comprehensive income (loss):				
Net (loss) income	\$ (270,223)	\$ (1,294)	\$ 220,239	\$ 187,227
Other comprehensive income (loss):				
Unrealized gain (loss) on available-for-sale securities	422,672	(113,553)	(465,057)	(455,255)
Other comprehensive income (loss)	422,672	(113,553)	(465,057)	(455,255)
Comprehensive income (loss)	152,449	(114,847)	(244,818)	(268,028)
Dividends on preferred stock	(12,365)	(13,747)	(53,607)	(58,458)
Gain on repurchase and retirement of preferred stock	20,149	—	20,149	—
Comprehensive income (loss) attributable to common stockholders	<u>\$ 160,233</u>	<u>\$ (128,594)</u>	<u>\$ (278,276)</u>	<u>\$ (326,486)</u>

(in thousands)	December 31,	December 31,
Balance Sheet Data:	2022	2021
Available-for-sale securities	\$ 7,778,734	\$ 7,161,703
Mortgage servicing rights	\$ 2,984,937	\$ 2,191,578
Total assets	\$ 13,466,160	\$ 12,114,305
Repurchase agreements	\$ 8,603,011	\$ 7,656,445
Revolving credit facilities	\$ 1,118,831	\$ 420,761
Term notes payable	\$ 398,011	\$ 396,776
Convertible senior notes	\$ 282,496	\$ 424,827
Total stockholders' equity	\$ 2,183,525	\$ 2,743,953

Results of Operations

The following analysis focuses on financial results during the three and twelve months ended December 31, 2022 and 2021. The analysis of our financial results during the three and twelve months ended December 31, 2021 and 2020 is omitted from this Form 10-K and included in Part II Item 7 of our Annual Report on Form 10-K for the year ended December 31, 2021, which analysis is incorporated by reference.

Interest Income

Interest income increased from \$33.0 million and \$168.6 million for the three and twelve months ended December 31, 2021, respectively, to \$99.3 million and \$295.5 million for the same periods in 2022 due to lower amortization recognized on Agency RMBS due to slower prepayments, higher interest on cash balances as a result of the higher interest rate environment and increased use of reverse repurchase agreements. Also contributing to the increase for the three months ended December 31, 2022, as compared to the same period in 2021, was an increase in average AFS securities average amortized cost held due to net purchases. However, for the year ended December 31, 2022, as compared to the same period in 2021, the increase was offset by a decrease in average AFS securities average amortized cost held due to net sales.

Interest Expense

Interest expense increased from \$20.2 million and \$89.2 million for the three and twelve months ended December 31, 2021, respectively, to \$115.6 million and \$258.4 million for the same periods in 2022 due primarily to the higher interest rate environment as well as an increase in financing on MSR and Agency RMBS.

Net Interest Income

The following tables present the components of interest income and average net asset yield earned by asset type, the components of interest expense and average cost of funds on borrowings incurred by collateral type, and net interest income and average net interest spread for the three and twelve months ended December 31, 2022 and 2021:

(dollars in thousands)	Three Months Ended December 31, 2022			Year Ended December 31, 2022		
	Average Balance ⁽¹⁾	Interest Income/Expense	Net Yield/Cost of Funds	Average Balance ⁽¹⁾	Interest Income/Expense	Net Yield/Cost of Funds
Interest-earning assets:						
Available-for-sale securities	\$ 8,118,269	\$ 83,712	4.1 %	\$ 7,997,618	\$ 272,230	3.4 %
Reverse repurchase agreements	743,925	7,109	3.8 %	311,844	8,469	2.7 %
Other	—	8,482	— %	—	14,841	— %
Total interest income/net asset yield	\$ 8,862,194	\$ 99,303	4.5 %	\$ 8,309,462	\$ 295,540	3.6 %
Interest-bearing liabilities:						
Borrowings collateralized by:						
Available-for-sale securities	\$ 7,664,204	\$ 68,627	3.6 %	\$ 7,804,563	\$ 138,138	1.8 %
Agency Derivatives ⁽²⁾	14,618	155	4.2 %	24,553	438	1.8 %
Mortgage servicing rights and advances ⁽³⁾	1,917,069	36,938	7.7 %	1,620,847	95,192	5.9 %
U.S. Treasuries ⁽⁴⁾	493,872	5,015	4.1 %	123,468	5,015	4.1 %
Unsecured borrowings:						
Convertible senior notes	282,363	4,892	6.9 %	287,399	19,612	6.8 %
Total interest expense/cost of funds	\$ 10,372,126	\$ 115,627	4.5 %	\$ 9,860,830	\$ 258,395	2.6 %
Net interest (expense) income/spread		\$ (16,324)	— %		\$ 37,145	1.0 %
(dollars in thousands)	Three Months Ended December 31, 2021			Year Ended December 31, 2021		
	Average Balance ⁽¹⁾	Interest Income/Expense	Net Yield/Cost of Funds	Average Balance ⁽¹⁾	Interest Income/Expense	Net Yield/Cost of Funds
Interest-earning assets						
Available-for-sale securities	\$ 6,067,568	\$ 32,729	2.2 %	\$ 8,450,440	\$ 167,310	2.0 %
Reverse repurchase agreements	111,209	1	— %	89,011	7	— %
Other	—	275	— %	—	1,280	— %
Total interest income/net asset yield	\$ 6,178,777	\$ 33,005	2.1 %	\$ 8,539,451	\$ 168,597	2.0 %
Interest-bearing liabilities						
Borrowings collateralized by:						
Available-for-sale securities	\$ 6,503,608	\$ 2,911	0.2 %	\$ 9,098,301	\$ 20,794	0.2 %
Agency Derivatives ⁽²⁾	38,045	69	0.7 %	43,910	349	0.8 %
Mortgage servicing rights and advances ⁽³⁾	942,357	9,883	4.2 %	931,565	39,992	4.3 %
Unsecured borrowings:						
Convertible senior notes	424,641	7,295	6.9 %	412,107	28,038	6.8 %
Total interest expense/cost of funds	\$ 7,908,651	\$ 20,158	1.0 %	\$ 10,485,883	\$ 89,173	0.9 %
Net interest income/spread		\$ 12,847	1.1 %		\$ 79,424	1.1 %

(1) Average asset balance represents average amortized cost on AFS securities and average unpaid principal balance on other assets.

(2) Yields on Agency Derivatives not shown as interest income is included in gain (loss) on other derivative instruments in the consolidated statements of comprehensive loss.

(3) Yields on mortgage servicing rights and advances not shown as these assets do not earn interest.

(4) U.S. Treasury securities effectively borrowed under reverse repurchase agreements.

The increase in yields on AFS securities for the three and twelve months ended December 31, 2022, as compared to the same periods in 2021 was primarily driven by lower amortization as a result of slower prepayment speeds. The increase in cost of funds associated with the financing of AFS securities for the three and twelve months ended December 31, 2022, as compared to the same periods in 2021, was due to rising interest rates.

The increase in yields on reverse repurchase agreements for the three and twelve months ended December 31, 2022, as compared to the same periods in 2021, was the result of rising interest rates. However, these yields were offset by the cost of financing the associated repurchase agreements collateralized by U.S. Treasury securities during the three and twelve months ended December 31, 2022. We did not hold any repurchase agreements collateralized by U.S. Treasury securities during the three and twelve months ended December 31, 2021.

The increase in cost of funds associated with the financing of Agency Derivatives for the three and twelve months ended December 31, 2022, as compared to the same periods in 2021, was the result of rising interest rates.

The increase in cost of funds associated with the financing of MSR assets and related servicing advance obligations for the three and twelve months ended December 31, 2022, as compared to the same periods in 2021, was due to rising interest rates and an increase in the use of revolving credit facility and repurchase agreement financing which on average carry higher floating rate spreads than term notes. We have one revolving credit facility in place to finance our servicing advance obligations, which are included in other assets on our consolidated balance sheets.

The cost of funds associated with our convertible senior notes for the three and twelve months ended December 31, 2022, as compared to the same periods in 2021, was consistent.

The following tables present the components of the yield earned on our AFS securities portfolio as a percentage of our average amortized cost of securities for the three and twelve months ended December 31, 2022 and 2021:

(in thousands)	Three Months Ended		Year Ended	
	December 31,		December 31,	
	2022	2021	2022	2021
Gross yield/stated coupon	4.6 %	4.9 %	4.4 %	4.7 %
Net (premium amortization) discount accretion	(0.5)%	(2.7)%	(1.0)%	(2.7)%
Net yield	4.1 %	2.2 %	3.4 %	2.0 %

(Loss) Gain On Investment Securities

The following table presents the components of (loss) gain on investment securities for the three and twelve months ended December 31, 2022 and 2021:

(in thousands)	Three Months Ended		Year Ended	
	December 31,		December 31,	
	2022	2021	2022	2021
Proceeds from sales	\$ 2,770,811	\$ 1,171,299	\$ 7,793,705	\$ 6,274,193
Amortized cost of securities sold	(3,113,102)	(1,139,241)	(8,359,967)	(6,137,824)
Total realized (losses) gains on sales	(342,291)	32,058	(566,262)	136,369
Reversal of (provision for) credit losses	318	(3,347)	(2,730)	(9,763)
Other	(5,477)	(27,085)	(34,945)	(4,989)
(Loss) gain on investment securities	\$ (347,450)	\$ 1,626	\$ (603,937)	\$ 121,617

In the ordinary course of our business, we make investment decisions and allocate capital in accordance with our views on the changing risk/reward dynamics in the market and in our portfolio. We do not expect to sell assets on a frequent basis, but may sell assets to reallocate capital into new assets that we believe have higher risk-adjusted returns.

We use a discounted cash flow method to estimate and recognize an allowance for credit losses on AFS securities. Subsequent adverse or favorable changes in expected cash flows are recognized immediately in earnings as a provision for or reversal of provision for credit losses (within (loss) gain on investment securities).

The majority of the “other” component of (loss) gain on investment securities is related to changes in unrealized gains (losses) on certain AFS securities for which we have elected the fair value option. Fluctuations in this line item are primarily driven by the reclassification of unrealized gains and losses to realized gains and losses upon sale, as well as changes in fair value assumptions.

Servicing Income

The following table presents the components of servicing income for the three and twelve months ended December 31, 2022 and 2021:

(in thousands)	Three Months Ended December 31,		Year Ended December 31,	
	2022	2021	2022	2021
	Servicing fee income	\$ 137,949	\$ 123,912	\$ 564,923
Ancillary and other fee income	418	548	1,932	2,436
Float income	22,559	1,051	37,056	4,589
Total	\$ 160,926	\$ 125,511	\$ 603,911	\$ 468,406

The increase in servicing income for the three and twelve months ended December 31, 2022, as compared to the same periods in 2021, was due to a higher portfolio balance, lower compensating interest as a result of lower prepayment rates and higher float income as a result of the higher interest rate environment.

(Loss) Gain On Servicing Asset

The following table presents the components of gain (loss) on servicing asset for the three and twelve months ended December 31, 2022 and 2021:

(in thousands)	Three Months Ended December 31,		Year Ended December 31,	
	2022	2021	2022	2021
	Changes in fair value due to changes in valuation inputs or assumptions used in the valuation model	\$ (6,441)	\$ 21,189	\$ 793,631
Changes in fair value due to realization of cash flows (runoff)	(60,908)	(152,450)	(371,023)	(666,160)
Gains (losses) on sales	3,264	(567)	2,768	(11,624)
(Loss) gain on servicing asset	\$ (64,085)	\$ (131,828)	\$ 425,376	\$ (114,941)

The decrease in loss on servicing asset for the three months ended December 31, 2022, as compared to the same period in 2021, was driven by lower portfolio runoff and gains on sales of MSR, offset by unfavorable change in valuation assumptions used in the fair valuation of MSR. The increase in gain (decrease in loss) on servicing asset for the year ended December 31, 2022, as compared to the same period in 2021, was driven by higher favorable change in valuation assumptions used in the fair valuation of MSR, lower portfolio runoff and gains on sales of MSR.

Gain On Interest Rate Swap And Swaption Agreements

The following table summarizes the net interest spread and gains and losses associated with our interest rate swap and swaption positions recognized during the three and twelve months ended December 31, 2022 and 2021:

(in thousands)	Three Months Ended December 31,		Year Ended December 31,	
	2022	2021	2022	2021
	Net interest spread	\$ —	\$ 5,772	\$ (4,830)
Early termination, agreement maturation and option expiration (losses) gains	—	(5,143)	43,197	2,369
Change in unrealized gain (loss) on interest rate swap and swaption agreements, at fair value	—	36,360	(8,868)	25,460
Gain on interest rate swap and swaption agreements	\$ —	\$ 36,989	\$ 29,499	\$ 42,091

Net interest spread recognized for the accrual and/or settlement of the net interest expense associated with our interest rate swaps results from receiving either a floating interest rate (OIS or SOFR) or a fixed interest rate and paying either a fixed interest rate or a floating interest rate (OIS or SOFR) on positions held to economically hedge/mitigate portfolio interest rate exposure (or duration) risk. We may elect to terminate certain swaps and swaptions to align with our investment portfolio, agreements may mature or options may expire resulting in full settlement of our net interest spread asset/liability and the recognition of realized gains and losses, including early termination penalties. The change in fair value of interest rate swaps and swaptions during the three and twelve months ended December 31, 2022 and 2021 was a result of changes to floating interest rates (OIS or SOFR), the swap curve and corresponding counterparty borrowing rates. Since swaps and swaptions are used for purposes of hedging our interest rate exposure, their unrealized valuation gains and losses (excluding the reversal of unrealized gains and losses to realized gains and losses upon termination, maturation or option expiration) are generally offset by unrealized losses and gains in our Agency RMBS AFS portfolio, which are recorded either directly to stockholders' equity through other comprehensive loss or to (loss) gain on investment securities, in the case of certain AFS securities for which we have elected the fair value option.

Gain (Loss) On Other Derivative Instruments

The following table provides a summary of the total net gains (losses) recognized on other derivative instruments we hold for purposes of both hedging and non-hedging activities, principally TBAs, futures, options on futures, and inverse interest-only securities during the three and twelve months ended December 31, 2022 and 2021:

(in thousands)	Three Months Ended		Year Ended	
	December 31,		December 31,	
	2022	2021	2022	2021
TBAs	\$ 48,233	\$ (20,225)	\$ (487,713)	\$ (193,479)
Futures	5,016	14,638	514,467	(49,213)
Options on TBAs	—	(5,683)	—	(5,683)
Options on futures	—	—	(2,224)	—
Inverse interest-only securities	52	(295)	(15,220)	(2,908)
Gain (loss) on other derivative instruments	<u>\$ 53,301</u>	<u>\$ (11,565)</u>	<u>\$ 9,310</u>	<u>\$ (251,283)</u>

All derivative instruments shown above are considered trading instruments. As a result, our financial results include both realized and unrealized gains (losses) associated with these instruments. The increase in gain (decrease in loss) on other derivative instruments for the three months ended December 31, 2022, as compared to the same period in 2021, was driven by net realized and unrealized gains recognized on TBAs. The increase in gain (decrease in loss) on other derivative instruments for the year ended December 31, 2022, as compared to the same period in 2021, was driven by net realized and unrealized gains recognized on futures, offset by net realized and unrealized losses recognized on TBAs. For further details regarding our use of derivative instruments and related activity, refer to Note 7 - *Derivative Instruments and Hedging Activities* to the consolidated financial statements, included in this Annual Report on Form 10-K.

Expenses

The following table presents the components of expenses for the three and twelve months ended December 31, 2022 and 2021:

(dollars in thousands)	Three Months Ended		Year Ended	
	December 31,		December 31,	
	2022	2021	2022	2021
Servicing expenses	\$ 25,272	\$ 21,582	\$ 94,119	\$ 86,250
Operating expenses:				
Compensation and benefits:				
Non-cash equity compensation expenses	\$ 1,653	\$ 2,525	\$ 11,630	\$ 11,485
All other compensation and benefits	5,758	3,871	29,093	23,556
Total compensation and benefits	\$ 7,411	\$ 6,396	\$ 40,723	\$ 35,041
Other operating expenses:				
Nonrecurring expenses	\$ 10,836	\$ 665	\$ 18,982	\$ 5,220
All other operating expenses	4,704	5,983	23,023	23,539
Total other operating expenses	\$ 15,540	\$ 6,648	\$ 42,005	\$ 28,759
Annualized operating expense ratio	4.2 %	1.9 %	3.3 %	2.3 %
Annualized operating expense ratio, excluding non-cash equity compensation and other nonrecurring expenses	1.9 %	1.4 %	2.1 %	1.7 %

We incur servicing expenses generally related to the subservicing of MSR. The increase in servicing expenses during the three and twelve months ended December 31, 2022, as compared to the same periods in 2021, was a result of an increase in portfolio size and subservicing fees.

The increase in total operating expenses during the three and twelve months ended December 31, 2022, as compared to the same period in 2021, was driven by higher compensation and benefits and nonrecurring expenses, offset by lower other operating expenses.

Income Taxes

During the three and twelve months ended December 31, 2022, our TRSs recognized a provision for income taxes of \$8.5 million and \$104.2 million, respectively. The provision recognized for the three months ended December 31, 2022 was primarily due to income from MSR servicing activities and net gains recognized on derivative instruments offset by net losses recognized on MSR and operating expenses. The provision recognized for the year ended December 31, 2022 was primarily due to income from MSR servicing activities and net gains recognized on MSR offset by net losses recognized on derivative instruments and operating expenses. During the three and twelve months ended December 31, 2021, our TRSs recognized a provision for income taxes of \$2.1 million and \$4.2 million, respectively, which was primarily due to income from MSR servicing activities and gains recognized on MSR, offset by net losses recognized on derivative instruments held and operating expenses.

Financial Condition

Available-for-Sale Securities, at Fair Value

The majority of our AFS investment securities portfolio is comprised of fixed rate Agency mortgage-backed securities backed by single-family and multi-family mortgage loans. We also hold \$125.2 million in tranches of mortgage-backed and asset-backed P&I and interest-only non-Agency securities. All of our P&I Agency RMBS AFS are Fannie Mae or Freddie Mac mortgage pass-through certificates or collateralized mortgage obligations, or Ginnie Mae mortgage pass-through certificates, which are backed by the guarantee of the U.S. government. The majority of these securities consist of whole pools in which we own all of the investment interests in the securities.

The tables below summarize certain characteristics of our Agency RMBS AFS at December 31, 2022 and December 31, 2021:

December 31, 2022									
(dollars in thousands, except purchase price)	Principal/ Current Face	Net (Discount) Premium	Amortized Cost	Allowance for Credit Losses	Unrealized Gain	Unrealized Loss	Carrying Value	Weighted Average Coupon Rate	Weighted Average Purchase Price
P&I securities	\$ 7,781,277	\$ 155,833	\$ 7,937,110	\$ —	\$ 6,310	\$ (325,960)	\$ 7,617,460	4.64 %	\$ 102.26
Interest-only securities	963,866	45,882	45,882	(6,785)	1,890	(4,871)	36,116	1.98 %	\$ 19.55
Total	<u>\$ 8,745,143</u>	<u>\$ 201,715</u>	<u>\$ 7,982,992</u>	<u>\$ (6,785)</u>	<u>\$ 8,200</u>	<u>\$ (330,831)</u>	<u>\$ 7,653,576</u>		

December 31, 2021									
(dollars in thousands, except purchase price)	Principal/ Current Face	Net (Discount) Premium	Amortized Cost	Allowance for Credit Losses	Unrealized Gain	Unrealized Loss	Carrying Value	Weighted Average Coupon Rate	Weighted Average Purchase Price
P&I securities	\$ 6,411,363	\$ 270,687	\$ 6,682,050	\$ —	\$ 171,308	\$ (4,855)	\$ 6,848,503	3.65 %	\$ 104.66
Interest-only securities	3,198,447	305,577	305,577	(12,851)	20,699	(12,529)	300,896	2.93 %	\$ 14.09
Total	<u>\$ 9,609,810</u>	<u>\$ 576,264</u>	<u>\$ 6,987,627</u>	<u>\$ (12,851)</u>	<u>\$ 192,007</u>	<u>\$ (17,384)</u>	<u>\$ 7,149,399</u>		

Mortgage Servicing Rights, at Fair Value

One of our wholly owned subsidiaries has approvals from Fannie Mae and Freddie Mac to own and manage MSR, which represent the right to control the servicing of mortgage loans. We do not directly service mortgage loans, and instead contract with appropriately licensed subservicers to handle substantially all servicing functions in the name of the subservicer for the loans underlying our MSR. As of December 31, 2022 and December 31, 2021, our MSR had a fair market value of \$3.0 billion and \$2.2 billion, respectively.

As of December 31, 2022 and December 31, 2021, our MSR portfolio included MSR on 809,025 and 796,205 loans with an unpaid principal balance of approximately \$204.9 billion and \$193.8 billion, respectively. The following tables summarize certain characteristics of the loans underlying our MSR by gross weighted average coupon rate types and ranges at December 31, 2022 and December 31, 2021:

December 31, 2022										
(dollars in thousands)	Number of Loans	Unpaid Principal Balance	Weighted Average Gross Coupon Rate	Weighted Average Current Loan Size	Weighted Average Loan Age (months)	Weighted Average Original FICO	Weighted Average Original LTV	60+ Day Delinquencies	3-Month CPR	Net Servicing Fee (bps)
30-Year Fixed:										
≤ 3.25%	299,221	\$ 96,929,358	2.8 %	\$ 382	23	768	71.0 %	0.4 %	3.3 %	25.8
> 3.25 - 3.75%	140,499	36,531,127	3.4 %	327	38	754	74.2 %	0.8 %	5.0 %	26.3
> 3.75 - 4.25%	108,214	22,603,005	3.9 %	272	61	751	75.7 %	1.3 %	6.3 %	27.3
> 4.25 - 4.75%	60,343	10,752,661	4.4 %	249	63	736	77.4 %	2.4 %	7.8 %	26.4
> 4.75 - 5.25%	31,694	5,735,770	4.9 %	285	44	732	78.5 %	2.9 %	7.0 %	28.2
> 5.25%	31,046	7,270,132	5.9 %	343	15	736	80.8 %	1.4 %	6.4 %	33.5
	<u>671,017</u>	<u>179,822,053</u>	<u>3.4 %</u>	<u>344</u>	<u>34</u>	<u>758</u>	<u>73.3 %</u>	<u>0.8 %</u>	<u>4.5 %</u>	<u>26.5</u>
15-Year Fixed:										
≤ 2.25%	23,157	6,521,890	2.0 %	330	20	777	59.1 %	0.1 %	3.0 %	25.2
> 2.25 - 2.75%	38,830	8,781,681	2.4 %	277	24	772	58.9 %	0.2 %	4.2 %	25.9
> 2.75 - 3.25%	36,300	5,297,231	2.9 %	202	53	766	61.5 %	0.3 %	6.6 %	26.2
> 3.25 - 3.75%	21,402	2,307,332	3.4 %	159	65	757	63.8 %	0.6 %	8.3 %	26.9
> 3.75 - 4.25%	10,044	909,909	3.9 %	146	61	742	65.1 %	0.8 %	9.0 %	28.6
> 4.25%	5,648	575,114	4.7 %	193	34	734	65.7 %	1.3 %	10.0 %	33.5
	<u>135,381</u>	<u>24,393,157</u>	<u>2.6 %</u>	<u>257</u>	<u>35</u>	<u>769</u>	<u>60.4 %</u>	<u>0.3 %</u>	<u>5.1 %</u>	<u>26.2</u>
Total ARMs	2,627	661,483	3.6 %	330	56	761	67.7 %	1.0 %	13.6 %	25.5
Total	<u>809,025</u>	<u>\$ 204,876,693</u>	<u>3.3 %</u>	<u>\$ 334</u>	<u>34</u>	<u>760</u>	<u>71.7 %</u>	<u>0.8 %</u>	<u>4.6 %</u>	<u>26.5</u>

December 31, 2021

(dollars in thousands)	Number of Loans	Unpaid Principal Balance	Weighted Average Gross Coupon Rate	Weighted Average Current Loan Size	Weighted Average Loan Age (months)	Weighted Average Original FICO	Weighted Average Original LTV	60+ Day Delinquencies	3-Month CPR	Net Servicing Fee (bps)
30-Year Fixed:										
≤ 3.25%	215,128	\$ 72,197,662	2.8 %	\$ 395	11	767	70.7 %	0.3 %	10.7 %	25.7
> 3.25 - 3.75%	167,615	43,576,971	3.4 %	321	28	755	74.2 %	0.8 %	24.0 %	26.3
> 3.75 - 4.25%	125,831	26,250,276	3.9 %	263	54	753	75.7 %	2.3 %	34.0 %	27.4
> 4.25 - 4.75%	79,107	14,291,435	4.4 %	239	58	797	77.5 %	4.4 %	36.4 %	26.3
> 4.75 - 5.25%	38,902	6,318,470	4.9 %	230	52	722	78.9 %	6.4 %	37.4 %	27.3
> 5.25%	15,796	2,176,065	5.5 %	211	51	705	79.2 %	9.2 %	37.6 %	30.5
	642,379	164,810,879	3.4 %	332	29	756	73.4 %	1.5 %	22.7 %	26.3
15-Year Fixed:										
≤ 2.25%	16,525	5,397,141	2.0 %	371	9	778	57.1 %	0.1 %	8.3 %	25.2
> 2.25 - 2.75%	41,168	9,901,133	2.4 %	294	13	774	58.0 %	0.2 %	14.2 %	25.6
> 2.75 - 3.25%	46,236	7,568,257	2.9 %	220	40	768	61.3 %	0.4 %	21.6 %	26.1
> 3.25 - 3.75%	28,010	3,485,491	3.4 %	172	55	758	64.3 %	1.1 %	26.6 %	27.4
> 3.75 - 4.25%	12,685	1,302,862	3.9 %	152	55	742	65.3 %	2.1 %	28.5 %	28.8
> 4.25%	5,965	513,255	4.5 %	130	47	727	66.1 %	2.6 %	29.4 %	31.2
	150,589	28,168,139	2.7 %	264	27	769	60.0 %	0.5 %	18.1 %	26.1
Total ARMs	3,237	791,548	3.0 %	315	54	762	68.0 %	2.9 %	29.5 %	25.2
Total	796,205	\$ 193,770,566	3.3 %	\$ 322	28	758	71.5 %	1.3 %	22.1 %	26.3

Financing

Our borrowings consist primarily of repurchase agreements, revolving credit facilities, term notes payable and convertible senior notes. Repurchase agreements, revolving credit facilities and term notes payable are collateralized by our pledge of AFS securities, derivative instruments, MSR, servicing advances and certain cash balances. Substantially all of our Agency RMBS are currently pledged as collateral, and a portion of our non-Agency securities have been pledged as collateral for repurchase agreements. Additionally, a substantial portion of our MSR is currently pledged as collateral for repurchase agreements, revolving credit facilities and term notes payable, and a portion of our servicing advances have been pledged as collateral for revolving credit facilities. In connection with our securitization of MSR and issuance of term notes payable, a variable funding note, or VFN, was issued to one of our subsidiaries. We have one repurchase facility that is secured by the VFN, which is collateralized by our MSR. Finally, our convertible senior notes due 2026 are unsecured and pay interest semiannually at a rate of 6.25% per annum.

Some of our financing arrangements incorporate LIBOR as the referenced rate; however all arrangements either mature prior to the phase out of LIBOR or have provisions in place that provide for an alternative to LIBOR upon its phase-out. See Item 7, “*Management’s Discussion and Analysis of Financial Condition and Results of Operations - Market Conditions and Outlook - LIBOR transition*” in this Annual Report on Form 10-K for further discussion.

At December 31, 2022 and December 31, 2021, borrowings under repurchase agreements, revolving credit facilities, term notes payable and convertible senior notes had the following characteristics:

(dollars in thousands)	December 31, 2022			December 31, 2021		
	Amount Outstanding	Weighted Average Borrowing Rate	Weighted Average Years to Maturity	Amount Outstanding	Weighted Average Borrowing Rate	Weighted Average Years to Maturity
Borrowing Type						
Repurchase agreements	\$ 8,603,011	3.95 %	0.2	\$ 7,656,445	0.24 %	0.2
Revolving credit facilities	1,118,831	7.68 %	1.1	420,761	3.46 %	1.2
Term notes payable	398,011	7.19 %	1.5	396,776	2.90 %	2.5
Convertible senior notes ⁽¹⁾	282,496	6.25 %	3.0	424,827	6.25 %	2.7
Total	\$ 10,402,349	4.54 %	1.7	\$ 8,898,809	0.80 %	0.5

(dollars in thousands)	December 31, 2022			December 31, 2021		
	Amount Outstanding	Weighted Average Borrowing Rate	Weighted Average Haircut on Collateral Value	Amount Outstanding	Weighted Average Borrowing Rate	Weighted Average Haircut on Collateral Value
Collateral Type						
Agency RMBS	\$ 7,321,834	3.70 %	3.9 %	\$ 7,495,230	0.17 %	4.2 %
Non-Agency securities	70,809	5.73 %	40.0 %	171	1.24 %	43.9 %
Agency Derivatives	13,073	4.83 %	18.9 %	36,044	0.74 %	17.8 %
Mortgage servicing rights	1,801,992	7.61 %	30.6 %	923,337	3.30 %	27.9 %
Mortgage servicing advances	23,850	7.75 %	12.9 %	19,200	3.23 %	13.8 %
U.S. Treasuries ⁽²⁾	888,295	4.49 %	— %	—	— %	— %
Other ⁽¹⁾	282,496	6.25 %	N/A	424,827	6.25 %	N/A
Total	\$ 10,402,349	4.54 %	8.4 %	\$ 8,898,809	0.80 %	6.6 %

(1) Includes unsecured convertible senior notes due 2026 paying interest semiannually at a rate of 6.25% per annum on the aggregate principal amount of \$287.5 million.

(2) U.S. Treasury securities effectively borrowed under reverse repurchase agreements.

As of December 31, 2022, the debt-to-equity ratio funding our AFS securities, MSR, servicing advances and Agency Derivatives, which includes unsecured borrowings under convertible senior notes, was 4.4:1.0. As previously discussed, our Agency RMBS, given their liquidity and high credit quality, are eligible for higher levels of leverage, while MSR, with less liquidity and/or more exposure to prepayment risk, utilize lower levels of leverage. Generally, our debt-to-equity ratio is directly correlated to the composition of our portfolio; typically, the higher the percentage of Agency RMBS we hold, the higher our debt-to-equity ratio will be. However, in addition to portfolio mix, our debt-to-equity ratio is a function of many other factors, including the liquidity of our portfolio, the availability and price of our financing, the diversification of our counterparties and their available capacity to finance our assets, and anticipated regulatory developments. We may alter the percentage allocation of our portfolio among our target assets depending on the relative value of the assets that are available to purchase from time to time, including at times when we are deploying proceeds from offerings we conduct. We believe the current degree of leverage within our portfolio helps ensure that we have access to unused borrowing capacity, thus supporting our liquidity and the strength of our balance sheet.

The following table provides a summary of our borrowings under repurchase agreements (excluding those collateralized by U.S. Treasuries), revolving credit facilities, term notes payable and convertible senior notes and our debt-to-equity ratios for the three months ended December 31, 2022, and the four immediately preceding quarters:

(dollars in thousands)

For the Three Months Ended	Quarterly Average	End of Period Balance	Maximum Balance of Any Month-End	End of Period Total Borrowings to Equity Ratio	End of Period Net Long (Short) TBA Cost Basis	End of Period Net Payable (Receivable) for Unsettled RMBS	End of Period Economic Debt-to-Equity Ratio ⁽¹⁾
December 31, 2022	\$ 9,878,254	\$ 9,514,054	\$ 10,672,731	4.4:1.0	\$ 3,923,298	\$ 342,964	6.3:1.0
September 30, 2022	\$ 10,973,416	\$ 11,844,972	\$ 11,844,972	5.5:1.0	\$ 4,153,582	\$ 34,576	7.5:1.0
June 30, 2022	\$ 8,949,630	\$ 9,463,102	\$ 9,463,102	3.8:1.0	\$ 6,409,396	\$ 1,240,666	6.9:1.0
March 31, 2022	\$ 9,139,305	\$ 9,121,894	\$ 9,366,946	3.5:1.0	\$ 4,737,226	\$ (234,971)	5.2:1.0
December 31, 2021	\$ 7,908,651	\$ 8,898,809	\$ 8,898,809	3.2:1.0	\$ 4,238,881	\$ —	4.8:1.0

(1) Defined as total borrowings under repurchase agreements (excluding those collateralized by U.S. Treasuries), revolving credit facilities, term notes payable and convertible senior notes, plus implied debt on net TBA cost basis and net payable (receivable) for unsettled RMBS, divided by total equity. Effective as of December 31, 2022, net payable (receivable) on unsettled RMBS is now included in the calculation for economic debt-to-equity. Prior period data have been updated to conform to the current period calculation.

Equity

The following table provides details of our changes in stockholders' equity from December 31, 2021 to December 31, 2022. All per share amounts, common shares outstanding and common equity-based awards for all periods presented have been adjusted on a retroactive basis to reflect the reverse stock split.

(in millions, except per share amounts)	Book Value	Common Shares Outstanding	Common Book Value Per Share
Common stockholders' equity at December 31, 2021	\$ 2,017.7	86.0	\$ 23.47
Net income	220.2		
Other comprehensive loss	(465.0)		
Comprehensive loss	(244.8)		
Dividends on preferred stock	(53.6)		
Gain on repurchase and retirement of preferred stock	20.1		
Comprehensive loss attributable to common stockholders	(278.3)		
Dividend declarations	(228.9)		
Other	11.7	0.1	
Balance before capital transactions	1,522.2	86.1	
Repurchase and retirement of preferred stock	2.4		
Issuance of common stock, net of offering costs	6.6	0.3	
Common stockholders' equity at December 31, 2022	\$ 1,531.2	86.4	\$ 17.72
Total preferred stock liquidation preference	652.3		
Total stockholders' equity at December 31, 2022	\$ 2,183.5		

U.S. GAAP to Estimated Taxable Income

The following tables provide reconciliations of our GAAP net income (loss) to our estimated taxable income (loss) split between our REIT and TRSs for the years ended December 31, 2022 and 2021:

(in millions)	Year Ended December 31, 2022		
	TRS	REIT	Consolidated
GAAP net income (loss), pre-tax	\$ 445.5	\$ (121.0)	\$ 324.5
State taxes	(13.4)	0.1	(13.3)
Adjusted GAAP net income (loss), pre-tax	432.1	(120.9)	311.2
<i>Permanent differences</i>			
State deferred tax expense	14.3	—	14.3
Other permanent differences	0.9	(1.3)	(0.4)
<i>Temporary differences</i>			
Net accretion of OID and market discount	(61.7)	2.8	(58.9)
Net unrealized gains and losses	(416.8)	(206.7)	(623.5)
Net realized gains and losses on sales of RMBS	—	18.9	18.9
Net realized gains and losses on sales of MSR	15.9	(124.0)	(108.1)
Credit loss impairment	—	2.7	2.7
Other temporary differences	(0.5)	24.9	24.4
Capital loss carryforward deferral	—	1,029.3	1,029.3
Net operating loss carryforward utilization	—	(336.6)	(336.6)
Estimated taxable (loss) income	(15.8)	289.1	273.3
Dividend paid deduction	—	(289.1)	(289.1)
Estimated taxable loss post-dividend deduction	\$ (15.8)	\$ —	\$ (15.8)
Year Ended December 31, 2021			
(in millions)	TRS	REIT	Consolidated
GAAP net income (loss), pre-tax	\$ 60.1	\$ 131.3	\$ 191.4
State taxes	10.6	—	10.6
Adjusted GAAP net income (loss), pre-tax	70.7	131.3	202.0
<i>Permanent differences</i>			
State deferred tax benefit	(9.0)	—	(9.0)
Other permanent differences	—	0.1	0.1
<i>Temporary differences</i>			
Net accretion of OID and market discount	(53.7)	(59.4)	(113.1)
Net unrealized gains and losses	(137.3)	(31.6)	(168.9)
Net realized gains and losses on sales of RMBS	—	(4.9)	(4.9)
Credit loss impairment	—	9.8	9.8
Other temporary differences	5.8	2.0	7.8
Capital loss carryforward deferral	—	16.6	16.6
Estimated taxable (loss) income	(123.5)	63.9	(59.6)
Dividend paid deduction	—	(63.9)	(63.9)
Estimated taxable (loss) post-dividend deduction	\$ (123.5)	\$ —	\$ (123.5)

The permanent tax differences recorded in 2022 and 2021 included a difference related to officer's compensation deduction limitations, compensation expense related to restricted stock dividends and vesting, and state deferred taxes. The temporary tax differences recorded in 2022 and 2021 were principally timing differences between U.S. GAAP and tax accounting related to unrealized gains and losses from derivative instruments, realized and unrealized gains and losses from MSR and RMBS, accretion and amortization from RMBS, changes in reserves related to servicing advances and allowance for credit losses on certain RMBS, and deferral of net capital losses. There was also a temporary tax difference recorded in 2022 related to the utilization of net operating losses.

Change in Accumulated Other Comprehensive (Loss) Income

With our accounting treatment for AFS securities, unrealized fluctuations in the market values of AFS securities, excluding certain AFS securities for which we have elected the fair value option, do not impact our GAAP net (loss) income or taxable income but are recognized on our consolidated balance sheets as a change in stockholders' equity under "accumulated other comprehensive (loss) income." As a result of this fair value accounting through stockholders' equity, we expect our net income to have less significant fluctuations and result in less U.S. GAAP to taxable income timing differences, than if the portfolio were accounted for as trading instruments.

Dividends

For the year ended December 31, 2022, we declared cash dividends totaling \$2.64 per common share. As a REIT, we are required to distribute at least 90% of our taxable income to stockholders, subject to certain distribution requirements. For the year ended December 31, 2022, our board of directors elected to distribute all of our REIT taxable income for the year. Temporary differences between GAAP net income (loss) and taxable income can generate deterioration in book value on a permanent and temporary basis as taxable income is distributed that has not been earned for U.S. GAAP purposes.

Liquidity and Capital Resources

Our liquidity and capital resources are managed and forecasted on a daily basis. We believe this ensures that we have sufficient liquidity to absorb market events that could negatively impact collateral valuations and result in margin calls. We also believe that it gives us the flexibility to manage our portfolio to take advantage of market opportunities.

Our principal sources of cash consist of borrowings under repurchase agreements, revolving credit facilities, term notes payable, payments of principal and interest we receive on our target assets, cash generated from our operating results, and proceeds from capital market transactions. We typically use cash to repay principal and interest on our borrowings, to purchase our target assets, to make dividend payments on our capital stock, and to fund our operations. To the extent that we raise additional equity capital through capital market transactions, we anticipate using cash proceeds from such transactions to purchase our target assets and for other general corporate purposes. Such general corporate purposes may include the refinancing or repayment of debt, the repurchase or redemption of common and preferred equity securities, and other capital expenditures.

As of December 31, 2022, we held \$683.5 million in cash and cash equivalents available to support our operations; \$10.8 billion of AFS securities, MSR, and derivative assets held at fair value; and \$10.4 billion of outstanding debt in the form of repurchase agreements, borrowings under revolving credit facilities, term notes payable and convertible senior notes. During the three months ended December 31, 2022, the debt-to-equity ratio funding our AFS securities, MSR and Agency Derivatives, which includes unsecured borrowings under convertible senior notes, decreased from 5.5:1.0 to 4.4:1.0 due to decreased financing on Agency RMBS and MSR. During the year ended December 31, 2022, the debt-to-equity ratio funding our AFS securities, MSR and Agency Derivatives, which includes unsecured borrowings under convertible senior notes, increased from 3.2:1.0 to 4.4:1.0 due to increased financing on Agency RMBS and MSR as well as a decrease in equity. During the three and twelve months ended December 31, 2022, our economic debt-to-equity ratio funding our AFS securities, MSR and Agency Derivatives, which includes unsecured borrowings under convertible senior notes, implied debt on net TBA cost basis and net payable (receivable) for unsettled RMBS, decreased from 7.5:1.0 to 6.3:1.0 and increased from 4.8:1.0 to 6.3:1.0, respectively.

As of December 31, 2022, we held approximately \$344.6 million of unpledged AFS securities and Agency derivatives, which includes \$343.0 million of unsettled Agency RMBS purchases, and \$7.6 million of unpledged non-Agency securities. As a result, we had an overall estimated unused borrowing capacity on unpledged securities of approximately \$6.1 million. As of December 31, 2022, we held approximately \$26.9 million of unpledged MSR and \$51.2 million of unpledged servicing advances. Overall, on December 31, 2022, we had \$293.8 million unused committed and \$402.3 million unused uncommitted borrowing capacity on MSR financing facilities, and \$176.2 million in unused committed borrowing capacity on servicing advance financing facilities. Generally, unused borrowing capacity may be the result of our election not to utilize certain financing, as well as delays in the timing in which funding is provided, insufficient collateral or the inability to meet lenders' eligibility requirements for specific types of asset classes. On a daily basis, we monitor and forecast our available, or excess, liquidity. Additionally, we frequently perform shock analyses against various market events to monitor the adequacy of our excess liquidity.

During the year ended December 31, 2022, we did not experience any material issues accessing our funding sources. We expect ongoing sources of financing to be primarily repurchase agreements, revolving credit facilities, term notes payable, convertible notes and similar financing arrangements. We plan to finance our assets with a moderate amount of leverage, the level of which may vary based upon the particular characteristics of our portfolio and market conditions.

As of December 31, 2022, we had master repurchase agreements in place with 39 counterparties (lenders), the majority of which are U.S. domiciled financial institutions, and we continue to evaluate additional counterparties to manage and optimize counterparty risk. Under our repurchase agreements, we are required to pledge additional assets as collateral to our lenders when the estimated fair value of the existing pledged collateral under such agreements declines and such lenders, through a margin call, demand additional collateral. Lenders generally make margin calls because of a perceived decline in the value of our assets collateralizing the repurchase agreements. This may occur following the monthly principal reduction of assets due to scheduled amortization and prepayments on the underlying mortgages, or may be caused by changes in market interest rates, a perceived decline in the market value of the investments and other market factors. To cover a margin call, we may pledge additional assets or cash. At maturity, any cash on deposit as collateral is generally applied against the repurchase agreement balance, thereby reducing the amount borrowed. Should the value of our assets suddenly decrease, significant margin calls on our repurchase agreements could result, causing an adverse change in our liquidity position.

In addition to our master repurchase agreements to fund our Agency and non-Agency securities, we have one repurchase facility and three revolving credit facilities that provide short- and long-term financing for our MSR portfolio. We also have one revolving credit facility that provides long-term financing for our servicing advances. An overview of the facilities is presented in the table below:

(dollars in thousands)

December 31, 2022

Expiration Date ⁽¹⁾	Amount Outstanding	Unused Committed Capacity ⁽²⁾	Unused Uncommitted Capacity	Total Capacity	Eligible Collateral
April 4, 2024	\$ 638,731	\$ —	\$ 61,269	\$ 700,000	Mortgage servicing rights
December 29, 2023	\$ 309,000	\$ —	\$ 191,000	\$ 500,000	Mortgage servicing rights ⁽³⁾
March 20, 2024	\$ 256,250	\$ 93,750	\$ 150,000	\$ 500,000	Mortgage servicing rights ⁽⁴⁾
June 30, 2023	\$ 200,000	\$ 200,000	\$ —	\$ 400,000	Mortgage servicing rights
September 28, 2024	\$ 23,850	\$ 176,150	\$ —	\$ 200,000	Mortgage servicing advances

(1) The facilities are set to mature on the stated expiration date, unless extended pursuant to their terms.

(2) Represents unused capacity amounts to which commitment fees are charged.

(3) This repurchase facility is secured by a VFN issued in connection with our securitization of MSR, which is collateralized by our MSR. During the three months ended December 31, 2022, this repurchase facility was amended to prescribe a reduction in the total capacity to \$300.0 million starting February 8, 2023.

(4) The revolving period of this facility ceases on March 17, 2023, at which time the facility starts a 12-month amortization period.

We are subject to a variety of financial covenants under our lending agreements. The following represent the most restrictive financial covenants across our lending agreements as of December 31, 2022:

- Total indebtedness to tangible net worth must be less than 8.0:1.0. As of December 31, 2022, our total indebtedness to tangible net worth, as defined, was 5.1:1.0.
- Cash liquidity must be greater than \$200.0 million. As of December 31, 2022, our liquidity, as defined, was \$683.5 million.
- Net worth must be greater than the higher of \$1.5 billion or 50% of the highest net worth during the 24 calendar months prior. As of December 31, 2022, 50% of the highest net worth during the 24 calendar months prior, as defined, was \$1.6 billion and our net worth, as defined, was \$2.2 billion.

We are also subject to additional financial covenants in connection with various other agreements we enter into in the normal course of our business. We intend to continue to operate in a manner which complies with all of our financial covenants.

The following table summarizes assets at carrying values that were pledged or restricted as collateral for the future payment obligations of repurchase agreements, revolving credit facilities, term notes payable and derivative instruments at December 31, 2022 and December 31, 2021:

(in thousands)	December 31, 2022	December 31, 2021
Available-for-sale securities, at fair value	\$ 7,426,953	\$ 7,009,449
Mortgage servicing rights, at fair value	2,958,057	2,130,807
Restricted cash	324,854	747,979
Due from counterparties	22,055	33,718
Derivative assets, at fair value	14,738	39,608
Other assets	67,819	33,767
U.S. Treasuries ⁽¹⁾	877,632	—
Total	<u>\$ 11,692,108</u>	<u>\$ 9,995,328</u>

(1) U.S. Treasury securities effectively borrowed under reverse repurchase agreements.

Although we generally intend to hold our target assets as long-term investments, we may sell certain of our assets in order to manage our interest rate risk and liquidity needs, to meet other operating objectives and to adapt to market conditions. Our Agency RMBS are generally actively traded and thus, in most circumstances, readily liquid. However, certain of our assets, including MSR, are subject to longer trade timelines, and, as a result, market conditions could significantly and adversely affect the liquidity of our assets. Any illiquidity of our assets may make it difficult for us to sell such assets if the need or desire arises. Our ability to quickly sell certain assets, such as MSR, may be limited by delays encountered while obtaining certain Agency approvals required for such dispositions and may be further limited by delays due to the time period needed for negotiating transaction documents, conducting diligence, and complying with Agency requirements regarding the transfer of such assets before settlement may occur. Consequently, even if we identify a buyer for our MSR, there is no assurance that we would be able to quickly sell such assets if the need or desire arises.

In addition, if we are required to liquidate all or a portion of our portfolio quickly, we may realize significantly less than the value at which we previously recorded our assets. Assets that are illiquid are more difficult to finance, and to the extent that we use leverage to finance assets that become illiquid, we may lose that leverage or have it reduced. Assets tend to become less liquid during times of financial stress, which is often the time that liquidity is most needed. As a result, our ability to sell assets or vary our portfolio in response to changes in economic and other conditions may be limited by liquidity constraints, which could adversely affect our results of operations and financial condition.

We cannot predict the timing and impact of future sales of our assets, if any. Because many of our assets are financed with repurchase agreements, revolving credit facilities and term notes payable, a significant portion of the proceeds from sales of our assets (if any), prepayments and scheduled amortization are used to repay balances under these financing sources.

The following table provides the maturities of our repurchase agreements, revolving credit facilities, term notes payable and convertible senior notes as of December 31, 2022 and December 31, 2021:

(in thousands)	December 31, 2022	December 31, 2021
Within 30 days	\$ 2,691,195	\$ 1,771,027
30 to 59 days	2,160,737	1,807,544
60 to 89 days	2,536,636	1,981,056
90 to 119 days	905,443	1,249,435
120 to 364 days	509,000	1,265,638
One to three years	1,316,842	543,026
Three to five years	282,496	281,083
Total	<u>\$ 10,402,349</u>	<u>\$ 8,898,809</u>

For the year ended December 31, 2022, our restricted and unrestricted cash balance decreased approximately \$962.2 million to \$1.1 billion at December 31, 2022. The cash movements can be summarized by the following:

- *Cash flows from operating activities.* For the year ended December 31, 2022, operating activities increased our cash balances by approximately \$623.4 million, primarily driven by our financial results for the year.
- *Cash flows from investing activities.* For the year ended December 31, 2022, investing activities decreased our cash balances by approximately \$2.8 billion, primarily driven by purchases of AFS securities and MSR and net payments under reverse repurchase agreements, offset by proceeds from sales of and principal payments on AFS securities and sales of MSR.
- *Cash flows from financing activities.* For the year ended December 31, 2022, financing activities increased our cash balance by approximately \$1.2 billion, primarily driven by an increase in financing on RMBS and MSR, offset by the repayment of our convertible senior notes due 2022 and payment of dividends.

Recently Issued Accounting Standards

Refer to Note 2 - *Basis of Presentation and Significant Accounting Policies* of the notes to the consolidated financial statements included in Item 8 of this Form 10-K.

Inflation

Our assets and liabilities are financial in nature. As a result, changes in interest rates and other factors impact our performance far more than does inflation, although inflation rates can often have a meaningful influence over the direction of interest rates. Our financial statements are prepared in accordance with U.S. GAAP and dividends are based upon net ordinary income and capital gains as calculated for tax purposes; in each case, our results of operations and reported assets, liabilities and equity are measured with reference to historical cost or fair value without considering inflation.

Other Matters

We intend to conduct our business so as to maintain our exempt status under, and not to become regulated as, an investment company for purposes of the 1940 Act. If we failed to maintain our exempt status under the 1940 Act and became regulated as an investment company, our ability to, among other things, use leverage would be substantially reduced and, as a result, we would be unable to conduct our business as described in Item 1, “*Business - Other Business - Regulation*” of this Annual Report on Form 10-K. Accordingly, we monitor our compliance with both the 55% Test and the 80% Tests of the 1940 Act in order to maintain our exempt status. As of December 31, 2022, we determined that we maintained compliance with both the 55% Test and the 80% Test requirements.

We calculate that at least 75% of our assets were qualified REIT assets, as defined in the Code for the year ended December 31, 2022. We also calculate that our revenue qualified for the 75% source of income test and for the 95% source of income test rules for the year ended December 31, 2022. Consequently, we met the REIT income and asset tests. We also met all REIT requirements regarding the ownership of our common stock and the distribution of our net income. Therefore, for the year ended December 31, 2022, we believe that we qualified as a REIT under the Code.

Item 7A. Quantitative and Qualitative Disclosures about Market Risk

We seek to manage our risks related to the credit quality of our assets, interest rates, liquidity, prepayment speeds and market value while providing an opportunity to stockholders to realize attractive risk-adjusted total return through ownership of our capital stock. Although we do not seek to avoid risk completely, we believe that risk can be quantified from historical experience, and we seek to manage our risk levels in order to earn sufficient compensation to justify the risks we undertake and to maintain capital levels consistent with taking such risks.

To manage the risks to our portfolio, we employ portfolio-wide and asset-specific risk measurement and management processes in our daily operations. Risk management tools include software and services licensed or purchased from third parties as well as proprietary and third-party analytical tools and models. There can be no guarantee that these tools and methods will protect us from market risks.

Interest Rate Risk

Interest rates are highly sensitive to many factors, including fiscal and monetary policies and domestic and international economic and political considerations, as well as other factors beyond our control. We are subject to interest rate risk in connection with our assets and related financing obligations.

LIBOR and other indices which had been deemed “benchmarks” for various commercial and financial contracts have been the subject of recent national, international, and other regulatory guidance and proposals for reform, and it appears likely that LIBOR will be phased out by June 2023. We currently have agreements that are indexed to LIBOR and are monitoring related reform proposals and evaluating the related risks; however, it is not possible to predict the effects of any future initiatives to regulate, reform or change the manner of administration of LIBOR could result in adverse consequences to the rate of interest payable and receivable on, market value of and market liquidity for LIBOR-based financial instruments. See Item 7, “*Management’s Discussion and Analysis of Financial Condition and Results of Operations - Market Conditions and Outlook - LIBOR transition*” for further discussion.

Subject to maintaining our qualification as a REIT, we engage in a variety of interest rate risk management techniques that seek to mitigate the influence of interest rate changes on the values of our assets. We may enter into a variety of derivative and non-derivative instruments to economically hedge interest rate risk or “duration mismatch (or gap)” by adjusting the duration of our floating-rate borrowings into fixed-rate borrowings to more closely match the duration of our assets. This particularly applies to borrowing agreements with maturities or interest rate resets of less than six months. Typically, the interest receivable terms (*i.e.*, LIBOR, OIS or SOFR) of certain derivatives match the terms of the underlying debt, resulting in an effective conversion of the rate of the related borrowing agreement from floating to fixed. The objective is to manage the cash flows associated with current and anticipated interest payments on borrowings, as well as the ability to roll or refinance borrowings at the desired amount by adjusting the duration. To help manage the adverse impact of interest rate changes on the value of our portfolio as well as our cash flows, we may, at times, enter into various forward contracts, including short securities, TBAs, options, futures, swaps, caps, credit default swaps and total return swaps. In executing on our current interest rate risk management strategy, we have entered into TBAs, interest rate swap and swaption agreements, futures and options on futures. In addition, because MSR are negative duration assets, they may provide a hedge to interest rate exposure on our Agency RMBS portfolio. In hedging interest rate risk, we seek to reduce the risk of losses on the value of our investments that may result from changes in interest rates in the broader markets, improve risk-adjusted returns and, where possible, obtain a favorable spread between the yield on our assets and the cost of our financing.

REIT income arising from “clearly identified” hedging transactions that are entered into to manage the risk of interest rate or price changes with respect to borrowings, including gain from the disposition of such hedging transactions, to the extent the hedging transactions hedge indebtedness incurred, or to be incurred, by the REIT to acquire or carry real estate assets, will not be treated as gross income for purposes of either the 75% or the 95% gross income tests. In general, for a hedging transaction to be “clearly identified,” (i) it must be identified as a hedging transaction before the end of the day on which it is acquired, originated, or entered into, and (ii) the items of risks being hedged must be identified “substantially contemporaneously” with entering into the hedging transaction (generally not more than 35 days after entering into the hedging transaction). We intend to structure any hedging transactions in a manner that does not jeopardize our qualification as a REIT, although this determination depends on an analysis of the facts and circumstances concerning each hedging transaction. We also implement part of our hedging strategy through our TRSs, which are subject to U.S. federal, state and, if applicable, local income tax.

We treat our TBAs as qualifying assets for purposes of the 75% asset test, to the extent set forth in an opinion from Sidley Austin LLP substantially to the effect that, for purposes of the 75% asset test, our ownership of a TBA should be treated as ownership of the underlying Agency RMBS. We also treat income and gains from our TBAs as qualifying income for purposes of the 75% gross income test, to the extent set forth in an opinion from Sidley Austin LLP substantially to the effect that, for purposes of the 75% gross income test, any gain recognized by us in connection with the settlement of our TBAs should be treated as gain from the sale or disposition of the underlying Agency RMBS.

Interest Rate Effect on Net Interest Income

Our operating results depend in large part on differences between the income earned on our assets and our cost of borrowing and hedging activities. The costs associated with our borrowings are generally based on prevailing market interest rates. During a period of rising interest rates, our borrowing costs generally will increase while the coupon interest earned on our existing portfolio of leveraged fixed-rate Agency RMBS will remain static. Both of these factors could result in a decline in our net interest spread and net interest margin. The inverse result may occur during a period of falling interest rates. The severity of any such decline or increase in our net interest spread and net interest margin would depend on our asset/liability composition at the time, as well as the magnitude and duration of the interest rate increase or decrease.

Our hedging techniques are partly based on assumed levels of prepayments of our target assets. If prepayments are slower or faster than assumed, the life of the investment will be longer or shorter, which could reduce the effectiveness of any hedging strategies we may use and may cause losses on such transactions. Hedging strategies involving the use of derivative securities are highly complex and may produce volatile returns.

The following analyses of risks are based on our experience, estimates, models and assumptions. The analysis is based on models which utilize estimates of fair value and interest rate sensitivity. Actual economic conditions or implementation of decisions may produce results that differ significantly from the estimates and assumptions used in our models.

We perform interest rate sensitivity analyses on various measures of our financial results and condition by examining how our assets, financing, and hedges will perform in various interest rate “shock” scenarios. Two of these measures are presented below in more detail. The first measure is change in annualized net interest income over the next 12 months, including interest spread from our interest rate swaps and float income from custodial accounts associated with our MSR. The second measure is change in value of financial position, including the value of our derivative assets and liabilities. All changes in value are measured as the change from the December 31, 2022 financial position. All projected changes in annualized net interest income are measured as the change from the projected annualized net interest income based off current performance returns.

Computation of the cash flows for the rate-sensitive assets underpinning change in annualized net interest income are based on assumptions related to, among other things, prepayment speeds, yield on future acquisitions, slope of the yield curve, and size of the portfolio (for example, the assumption for prepayment speeds for Agency RMBS, and MSR is that they do not change in response to changes in interest rates). Assumptions for the interest rate sensitive liabilities relate to, among other things, collateral requirements as a percentage of borrowings and amount/term of borrowing. These assumptions may not hold in practice; realized net interest income results may therefore be significantly different from the net interest income produced in scenario analyses. We also note that the uncertainty associated with the estimate of a change in net interest income is directly related to the size of interest rate move considered.

Computation of results for portfolio value involves a two-step process. The first is the use of models to project how the value of interest rate sensitive instruments will change in the scenarios considered. The second, and equally important, step is the improvement of the model projections based on application of our experience in assessing how current market and macroeconomic conditions will affect the prices of various interest rate sensitive instruments. Judgment is best applied to localized (less than 25 basis points, or bps) interest rate moves. The more an instantaneous interest rate move exceeds 25 bps, the greater the likelihood that accompanying market events are significant enough to warrant reconsideration of interest rate sensitivities. As with net interest income, the uncertainty associated with the estimate of change in portfolio value is therefore directly related to the size of interest rate move considered.

The following interest rate sensitivity table displays the potential impact of instantaneous, parallel changes in interest rates of +/- 25 and +/- 50 bps on annualized net interest income and portfolio value, based on our interest sensitive financial instruments at December 31, 2022. The preceding discussion shows that the results for the 25 bps move scenarios are the best representation of our interest rate exposure, followed by those for the 50 bps move scenarios. This hierarchy reflects our localized approach to managing interest rate risk: monitoring rates and rebalancing our hedges on a day to day basis, where rate moves only rarely exceed 25 bps in either direction.

(dollars in thousands)	Changes in Interest Rates			
	-50 bps	-25 bps	+25 bps	+50 bps
Change in annualized net interest income ⁽¹⁾:	\$ 30,448	\$ 15,202	\$ (15,227)	\$ (30,449)
<i>% change in net interest income ⁽¹⁾</i>	19.9 %	9.9 %	(9.9)%	(19.9)%
Change in value of financial position:				
Available-for-sale securities	\$ 185,657	\$ 95,050	\$ (99,075)	\$ (201,828)
<i>As a % of common equity</i>	12.1 %	6.2 %	(6.5)%	(13.2)%
Mortgage servicing rights ⁽²⁾	\$ (50,798)	\$ (26,038)	\$ 20,734	\$ 37,482
<i>As a % of common equity ⁽²⁾</i>	(3.3)%	(1.7)%	1.3 %	2.5 %
Derivatives, net	\$ (168,410)	\$ (81,962)	\$ 75,960	\$ 146,201
<i>As a % of common equity</i>	(11.0)%	(5.3)%	5.0 %	9.6 %
Reverse repurchase agreements	\$ 912	\$ 456	\$ (456)	\$ (912)
<i>As a % of common equity</i>	0.1 %	— %	— %	(0.1)%
Repurchase agreements	\$ (5,236)	\$ (2,618)	\$ 2,618	\$ 5,236
<i>As a % of common equity</i>	(0.4)%	(0.2)%	0.2 %	0.3 %
Revolving credit facilities	\$ (403)	\$ (201)	\$ 200	\$ 400
<i>As a % of common equity</i>	— %	— %	— %	— %
Term notes payable	\$ (152)	\$ (76)	\$ 75	\$ 151
<i>As a % of common equity</i>	— %	— %	— %	— %
Convertible senior notes	\$ (1,581)	\$ (791)	\$ 773	\$ 1,527
<i>As a % of common equity</i>	(0.1)%	(0.1)%	0.1 %	0.1 %
Total Net Assets	\$ (40,011)	\$ (16,180)	\$ 829	\$ (11,743)
<i>As a % of total assets</i>	(0.3)%	(0.1)%	— %	(0.1)%
<i>As a % of common equity</i>	(2.6)%	(1.1)%	0.1 %	(0.8)%

(1) Amounts include the effect of interest spread from our interest rate swaps and float income from custodial accounts associated with our MSR, but do not reflect any potential changes to dollar roll income associated with our TBA positions or U.S. Treasury futures income, which are accounted for as derivative instruments in accordance with U.S. GAAP.

(2) Includes the effect of unsettled MSR.

Certain assumptions have been made in connection with the calculation of the information set forth in the foregoing interest rate sensitivity table and, as such, there can be no assurance that assumed events will occur or that other events will not occur that would affect the outcomes. The base interest rate scenario assumes interest rates at December 31, 2022. As discussed, the analysis utilizes assumptions and estimates based on our experience and judgment. Furthermore, future purchases and sales of assets could materially change our interest rate risk profile.

The information set forth in the interest rate sensitivity table above and all related disclosures constitutes forward-looking statements within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act. While this table reflects the estimated impact of interest rate changes on the static portfolio, we actively manage our portfolio and continuously make adjustments to the size and composition of our asset and hedge portfolio. Actual results could differ significantly from those estimated in the foregoing interest rate sensitivity table.

Prepayment Risk

Prepayment risk is the risk that the principal amount of a mortgage loan will be repaid at a different rate than anticipated. As we receive prepayments of principal on our Agency RMBS, premiums paid on such assets will be amortized against interest income. In general, an increase in prepayment rates will accelerate the amortization of purchase premiums, thereby reducing the interest income earned on the assets.

We believe that we will be able to reinvest proceeds from scheduled principal payments and prepayments at acceptable yields; however, no assurances can be given that, should significant prepayments occur, market conditions would be such that acceptable investments could be identified and the proceeds timely reinvested.

MSR are also subject to prepayment risk in that, generally, an increase in prepayment rates on the mortgage loans underlying the MSR would result in a decline in value of the MSR as the prepayment acts to cut short the anticipated life of the servicing income stream.

Market Risk

Market Value Risk. Our AFS securities are reflected at their estimated fair value, with the difference between amortized cost net of allowance for credit losses and estimated fair value for all AFS securities except certain AFS securities for which we have elected the fair value option reflected in accumulated other comprehensive (loss) income. The estimated fair value of these securities fluctuates primarily due to changes in interest rates, market valuation of credit risks, and other factors. Generally, in a rising interest rate environment, we would expect the fair value of these securities to decrease; conversely, in a decreasing interest rate environment, we would expect the fair value of these securities to increase. As market volatility increases or liquidity decreases, the fair value of our assets may be adversely impacted.

Our MSR are reflected at their estimated fair value. The estimated fair value fluctuates primarily due to changes in interest rates and other factors. Generally, in a rising interest rate environment, we would expect prepayments to decrease and the fair value of our MSR to increase. Conversely, in a decreasing interest rate environment, we would expect prepayments to increase and the fair value of our MSR to decrease.

Real Estate Risk. Residential property values are subject to volatility and may be affected adversely by a number of factors, including national, regional and local economic conditions; local real estate conditions (such as the supply of housing); changes or continued weakness in specific industry segments; construction quality, age and design; demographic factors; retroactive changes to building or similar codes; and impacts of climate change, natural disasters and other catastrophes. Decreases in property values reduce the value of the collateral for residential mortgage loans and the potential proceeds available to borrowers to repay the loans, which may impact the value of our Agency RMBS due to changes in voluntary and involuntary prepayment speeds, and/or may increase costs to service the residential mortgage loans underlying our MSR.

Liquidity Risk

Our liquidity risk is principally associated with our financing of long-maturity assets with shorter-term borrowings in the form of repurchase agreements and borrowings under revolving credit facilities. Although the interest rate adjustments of these assets and liabilities fall within the guidelines established by our operating policies, maturities are not required to be, nor are they, matched.

Should the value of our assets pledged as collateral suddenly decrease, lender margin calls could increase, causing an adverse change in our liquidity position. Moreover, the portfolio construction of MSR, which generally have negative duration, combined with levered RMBS, which generally have positive duration, may in certain market scenarios lead to variation margin calls, which could negatively impact our excess cash position. Additionally, if one or more of our repurchase agreement or revolving credit facility counterparties chose not to provide ongoing funding, our ability to finance would decline or exist at possibly less favorable terms. As such, we cannot provide assurance that we will always be able to roll over our repurchase agreements and revolving credit facilities. See Item 7, “*Management’s Discussion and Analysis of Financial Condition and Results of Operations - Liquidity and Capital Resources*” in this Annual Report on Form 10-K for further information about our liquidity and capital resource management.

Credit Risk

We believe that our investment strategy will generally keep our risk of credit losses low to moderate. However, we retain the risk of potential credit losses on all of the loans underlying our non-Agency securities.

Item 8. Financial Statements and Supplementary Data

**TWO HARBORS INVESTMENT CORP.
INDEX TO CONSOLIDATED FINANCIAL STATEMENTS**

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Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors
of Two Harbors Investment Corp.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Two Harbors Investment Corp. (the Company) as of December 31, 2022 and 2021, the related consolidated statements of comprehensive loss, stockholders' equity and cash flows for each of the three years in the period ended December 31, 2022, and the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at 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 U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2022, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) and our report dated February 28, 2023 expressed an unqualified opinion thereon.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the 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 audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the 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 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 financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current period audit of the financial statements that was communicated or required to be communicated to the audit committee and that: (1) relates to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective or complex judgments. The communication of the critical audit matter 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 Mortgage Servicing Rights

Description of the Matter

At December 31, 2022, the Company held \$3.0 billion of mortgage servicing rights (MSR) which are reported at fair value. As more fully described in Note 10 to the consolidated financial statements, the Company utilizes third-party pricing vendors in the fair value measurement of its MSR portfolio. Significant unobservable market data inputs inherent in the prices determined by the third-party pricing vendors include prepayment speeds, option-adjusted spread, and cost to service. Significant increases or decreases in these inputs in isolation may result in significantly lower or higher fair value measurements.

Auditing the Company's valuation of the MSR portfolio was especially challenging because the valuation involved significant judgment due to the unobservable inputs used in the valuation of this portfolio. These subjective assumptions consider a number of factors that are affected by market, economic, and asset-specific conditions.

*How We
Addressed the
Matter in Our
Audit*

Our audit procedures related to the fair value of the MSR portfolio included the following procedures, among others. We obtained an understanding of the MSR fair value measurements process, evaluated the design, and tested the operating effectiveness of internal controls. This included testing controls over management's review of the third-party pricing vendors' qualifications and methodologies applied. We also tested controls over management's evaluation of pricing information obtained from third-party pricing vendors, including the consideration of applicable market data.

To test the fair value of the Company's MSR fair value measurements, our audit procedures included, among others, testing the completeness and accuracy of data used in the fair value measurement process and involving our internal valuation specialists to independently develop a fair value estimate for the MSR portfolio using independently developed cash flow models and assumptions including consideration of market transactions. We compared our independently developed fair value estimate to the Company's valuation.

/s/ Ernst & Young LLP

We have served as the Company's auditor since 2009.
Minneapolis, Minnesota
February 28, 2023

TWO HARBORS INVESTMENT CORP.
CONSOLIDATED BALANCE SHEETS
(in thousands, except share data)

	December 31, 2022	December 31, 2021
ASSETS		
Available-for-sale securities, at fair value (amortized cost \$8,114,627 and \$7,005,013, respectively; allowance for credit losses \$6,958 and \$14,238, respectively)	\$ 7,778,734	\$ 7,161,703
Mortgage servicing rights, at fair value	2,984,937	2,191,578
Cash and cash equivalents	683,479	1,153,856
Restricted cash	443,026	934,814
Accrued interest receivable	36,018	26,266
Due from counterparties	253,374	168,449
Derivative assets, at fair value	26,438	80,134
Reverse repurchase agreements	1,066,935	134,682
Other assets	193,219	262,823
Total Assets ⁽¹⁾	\$ 13,466,160	\$ 12,114,305
LIABILITIES AND STOCKHOLDERS' EQUITY		
Liabilities:		
Repurchase agreements	\$ 8,603,011	\$ 7,656,445
Revolving credit facilities	1,118,831	420,761
Term notes payable	398,011	396,776
Convertible senior notes	282,496	424,827
Derivative liabilities, at fair value	34,048	53,658
Due to counterparties	541,709	196,627
Dividends payable	64,504	72,412
Accrued interest payable	94,034	18,382
Commitments and contingencies (see Note 15)	—	—
Other liabilities	145,991	130,464
Total Liabilities ⁽¹⁾	11,282,635	9,370,352
Stockholders' Equity:		
Preferred stock, par value \$0.01 per share; 100,000,000 shares authorized and 26,092,050 and 29,050,000 shares issued and outstanding, respectively (\$652,301 and \$726,250 liquidation preference, respectively)	630,999	702,550
Common stock, par value \$0.01 per share; 175,000,000 shares authorized and 86,428,845 and 85,977,831 shares issued and outstanding, respectively	864	860
Additional paid-in capital	5,645,998	5,627,758
Accumulated other comprehensive (loss) income	(278,711)	186,346
Cumulative earnings	1,453,371	1,212,983
Cumulative distributions to stockholders	(5,268,996)	(4,986,544)
Total Stockholders' Equity	2,183,525	2,743,953
Total Liabilities and Stockholders' Equity	\$ 13,466,160	\$ 12,114,305

(1) The consolidated balance sheets include assets and liabilities of consolidated variable interest entities, or VIEs. At December 31, 2022 and December 31, 2021, assets of the VIEs totaled \$497,921 and \$454,596, and liabilities of the VIEs totaled \$453,952 and \$440,030, respectively. See Note 3 - *Variable Interest Entities* for additional information.

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

TWO HARBORS INVESTMENT CORP.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(in thousands, except share data)

	Year Ended December 31,		
	2022	2021	2020
Interest income:			
Available-for-sale securities	\$ 272,230	\$ 167,310	\$ 515,685
Other	23,310	1,287	9,365
Total interest income	295,540	168,597	525,050
Interest expense:			
Repurchase agreements	167,455	25,774	233,069
Revolving credit facilities	51,814	22,425	12,261
Term notes payable	19,514	12,936	14,974
Convertible senior notes	19,612	28,038	19,197
Federal Home Loan Bank advances	—	—	1,747
Total interest expense	258,395	89,173	281,248
Net interest income	37,145	79,424	243,802
Other income (loss):			
(Loss) gain on investment securities	(603,937)	121,617	(999,859)
Servicing income	603,911	468,406	443,351
Gain (loss) on servicing asset	425,376	(114,941)	(935,697)
Gain (loss) on interest rate swap, cap and swaption agreements	29,499	42,091	(310,806)
Gain (loss) on other derivative instruments	9,310	(251,283)	90,023
Other (loss) income	(5)	(3,845)	1,422
Total other income (loss)	464,154	262,045	(1,711,566)
Expenses:			
Management fees	—	—	31,738
Servicing expenses	94,119	86,250	94,266
Compensation and benefits	40,723	35,041	37,723
Other operating expenses	42,005	28,759	28,626
Restructuring charges	—	—	5,706
Total expenses	176,847	150,050	198,059
Income (loss) before income taxes	324,452	191,419	(1,665,823)
Provision for (benefit from) income taxes	104,213	4,192	(35,688)
Net income (loss)	220,239	187,227	(1,630,135)
Dividends on preferred stock	(53,607)	(58,458)	(75,802)
Gain on repurchase and retirement of preferred stock	20,149	—	—
Net income (loss) attributable to common stockholders	<u>\$ 186,781</u>	<u>\$ 128,769</u>	<u>\$ (1,705,937)</u>
Basic earnings (loss) per weighted average common share	<u>\$ 2.15</u>	<u>\$ 1.72</u>	<u>\$ (24.94)</u>
Diluted earnings (loss) per weighted average common share	<u>\$ 2.13</u>	<u>\$ 1.72</u>	<u>\$ (24.94)</u>
Weighted average number of shares of common stock:			
Basic	<u>86,179,418</u>	<u>74,443,000</u>	<u>68,400,237</u>
Diluted	<u>96,076,175</u>	<u>74,510,884</u>	<u>68,400,237</u>

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

TWO HARBORS INVESTMENT CORP.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS, continued
(in thousands, except share data)

	Year Ended December 31,		
	2022	2021	2020
Comprehensive loss:			
Net income (loss)	\$ 220,239	\$ 187,227	\$ (1,630,135)
Other comprehensive loss:			
Unrealized loss on available-for-sale securities	(465,057)	(455,255)	(47,799)
Other comprehensive loss	(465,057)	(455,255)	(47,799)
Comprehensive loss	(244,818)	(268,028)	(1,677,934)
Dividends on preferred stock	(53,607)	(58,458)	(75,802)
Gain on repurchase and retirement of preferred stock	20,149	—	—
Comprehensive loss attributable to common stockholders	\$ (278,276)	\$ (326,486)	\$ (1,753,736)

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

TWO HARBORS INVESTMENT CORP.
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(in thousands)

	Preferred Stock	Common Stock Par Value	Additional Paid-in Capital	Accumulated Other Comprehensive Income (Loss)	Cumulative Earnings	Cumulative Distributions to Stockholders	Total Stockholders' Equity
Balance, December 31, 2019	\$ 977,501	\$ 682	\$ 5,156,811	\$ 689,400	\$ 2,655,891	\$ (4,509,819)	\$ 4,970,466
Net loss	—	—	—	—	(1,630,135)	—	(1,630,135)
Other comprehensive income before reclassifications	—	—	—	482,663	—	—	482,663
Amounts reclassified from accumulated other comprehensive income	—	—	—	(530,462)	—	—	(530,462)
Other comprehensive loss	—	—	—	(47,799)	—	—	(47,799)
Issuance of common stock, net of offering costs	—	—	372	—	—	—	372
Repurchase of common stock	—	—	(1,064)	—	—	—	(1,064)
Preferred dividends declared	—	—	—	—	—	(75,802)	(75,802)
Common dividends declared	—	—	—	—	—	(136,842)	(136,842)
Non-cash equity award compensation	—	2	9,728	—	—	—	9,730
Balance, December 31, 2020	\$ 977,501	\$ 684	\$ 5,165,847	\$ 641,601	\$ 1,025,756	\$ (4,722,463)	\$ 3,088,926
Net income	—	—	—	—	187,227	—	187,227
Other comprehensive loss before reclassifications	—	—	—	(319,694)	—	—	(319,694)
Amounts reclassified from accumulated other comprehensive income	—	—	—	(135,561)	—	—	(135,561)
Other comprehensive loss	—	—	—	(455,255)	—	—	(455,255)
Redemption of preferred stock	(274,951)	—	—	—	—	—	(274,951)
Issuance of common stock, net of offering costs	—	175	450,427	—	—	—	450,602
Preferred dividends declared	—	—	—	—	—	(58,458)	(58,458)
Common dividends declared	—	—	—	—	—	(205,623)	(205,623)
Non-cash equity award compensation	—	1	11,484	—	—	—	11,485
Balance, December 31, 2021	\$ 702,550	\$ 860	\$ 5,627,758	\$ 186,346	\$ 1,212,983	\$ (4,986,544)	\$ 2,743,953
Net income	—	—	—	—	220,239	—	220,239
Other comprehensive loss before reclassifications	—	—	—	(893,589)	—	—	(893,589)
Amounts reclassified from accumulated other comprehensive income	—	—	—	428,532	—	—	428,532
Other comprehensive loss	—	—	—	(465,057)	—	—	(465,057)
Repurchase and retirement of preferred stock	(71,551)	—	—	—	20,149	—	(51,402)
Issuance of common stock, net of offering costs	—	3	6,611	—	—	—	6,614
Preferred dividends declared	—	—	—	—	—	(53,607)	(53,607)
Common dividends declared	—	—	—	—	—	(228,845)	(228,845)
Non-cash equity award compensation	—	1	11,629	—	—	—	11,630
Balance, December 31, 2022	<u>\$ 630,999</u>	<u>\$ 864</u>	<u>\$ 5,645,998</u>	<u>\$ (278,711)</u>	<u>\$ 1,453,371</u>	<u>\$ (5,268,996)</u>	<u>\$ 2,183,525</u>

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

TWO HARBORS INVESTMENT CORP.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)

	Year Ended December 31,		
	2022	2021	2020
Cash Flows From Operating Activities:			
Net income (loss)	\$ 220,239	\$ 187,227	\$ (1,630,135)
Adjustments to reconcile net income (loss) to net cash provided by operating activities:			
Amortization of premiums and discounts on investment securities, net	79,794	228,344	238,840
Amortization of deferred debt issuance costs on term notes payable and convertible senior notes	2,678	2,999	2,336
Provision for credit losses on investment securities	2,730	9,763	58,440
Realized and unrealized losses (gains) on investment securities	601,207	(131,380)	941,419
(Gain) loss on servicing asset	(425,376)	114,941	935,697
Realized and unrealized (gains) losses on interest rate swaps, caps and swaptions	(34,328)	(27,830)	244,631
Unrealized losses (gains) on other derivative instruments	13,797	(5,217)	(25,530)
Gains on mortgage loans held-for-sale	(9)	(1,812)	(580)
Equity based compensation	11,630	11,485	9,730
Purchases of mortgage loans held-for-sale	(264)	(64,008)	—
Proceeds from sales of mortgage loans held-for-sale	—	65,772	9,001
Proceeds from repayment of mortgage loans held-for-sale	30	8	212
Net change in assets and liabilities:			
(Increase) decrease in accrued interest receivable	(9,752)	20,908	45,460
Decrease (increase) in deferred income taxes, net	105,241	5,960	(40,267)
Increase (decrease) in accrued interest payable	75,652	(3,284)	(127,960)
Change in other operating assets and liabilities, net	(19,867)	9,634	(29,691)
Net cash provided by operating activities	<u>623,402</u>	<u>423,510</u>	<u>631,603</u>
Cash Flows From Investing Activities:			
Purchases of available-for-sale securities	(10,662,518)	(2,494,603)	(7,120,871)
Proceeds from sales of available-for-sale securities	7,793,705	6,274,193	18,349,338
Principal payments on available-for-sale securities	1,102,994	3,147,647	4,239,445
Purchases of trading securities	—	—	(1,052,500)
Proceeds from sales of trading securities	—	—	1,053,477
Purchases of mortgage servicing rights, net of purchase price adjustments	(629,810)	(742,153)	(620,394)
Proceeds from (payments for) sales of mortgage servicing rights	261,827	31,787	(2,012)
(Purchases) short sales of derivative instruments, net	(71,291)	51,438	(29,286)
Proceeds from sales and settlement (payments for termination and settlement) of derivative instruments, net	125,908	40,012	(93,383)
Payments for reverse repurchase agreements	(3,241,834)	(1,174,883)	(2,208,977)
Proceeds from reverse repurchase agreements	2,309,581	1,131,726	2,337,452
Increase in due to counterparties, net	260,157	38,773	48,921
Change in other investing assets and liabilities, net	—	10,000	2,508
Net cash (used in) provided by investing activities	<u>\$ (2,751,281)</u>	<u>\$ 6,313,937</u>	<u>\$ 14,903,718</u>

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

TWO HARBORS INVESTMENT CORP.
CONSOLIDATED STATEMENTS OF CASH FLOWS, continued
(in thousands)

	Year Ended December 31,		
	2022	2021	2020
Cash Flows From Financing Activities:			
Proceeds from repurchase agreements	\$ 35,927,488	\$ 29,934,379	\$ 83,480,699
Principal payments on repurchase agreements	(34,980,922)	(37,421,832)	(97,484,264)
Proceeds from revolving credit facilities	720,000	296,500	152,000
Principal payments on revolving credit facilities	(21,930)	(159,569)	(168,170)
Proceeds from issuance of convertible senior notes	—	279,930	—
Repurchase of convertible senior notes	(143,774)	(143,118)	—
Proceeds from Federal Home Loan Bank advances	—	—	585,000
Principal payments on Federal Home Loan bank advances	—	—	(795,000)
Redemption/repurchase and retirement of preferred stock	(51,402)	(274,951)	—
Proceeds from issuance of common stock, net of offering costs	6,614	450,602	372
Repurchase of common stock	—	—	(1,064)
Dividends paid on preferred stock	(54,989)	(63,661)	(75,802)
Dividends paid on common stock	(235,371)	(193,488)	(199,487)
Net cash provided by (used in) financing activities	<u>1,165,714</u>	<u>(7,295,208)</u>	<u>(14,505,716)</u>
Net (decrease) increase in cash, cash equivalents and restricted cash	(962,165)	(557,761)	1,029,605
Cash, cash equivalents and restricted cash at beginning of period	2,088,670	2,646,431	1,616,826
Cash, cash equivalents and restricted cash at end of period	<u>\$ 1,126,505</u>	<u>\$ 2,088,670</u>	<u>\$ 2,646,431</u>
Supplemental Disclosure of Cash Flow Information:			
Cash paid for interest	<u>\$ 153,181</u>	<u>\$ 81,248</u>	<u>\$ 404,261</u>
Cash (received) paid for taxes, net	<u>\$ (1,575)</u>	<u>\$ (23,322)</u>	<u>\$ 9,574</u>
Noncash Activities:			
Dividends declared but not paid at end of period	<u>\$ 64,504</u>	<u>\$ 72,412</u>	<u>\$ 65,480</u>

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

TWO HARBORS INVESTMENT CORP.

Notes to the Consolidated Financial Statements

Note 1. Organization and Operations

Two Harbors Investment Corp. is a Maryland corporation that, through its wholly owned subsidiaries (collectively, the Company), invests in and manages Agency residential mortgage-backed securities, or Agency RMBS, mortgage servicing rights, or MSR, and other financial assets. Agency refers to a U.S. government sponsored enterprise, or GSE, such as the Federal National Mortgage Association (or Fannie Mae) or the Federal Home Loan Mortgage Corporation (or Freddie Mac), or a U.S. government agency such as the Government National Mortgage Association (or Ginnie Mae). The investment portfolio is managed as a whole and resources are allocated and financial performance is assessed on a consolidated basis. The Company's common stock is listed on the NYSE under the symbol "TWO".

On August 2, 2022, Matrix Financial Services Corporation, or Matrix, a wholly owned subsidiary of the Company, entered into a definitive stock purchase agreement to acquire RoundPoint Mortgage Servicing Corporation, or RoundPoint, from Freedom Mortgage Corporation. In connection with the acquisition, Matrix has agreed to pay a purchase price upon closing in an amount equal to the tangible net book value of RoundPoint, plus a premium amount of \$10.5 million, subject to certain additional post-closing adjustments. In connection with the transaction, RoundPoint will divest its retail origination business as well as its RPX servicing exchange platform. Matrix also agreed to engage RoundPoint as a subservicer prior to the closing date and began transferring loans to RoundPoint in the fourth quarter of 2022. Upon closing, all servicing licenses and operational capabilities will remain with RoundPoint, and RoundPoint will become a wholly owned subsidiary of Matrix. The parties expect to close the transaction in 2023, subject to the satisfaction of customary closing conditions and the receipt of required regulatory and GSE approvals.

The Company has elected to be treated as a real estate investment trust, or REIT, as defined under the Internal Revenue Code of 1986, as amended, or the Code, for U.S. federal income tax purposes. As long as the Company continues to comply with a number of requirements under federal tax law and maintains its qualification as a REIT, the Company generally will not be subject to U.S. federal income taxes to the extent that the Company distributes its taxable income to its stockholders on an annual basis and does not engage in prohibited transactions. However, certain activities that the Company may perform may cause it to earn income which will not be qualifying income for REIT purposes. The Company has designated certain of its subsidiaries as taxable REIT subsidiaries, or TRSs, as defined in the Code, to engage in such activities.

Note 2. Basis of Presentation and Significant Accounting Policies

Consolidation and Basis of Presentation

The accompanying consolidated financial statements include the accounts of all subsidiaries; inter-company accounts and transactions have been eliminated. All trust entities in which the Company holds investments that are considered variable interest entities, or VIEs, for financial reporting purposes were reviewed for consolidation under the applicable consolidation guidance. Whenever the Company has both the power to direct the activities of a trust that most significantly impact the entities' performance, and the obligation to absorb losses or the right to receive benefits of the entities that could be significant, the Company consolidates the trust. The accounting and reporting policies of the Company conform to U.S. generally accepted accounting principles, or U.S. GAAP. Certain prior period amounts have been reclassified to conform to the current period presentation. All per share amounts, common shares outstanding and common equity-based awards for the year ended December 31, 2022 and all prior periods reflect the Company's one-for-four reverse stock split effected on November 1, 2022 at 5:01 p.m. Eastern Time (refer to Note 16 - *Stockholders' Equity* for additional information).

Use of Estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make a number of significant estimates. These include estimates of fair value of certain assets and liabilities, amount and timing of credit losses, prepayment rates, the period of time during which the Company anticipates an increase in the fair values of real estate securities sufficient to recover unrealized losses in those securities, and other estimates that affect the reported amounts of certain assets and liabilities as of the date of the consolidated financial statements and the reported amounts of certain revenues and expenses during the reported period. It is likely that changes in these estimates (*e.g.*, valuation changes due to supply and demand in the market, credit performance, prepayments, interest rates, or other reasons) will occur in the near term. The Company's estimates are inherently subjective in nature and actual results could differ from its estimates and the differences may be material.

TWO HARBORS INVESTMENT CORP.

Notes to the Consolidated Financial Statements

Significant Accounting Policies

Variable Interest Entities

The Company enters into transactions with subsidiary trust entities that are established for limited purposes. One of the Company's subsidiary trust entities, MSR Issuer Trust, was formed for the purpose of financing MSR through securitization, pursuant to which, through two of the Company's wholly owned subsidiaries, MSR is pledged to MSR Issuer Trust and in return, MSR Issuer Trust issues term notes to qualified institutional buyers and a variable funding note, or VFN, to one of the subsidiaries, in each case secured on a pari passu basis.

Another of the Company's subsidiary trust entities, Servicing Advance Receivables Issuer Trust, was formed for the purpose of financing servicing advances through a revolving credit facility, pursuant to which Servicing Advance Receivables Issuer Trust issued a VFN backed by servicing advances pledged to the financing counterparty.

Both MSR Issuer Trust and Servicing Advance Receivables Issuer Trust are considered VIEs for financial reporting purposes and were reviewed for consolidation under the applicable consolidation guidance. As the Company has both the power to direct the activities of the trusts that most significantly impact the entities' performance, and the obligation to absorb losses or the right to receive benefits of the entities that could be significant, the Company is the primary beneficiary and, thus, consolidates the trusts.

Additionally, as discussed in Note 1 - *Organization and Operations*, the Company has entered into a definitive stock purchase agreement to acquire RoundPoint whereby the purchase price will be subject to an adjustment based on RoundPoint's aggregate "earnings" (as defined in the agreement) from October 1, 2022 through the closing date, or the Interim Period, in addition to other post-closing adjustments. The manner in which the purchase price is calculated represents an implicit guarantee of the value of RoundPoint's net book value, in which the Company holds the variable interests. These terms also indicate that RoundPoint meets the criteria to be considered a VIE that the Company must review for consolidation. As the Company has the obligation to absorb losses and the right to receive benefits of RoundPoint during the Interim Period that could be significant, but not the power to direct the activities of RoundPoint that most significantly impacts its performance, the Company is not the primary beneficiary and, thus, does not consolidate RoundPoint.

Available-for-Sale Securities, at Fair Value

The Company invests primarily in mortgage pass-through certificates, collateralized mortgage obligations and other residential mortgage-backed securities representing interests in or obligations backed by pools of mortgage loans issued by a U.S. government sponsored enterprise, or GSE, such as the Federal National Mortgage Association (or Fannie Mae) or the Federal Home Loan Mortgage Corporation (or Freddie Mac), or a U.S. government agency such as the Government National Mortgage Association (or Ginnie Mae) (collectively "Agency RMBS"). The Company also holds securities that are not issued by a GSE or U.S. government agency, or non-Agency securities, and, from time to time, U.S. Treasuries.

The Company classifies its Agency RMBS and non-Agency securities, excluding inverse interest-only Agency securities which are classified as derivatives for purposes of U.S. GAAP, as available-for-sale, or AFS, investments. Although the Company generally intends to hold most of its investment securities until maturity, it may, from time to time, sell any of its investment securities as part of its overall management of its portfolio. Accordingly, the Company classifies all of its securities as AFS, including its interest-only strips, which represent the Company's right to receive a specified portion of the contractual interest flows of specific Agency or non-Agency securities. All assets classified as AFS, excluding certain AFS securities for which we have elected the fair value option, are reported at estimated fair value with unrealized gains and losses included in accumulated other comprehensive (loss) income.

On July 1, 2015, the Company elected the fair value option for Agency interest-only securities acquired on or after such date. On July 1, 2021, the Company elected the fair value option for all non-Agency securities acquired on or after such date. All Agency interest-only securities acquired on or after July 1, 2015 and all non-Agency securities acquired on or after July 1, 2021 are carried at estimated fair value with changes in fair value recorded as a component of (loss) gain on investment securities in the consolidated statements of comprehensive loss.

Fair value is determined under the guidance of Accounting Standards Codification (ASC) 820, *Fair Value Measurements and Disclosures*, or ASC 820. The Company determines the fair value of its RMBS that are issued or guaranteed as to principal and/or interest by a GSE or U.S. government agency, based upon prices obtained from third-party pricing vendors or broker quotes received using the bid price, which are both deemed indicative of market activity. In determining the fair value of its non-Agency securities, management judgment is used to arrive at fair value that considers prices obtained from third-party pricing vendors, broker quotes received and other applicable market data. If listed price data is not available or insufficient, then fair value is based upon internally developed models that are primarily based on observable market-based inputs but also include unobservable market data inputs. See Note 10 - *Fair Value* of these notes to the consolidated financial statements for details on fair value measurement.

TWO HARBORS INVESTMENT CORP.

Notes to the Consolidated Financial Statements

Investment securities transactions are recorded on the trade date. The cost basis for realized gains and losses on sales of investment securities are determined on the first-in, first-out, or FIFO, method.

Interest income (*i.e.*, gross yield/stated coupon) on securities is accrued based on the outstanding principal balance and their contractual terms. Premiums and discounts associated with Agency RMBS and non-Agency securities rated AA and higher at the time of purchase, are amortized and accreted, respectively, as an adjustment to interest income over the life of such securities using the contractual method under ASC 310-20, *Nonrefundable Fees and Other Costs*, which is applied at the individual security level based upon each security's effective interest rate. The Company calculates each security's effective interest rate at the time of purchase by solving for the discount rate that equates the present value of that security's remaining contractual cash flows, assuming no principal prepayments, to its purchase price. When applying the contractual effective interest method, as principal prepayments occur, an amount of the unamortized premium or discount is recognized in interest income such that the contractual effective interest rate on the remaining security balance is unaffected.

Discounts associated with non-Agency securities that were purchased at a discount to par value and were rated below AA at the time of purchase and Agency and non-Agency interest-only securities that can be contractually prepaid or otherwise settled in such a way that the Company would not recover substantially all of its recorded investment are accreted as an adjustment to interest income over the life of such securities using the prospective method under ASC 325-40, *Investments - Other: Beneficial Interests in Securitized Financial Assets*, which is applied at the individual security level based upon each security's effective interest rate. At the time of acquisition, the security's effective interest rate is calculated by solving for the single discount rate that equates the present value of the Company's best estimate of the amount and timing of the cash flows expected to be collected from the security to its purchase price. On at least a quarterly basis, the Company reviews and, if appropriate, makes adjustments to its cash flow projections based on input and analysis received from external sources, internal models, and its judgment about interest rates, prepayment rates, the timing and amount of credit losses, and other factors. Changes in cash flows from those originally projected, or from those estimated at the last evaluation, may result in a prospective change in the effective interest rate and interest income recognized on such securities.

Actual maturities of the AFS securities are affected by the contractual lives of the associated mortgage collateral, periodic payments of principal, and prepayments of principal. Therefore actual maturities of AFS securities are generally shorter than stated contractual maturities. Stated contractual maturities are generally greater than ten years.

The Company uses a discounted cash flow method to estimate and recognize an allowance for credit losses on both Agency and non-Agency AFS securities that are not accounted for under the fair value option. The initial estimated allowance for credit losses is equal to the difference between the prepayment adjusted contractual cash flows with no credit losses and the prepayment adjusted expected cash flows with credit losses, discounted at the effective interest rate on the AFS security. The contractual cash flows and expected cash flows are based on management's best estimate and take into consideration current prepayment assumptions, lifetime expected losses based on past loss experience, current market conditions, and reasonable and supportable forecasts of future conditions. The allowance for credit losses on Agency AFS securities relates to prepayment assumption changes on interest-only Agency RMBS. The initial allowance for credit losses causes an increase in the AFS security amortized cost and recognizes an allowance for credit losses in the same amount. Subsequent adverse or favorable changes in the allowance for credit losses are recognized immediately in earnings as a provision for or reduction in credit losses (within (loss) gain on investment securities). Adverse changes are reflected as an increase to the allowance for credit losses and favorable changes are reflected as a decrease to the allowance for credit losses. The allowance for credit losses is limited to the difference between the beneficial interest's fair value and its amortized cost, and any remaining adverse changes in these circumstances are reflected as a prospective adjustment to accretable yield. If the allowance for credit losses has been reduced to zero, the remaining favorable changes are reflected as a prospective adjustment to accretable yield. The Company does not adjust the effective interest rate in subsequent periods for prepayment assumption changes or variable-rate changes. Any changes in the allowance for credit losses due to the time-value-of-money are accounted for in the consolidated statements of comprehensive loss as provision for credit losses rather than a reduction to interest income. Any portion of the AFS securities that is deemed uncollectible results in a write-off of the uncollectible amortized cost with a corresponding reduction to the allowance for credit losses. Recoveries of amounts previously written off results in an increase to the allowance for credit losses.

Mortgage Servicing Rights, at Fair Value

The Company's MSR represent the right to service mortgage loans. The Company and its subsidiaries do not originate or directly service mortgage loans, and instead contract with appropriately licensed subservicers to handle substantially all servicing functions in the name of the subservicer for the loans underlying the Company's MSR. However, as an owner and manager of MSR, the Company may be obligated to fund advances of principal and interest payments due to third-party owners of the loans, but not yet received from the individual borrowers. These advances are reported as servicing advances within the other assets line item on the consolidated balance sheets.

TWO HARBORS INVESTMENT CORP.

Notes to the Consolidated Financial Statements

MSR are reported at fair value on the consolidated balance sheets. Although MSR transactions are observable in the marketplace, the valuation includes unobservable market data inputs (prepayment speeds; delinquency levels; option-adjusted spread, or OAS, which represents the incremental spread added to the risk-free rate to reflect the effects of any embedded options and other risk inherent in MSR; and cost to service). Changes in the fair value of MSR as well as servicing fee income and servicing expenses are reported on the consolidated statements of comprehensive loss.

Cash and Cash Equivalents

Cash and cash equivalents include cash held in bank accounts and cash held in money market funds on an overnight basis.

Restricted Cash

Restricted cash represents cash balances the Company is required to maintain with counterparties for securities and derivatives trading activity, servicing activities and collateral for the Company's borrowings. Also included is the cash balance held pursuant to a letter of credit on the New York office lease. Cash balances required to be maintained with counterparties are not available to the Company for general corporate purposes, but may be applied against amounts due to security, derivative, servicing or financing counterparties or returned to the Company when collateral requirements are exceeded, or at the maturity of the derivative or financing arrangement.

Accrued Interest Receivable

Accrued interest receivable represents interest that is due and payable to the Company. Cash interest is generally received within 30 days of recording the receivable.

Due from/to Counterparties, net

Due from counterparties includes cash held by counterparties for payment of principal and interest as well as cash held by counterparties for securities and derivatives trading activity, servicing activities and collateral for the Company's borrowings but represents excess capacity and deemed unrestricted and a receivable from the counterparty as of the balance sheet date. Due from counterparties also includes cash receivable from counterparties for sales of MSR pending final transfer and settlement. Due to counterparties includes cash payable by the Company upon settlement of trade positions as well as cash deposited to and held by the Company for securities and derivatives trading activity, servicing activities and collateral for the Company's borrowings but represents a payable to the counterparty as of the balance sheet date. Due to counterparties also includes purchase price holdbacks on MSR acquisitions for early prepayment or default provisions, collateral exceptions and other contractual terms.

Derivative Financial Instruments, at Fair Value

In accordance with ASC 815, *Derivatives and Hedging*, or ASC 815, all derivative financial instruments, whether designated for hedging relationships or not, are recorded on the consolidated balance sheets as assets or liabilities and carried at fair value.

At the inception of a derivative contract, the Company determines whether the instrument will be part of a qualifying hedge accounting relationship or whether the Company will account for the contract as a trading instrument. Due to the volatility of the interest rate and credit markets and difficulty in effectively matching pricing or cash flows, the Company has elected to treat all current derivative contracts as trading instruments. Changes in fair value as well as the accrual and settlement of interest associated with derivatives accounted for as trading instruments are reported in the consolidated statements of comprehensive loss as gain (loss) on interest rate swap, cap and swaption agreements or gain (loss) on other derivative instruments depending on the type of derivative instrument.

TWO HARBORS INVESTMENT CORP.

Notes to the Consolidated Financial Statements

The Company enters into interest rate derivative contracts for a variety of reasons, including minimizing fluctuations in earnings or market values on certain assets or liabilities that may be caused by changes in interest rates. The Company may, at times, enter into various forward contracts including short securities, Agency to-be-announced securities, or TBAs, options, futures, swaps, and caps. Due to the nature of these instruments, they may be in a receivable/asset position or a payable/liability position at the end of an accounting period. Amounts payable to and receivable from the same party under contracts may be offset as long as the following conditions are met: (a) each of the two parties owes the other determinable amounts; (b) the reporting party has the right to offset the amount owed with the amount owed by the other party; (c) the reporting party intends to offset; and (d) the right of offset is enforceable by law. If the aforementioned conditions are not met, amounts payable to and receivable from are presented by the Company on a gross basis in its consolidated balance sheets. The Company's centrally cleared interest rate swaps and exchange-traded futures and options on futures require that the Company posts an "initial margin" amount determined by the clearing exchange, which is generally intended to be set at a level sufficient to protect the exchange from the derivative instrument's maximum estimated single-day price movement. The Company also exchanges "variation margin" based upon daily changes in fair value, as measured by the exchange. The exchange of variation margin is considered a settlement of the derivative instrument, as opposed to pledged collateral. Accordingly, the Company accounts for the receipt or payment of variation margin as a direct reduction to the carrying value of the centrally cleared or exchange-traded derivative asset or liability. The receipt or payment of initial margin is accounted for separate from the derivative asset or liability and is netted on a counterparty basis and classified within restricted cash, due from counterparties, or due to counterparties on the Company's consolidated balance sheets.

The Company has provided specific disclosure regarding the location and amounts of derivative instruments in the consolidated financial statements and how derivative instruments and related hedged items are accounted for. See Note 7 - *Derivative Instruments and Hedging Activities* of these notes to the consolidated financial statements.

Reverse Repurchase Agreements

The Company may enter into reverse repurchase agreements with third-party broker-dealers whereby it purchases U.S. Treasury securities under agreements to resell at an agreed-upon price and date. Generally, the Company may enter into reverse repurchase agreement transactions in order to effectively borrow U.S. Treasury securities that it can then deliver to counterparties to whom it has made short sales of the same securities, earn a yield on excess cash balances, or preserve existing repurchase agreements by substituting collateral. The Company accounts for these reverse repurchase agreements as securities borrowing transactions and records them at their contractual amounts, as specified in the respective agreements.

Repurchase Agreements

The Company may finance certain of its investment securities and MSR through the use of repurchase agreements. These repurchase agreements are generally short-term debt, which expire within one year. At times, certain of the Company's repurchase agreements may have contractual terms of greater than one year, and, thus, would be considered long-term debt. Borrowings under repurchase agreements generally bear interest rates based on an index plus a spread and are generally uncommitted. The repurchase agreements are treated as collateralized financing transactions and are carried at their contractual amounts, as specified in the respective agreements.

Revolving Credit Facilities

To finance MSR assets and related servicing advance obligations, the Company enters into revolving credit facilities collateralized by the value of the MSR and/or servicing advances pledged. Borrowings under these revolving credit facilities that expire within one year are considered short-term debt. As of December 31, 2022, the Company's revolving credit facilities that had contractual terms of greater than one year were considered long-term debt. The Company's revolving credit facilities generally bear interest rates based on an index plus a spread. Borrowings under revolving credit facilities are treated as collateralized financing transactions and are carried at contractual amounts, as specified in the respective agreements.

Term Notes Payable

Term notes payable related to the Company's consolidated securitization are recorded at outstanding principal balance, net of any unamortized deferred debt issuance costs, on the Company's consolidated balance sheets.

Convertible Senior Notes

Convertible senior notes include unsecured convertible debt that are carried at their unpaid principal balance, net of any unamortized deferred issuance costs, on the Company's consolidated balance sheet. Interest on the notes is payable semiannually until such time the notes mature or are converted into shares of the Company's common stock.

Accrued Interest Payable

Accrued interest payable represents interest that is due and payable to third parties. Interest is generally paid within 30 days to three months of recording the payable, based upon the Company's remittance requirements.

TWO HARBORS INVESTMENT CORP.

Notes to the Consolidated Financial Statements

Deferred Tax Assets and Liabilities

Income recognition for U.S. GAAP and tax differ in certain respects. These differences often reflect differing accounting treatments for tax and U.S. GAAP, such as accounting for discount and premium amortization, credit losses, asset impairments, recognition of certain operating expenses and certain valuation estimates. Some of these differences are temporary in nature and create timing mismatches between when taxable income is earned and the tax is paid versus when the earnings (losses) for U.S. GAAP purposes, or GAAP net income (loss), are recognized and the tax provision is recorded. Some of these differences are permanent since certain income (or expense) may be recorded for tax purposes but not for U.S. GAAP purposes (or vice-versa). One such significant permanent difference is the Company's ability as a REIT to deduct dividends paid to stockholders as an expense for tax purposes, but not for U.S. GAAP purposes.

As a result of these temporary differences, the Company's TRSs may recognize taxable income in periods prior or subsequent to when it recognizes income for U.S. GAAP purposes. When this occurs, the TRSs pay or defer the tax liability and establish deferred tax assets or deferred tax liabilities, respectively, for U.S. GAAP purposes.

Deferred tax assets generally represent items that may be used as a tax deduction in a tax return in future years for which the Company has already recognized the tax benefit for U.S. GAAP purposes. The Company estimates, based on existence of sufficient evidence, the ability to realize the remainder of any deferred tax asset its TRSs recognize. Any adjustments to such estimates will be made in the period such determination is made. Deferred tax liabilities generally represent tax expense for which payment has been deferred or expense has already been taken as a deduction on the Company's tax return but has not yet been recognized as an expense for U.S. GAAP purposes. The Company's deferred tax assets and/or liabilities are generated solely by differences in GAAP net income (loss) and taxable income (loss) at our taxable subsidiaries. U.S. GAAP and tax differences in the REIT may create additional deferred tax assets and/or liabilities to the extent the Company does not distribute all of its taxable income.

Income Taxes

The Company has elected to be taxed as a REIT under the Code and the corresponding provisions of state law. To qualify as a REIT, the Company must distribute at least 90% of its annual REIT taxable income to stockholders (not including taxable income retained in its taxable subsidiaries) within the time frame set forth in the tax Code and the Company must also meet certain other requirements. In addition, because certain activities, if performed by the Company, may cause the Company to earn income which is not qualifying for the REIT gross income tests, the Company has formed TRSs, as defined in the Code, to engage in such activities. These TRSs' activities are subject to income taxes as well as any REIT taxable income not distributed to stockholders.

The Company assesses its tax positions for all open tax years and determines whether the Company has any material unrecognized liabilities in accordance with ASC 740, *Income Taxes*. The Company records these liabilities to the extent the Company deems them more likely than not to be incurred. The Company classifies interest and penalties on material uncertain tax positions as interest expense and operating expense, respectively, in its consolidated statements of comprehensive loss.

Expenses

Expenses on the consolidated statements of comprehensive loss typically consist of management fees, servicing expenses generally related to the subservicing of MSR, compensation and benefits and other operating expenses. Prior to the termination of the Management Agreement on August 14, 2020, management fees were payable to PRCM Advisers under the agreement. The management fee was calculated based on the Company's stockholders' equity with certain adjustments outlined in the management agreement (see Note 21 - *Related Party Transactions* for further detail). Also prior to the termination of the Management Agreement, included in compensation and benefits and other operating expenses were direct and allocated costs incurred by PRCM Advisers on the Company's behalf and reimbursed by the Company. Included in these reimbursed costs was (a) the Company's allocable share of the compensation paid by PRCM Advisers to its personnel serving as the Company's principal financial officer and general counsel and personnel employed by PRCM Advisers as in-house legal, tax, accounting, consulting, auditing, administrative, information technology, valuation, computer programming and development and back-office resources to the Company, (b) any amounts for personnel of PRCM Advisers' affiliates arising under a shared facilities and services agreement, and (c) certain costs allocated to the Company by PRCM Advisers for data services and technology. Subsequent to the transition to self-management, the Company no longer pays a management fee to, or reimburses the expenses of, PRCM Advisers. Expenses for which the Company previously reimbursed PRCM Advisers are now borne directly by the Company. The Company is also now responsible for the cash compensation and employee benefits of the Company's Chief Executive Officer, Chief Investment Officer and investment professionals, which were previously the responsibility of PRCM Advisers. Prior to the termination of the Management Agreement, the Company was only responsible for the equity compensation paid to such individuals.

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Notes to the Consolidated Financial Statements

Other Comprehensive Income (Loss)

Current period net unrealized gains and losses on AFS securities, excluding certain AFS securities for which we have elected the fair value option, are reported as components of accumulated other comprehensive (loss) income on the consolidated statements of stockholders' equity and in the consolidated statements of comprehensive loss. Net unrealized gains and losses on securities held by our taxable subsidiaries that are reported in accumulated other comprehensive (loss) income are adjusted for the effects of taxation and may create deferred tax assets or liabilities.

Earnings Per Share

The Company's common stock, par value and shares issued and outstanding, includes issued and unvested shares of restricted common stock, which have full rights to the common stock dividend declarations of the Company. Common shares underlying certain other equity-based awards granted by the Company are not included in common stock until the awards vest. If these awards have non-forfeitable dividend participation rights, they are considered participating securities in the calculations of basic and diluted earnings (loss) per share.

Basic earnings (loss) per share is computed by dividing net income (loss) attributable to common stockholders, less income allocated to participating securities pursuant to the two-class method, by the weighted average number of common shares outstanding during the period. Diluted earnings (loss) per share is computed by dividing basic net income (loss) attributable to common stockholders by the weighted average number of common shares outstanding during the period, further adjusted for the dilutive effect, if any, of share-based payment awards and the assumed conversion of convertible notes into common shares.

Unvested equity-based awards are included in the calculation of diluted earnings (loss) per share under either the two-class method or the treasury stock method, depending upon which method produces the more dilutive result. The two-class method is an earnings allocation formula under which earnings (loss) per share is calculated for common stock and participating securities according to dividends declared and participating rights in undistributed earnings. Under this method, all earnings (distributed and undistributed) are allocated between participating securities and common shares based on their respective rights to receive dividends or dividend equivalents. Under the treasury stock method, common equivalent shares are calculated assuming that any share-based payment awards vest according to their respective agreements and unrecognized compensation cost is used to repurchase shares of the Company's outstanding common stock at the average market price during the reported period. Under the if-converted method, the assumed conversion of each convertible note into common shares is calculated by adding back the respective periodic interest expense (net of any tax effects) associated with dilutive convertible notes to net income (loss) attributable to common stockholders and adding the shares issued in an assumed conversion to the diluted weighted average share count.

Equity Incentive Plans

The Company's Second Restated 2009 Equity Incentive Plan, or the 2009 Plan, and the Company's 2021 Equity Incentive Plan, or the 2021 Plan, or collectively, the Equity Incentive Plans, provide incentive compensation to attract and retain qualified directors, officers, personnel and other parties who may provide significant services to the Company. The Equity Incentive Plans are administered by the compensation committee of the Company's board of directors. The Equity Incentive Plans permit the grants of restricted common stock, restricted stock units, or RSUs, performance-based awards (including performance share units, or PSUs), phantom shares, dividend equivalent rights and other equity-based awards. See Note 17 - *Equity Incentive Plans* for further details regarding the Equity Incentive Plans.

Equity-based compensation costs are initially measured at the estimated fair value of the awards on the grant date. Valuation methods used and subsequent expense recognition is dependent upon each award's service and performance conditions. The Company has elected not to estimate forfeitures when valuing equity-based awards and adjusts compensation costs as actual forfeitures occur. Compensation costs for equity-based awards subject only to service conditions are measured at the closing stock price on the grant date and are recognized as expense on a straight-line basis over the requisite service periods for the awards, adjusted for any forfeitures. Compensation costs for equity-based awards subject to market-based performance metrics are measured at the grant date using Monte Carlo simulations which incorporate assumptions for stock return volatility, dividend yield and risk-free interest rates. These initial valuation amounts are recognized as expense over the requisite performance periods, subject to adjustments only for actual forfeitures. Amortization of equity-based awards (non-cash equity compensation expense) is included within compensation and benefits on the consolidated statements of comprehensive loss.

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Notes to the Consolidated Financial Statements

Recently Issued and/or Adopted Accounting Standards

Facilitation of the Effects of Reference Rate Reform on Financial Reporting

The London Interbank Offered Rate, or LIBOR, has been used extensively in the U.S. and globally as a “benchmark” or “reference rate” for various commercial and financial contracts, including corporate and municipal bonds and loans, floating rate mortgages, asset-backed securities, consumer loans, and interest rate swaps and other derivatives. On March 5, 2021, Intercontinental Exchange Inc. announced that ICE Benchmark Administration Limited, the administrator of LIBOR, intends to stop publication of the majority of USD-LIBOR tenors on June 30, 2023. In the U.S., the Alternative Reference Rates Committee, or ARRC, has identified the Secured Overnight Financing Rate, or SOFR, as its preferred alternative rate for U.S. dollar-based LIBOR. SOFR is a measure of the cost of borrowing cash overnight, collateralized by U.S. Treasury securities, and is based on directly observable U.S. Treasury-backed repurchase transactions. Numerous industry wide and company-specific transitions as it relates to derivatives and cash markets exposed to LIBOR are in process, if not completed.

In March 2020, the FASB issued Accounting Standards Update (ASU) No. 2020-04, which provides temporary optional expedients and exceptions on accounting for contract modifications and hedging relationships in anticipation of the replacement of LIBOR with another reference rate. The guidance also provides a one-time election to sell held-to-maturity debt securities or to transfer such securities to the available-for-sale or trading category. The majority of the Company’s material contracts that are or were indexed to USD-LIBOR have been amended to transition to an alternative benchmark, where necessary. As of December 31, 2022, only the Company’s term notes incorporate LIBOR as the referenced rate and mature after the phase-out of LIBOR. However, the related agreements have provisions in place that provide for an alternative to LIBOR upon its phase-out. The Company had no other financing arrangements or derivative instruments that incorporate LIBOR as the referenced rate as of December 31, 2022. Additionally, each series of the Company’s fixed-to-floating preferred stock that becomes redeemable at the time the stock begins to pay a LIBOR-based rate has existing LIBOR cessation fallback language. The ASU was effective immediately for all entities and expired after December 31, 2022. The Company’s adoption of this ASU did not have an impact on the Company’s financial condition, results of operations or financial statement disclosures.

Note 3. Variable Interest Entities

The trusts that were formed for the purpose of financing MSR through securitization and servicing advances through revolving credit facilities (see discussion in Note 2 - *Basis of Presentation and Significant Accounting Policies*) are considered VIEs for financial reporting purposes and were reviewed for consolidation under the applicable consolidation guidance. As the Company has both the power to direct the activities of the trusts that most significantly impact the entities’ performance, and the obligation to absorb losses or the right to receive benefits of the entities that could be significant, the Company is the primary beneficiary and, thus, consolidates the trusts. Additionally, in accordance with arrangements entered into in connection with the securitization transaction and the servicing advance revolving credit facility, the Company has direct financial obligations payable to both MSR Issuer Trust and Servicing Advance Receivables Issuer Trust, which, in turn, support MSR Issuer Trust’s obligations to noteholders under the securitization transaction and Servicing Advance Receivables Issuer Trust’s obligations to the financing counterparty.

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Notes to the Consolidated Financial Statements

The following table presents a summary of the assets and liabilities of all consolidated trusts as reported on the consolidated balance sheets as of December 31, 2022 and December 31, 2021:

(in thousands)	December 31, 2022	December 31, 2021
Note receivable ⁽¹⁾	\$ 398,011	\$ 396,776
Restricted cash	31,691	23,892
Accrued interest receivable ⁽¹⁾	400	161
Other assets	67,819	33,767
Total Assets	\$ 497,921	\$ 454,596
Term notes payable	\$ 398,011	\$ 396,776
Revolving credit facilities	23,850	19,200
Accrued interest payable	560	216
Other liabilities	31,531	23,838
Total Liabilities	\$ 453,952	\$ 440,030

(1) Receivables due from a wholly owned subsidiary of the Company to the trusts are eliminated in consolidation in accordance with U.S. GAAP.

As discussed in Note 2 - *Basis of Presentation and Significant Accounting Policies*, RoundPoint is also considered a VIE for financial reporting purposes and was reviewed for consolidation under the applicable consolidation guidance. As the Company has the obligation to absorb losses and the right to receive benefits of RoundPoint during the Interim Period that could be significant, but not the power to direct the activities of RoundPoint that most significantly impacts its performance, the Company is not the primary beneficiary and, thus, does not consolidate RoundPoint.

Note 4. Available-for-Sale Securities, at Fair Value

The Company holds both Agency and non-Agency available-for sale, or AFS, investment securities which are carried at fair value on the consolidated balance sheets. The following table presents the Company's AFS investment securities by collateral type as of December 31, 2022 and December 31, 2021:

(in thousands)	December 31, 2022	December 31, 2021
Agency:		
Federal National Mortgage Association	\$ 4,112,556	\$ 5,040,988
Federal Home Loan Mortgage Corporation	3,332,314	1,922,809
Government National Mortgage Association	208,706	185,602
Non-Agency	125,158	12,304
Total available-for-sale securities	\$ 7,778,734	\$ 7,161,703

At December 31, 2022 and December 31, 2021, the Company pledged AFS securities with a carrying value of \$7.4 billion and \$7.0 billion, respectively, as collateral for repurchase agreements. See Note 11 - *Repurchase Agreements*.

At December 31, 2022 and December 31, 2021, the Company did not have any securities purchased from and financed with the same counterparty that did not meet the conditions of ASC 860, *Transfers and Servicing*, to be considered linked transactions and, therefore, classified as derivatives.

The Company is not required to consolidate VIEs for which it has concluded it does not have both the power to direct the activities of the VIEs that most significantly impact the entities' performance, and the obligation to absorb losses or the right to receive benefits of the entities that could be significant. The Company's investments in these unconsolidated VIEs include all non-Agency securities, which are classified within available-for-sale securities, at fair value on the consolidated balance sheets. As of December 31, 2022 and December 31, 2021, the carrying value, which also represents the maximum exposure to loss, of all non-Agency securities in unconsolidated VIEs was \$125.2 million and \$12.3 million, respectively.

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Notes to the Consolidated Financial Statements

The following tables present the amortized cost and carrying value of AFS securities by collateral type as of December 31, 2022 and December 31, 2021:

		December 31, 2022						
(in thousands)	Principal/ Current Face	Un- amortized Premium	Accretable Purchase Discount	Amortized Cost	Allowance for Credit Losses	Unrealized Gain	Unrealized Loss	Carrying Value
Agency:								
Principal and interest	\$ 7,781,277	\$ 189,246	\$ (33,413)	\$ 7,937,110	\$ —	\$ 6,310	\$ (325,960)	\$ 7,617,460
Interest-only	963,866	45,882	—	45,882	(6,785)	1,890	(4,871)	36,116
Total Agency	8,745,143	235,128	(33,413)	7,982,992	(6,785)	8,200	(330,831)	7,653,576
Non-Agency	1,263,789	8,511	(225)	131,635	(173)	545	(6,849)	125,158
Total	<u>\$10,008,932</u>	<u>\$ 243,639</u>	<u>\$ (33,638)</u>	<u>\$ 8,114,627</u>	<u>\$ (6,958)</u>	<u>\$ 8,745</u>	<u>\$ (337,680)</u>	<u>\$ 7,778,734</u>

		December 31, 2021						
(in thousands)	Principal/ Current Face	Un- amortized Premium	Accretable Purchase Discount	Amortized Cost	Allowance for Credit Losses	Unrealized Gain	Unrealized Loss	Carrying Value
Agency:								
Principal and interest	\$ 6,411,363	\$ 270,699	\$ (12)	\$ 6,682,050	\$ —	\$ 171,308	\$ (4,855)	\$ 6,848,503
Interest-only	3,198,447	305,577	—	305,577	(12,851)	20,699	(12,529)	300,896
Total Agency	9,609,810	576,276	(12)	6,987,627	(12,851)	192,007	(17,384)	7,149,399
Non-Agency	1,940,815	16,533	(27)	17,386	(1,387)	33	(3,728)	12,304
Total	<u>\$11,550,625</u>	<u>\$ 592,809</u>	<u>\$ (39)</u>	<u>\$ 7,005,013</u>	<u>\$ (14,238)</u>	<u>\$ 192,040</u>	<u>\$ (21,112)</u>	<u>\$ 7,161,703</u>

The following table presents the Company's AFS securities according to their estimated weighted average life classifications as of December 31, 2022:

		December 31, 2022		
(in thousands)	Agency	Non-Agency	Total	
< 1 year	\$ 2,001	\$ —	\$ 2,001	
≥ 1 and < 3 years	28,953	—	28,953	
≥ 3 and < 5 years	149,872	117,203	267,075	
≥ 5 and < 10 years	7,471,903	7,955	7,479,858	
≥ 10 years	847	—	847	
Total	<u>\$ 7,653,576</u>	<u>\$ 125,158</u>	<u>\$ 7,778,734</u>	

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Notes to the Consolidated Financial Statements

Measurement of Allowances for Credit Losses on AFS Securities

The Company uses a discounted cash flow method to estimate and recognize an allowance for credit losses on both Agency and non-Agency AFS securities that are not accounted for under the fair value option. The following tables present the changes for the years ended December 31, 2022, 2021 and 2020 in the allowance for credit losses on Agency and non-Agency AFS securities:

	Year Ended December 31, 2022		
	Agency	Non-Agency	Total
(in thousands)			
Allowance for credit losses at beginning of period	\$ (12,851)	\$ (1,387)	\$ (14,238)
Additions on securities for which credit losses were not previously recorded	(482)	(501)	(983)
(Increase) decrease on securities with previously recorded credit losses	(3,462)	1,715	(1,747)
Write-offs	10,010	—	10,010
Allowance for credit losses at end of period	\$ (6,785)	\$ (173)	\$ (6,958)

	Year Ended December 31, 2021		
	Agency	Non-Agency	Total
(in thousands)			
Allowance for credit losses at beginning of period	\$ (17,889)	\$ (4,639)	\$ (22,528)
Additions on securities for which credit losses were not previously recorded	(190)	(4,365)	(4,555)
Increase on securities with previously recorded credit losses	(4,542)	(666)	(5,208)
Write-offs	9,770	8,283	18,053
Allowance for credit losses at end of period	\$ (12,851)	\$ (1,387)	\$ (14,238)

	Year Ended December 31, 2020		
	Agency	Non-Agency	Total
(in thousands)			
Allowance for credit losses at beginning of period	\$ —	\$ (244,876)	\$ (244,876)
Additions on securities for which credit losses were not previously recorded	(32,931)	(11,428)	(44,359)
Reductions for securities sold	—	246,792	246,792
Decrease (increase) on securities with previously recorded credit losses	385	(14,466)	(14,081)
Write-offs	14,657	21,874	36,531
Recoveries of amounts previously written off	—	(2,535)	(2,535)
Allowance for credit losses at end of period	\$ (17,889)	\$ (4,639)	\$ (22,528)

Prior to the adoption of ASU No. 2016-13, *Financial Instruments-Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments* on January 1, 2020, the Company periodically evaluated AFS securities for other-than-temporary impairments, or OTTI, and recognized the related credit losses in earnings. As of December 31, 2019, the Company's cumulative credit losses related to OTTI totaled \$17.0 million. During the three months ended March 31, 2020, the Company sold all securities for which OTTI had been recognized prior to January 1, 2020, reducing the Company's cumulative credit losses related to OTTI to zero.

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Notes to the Consolidated Financial Statements

The following tables present the components comprising the carrying value of AFS securities for which an allowance for credit losses has not been recorded by length of time that the securities had an unrealized loss position as of December 31, 2022 and December 31, 2021. At December 31, 2022 and December 31, 2021, the Company held 704 and 756 AFS securities, respectively; of the securities for which an allowance for credit losses has not been recorded, 553 and 45 were in an unrealized loss position for less than twelve consecutive months. At both December 31, 2022 and December 31, 2021, none of the Company's AFS securities were in an unrealized loss position for more than twelve months without an allowance for credit losses recorded.

		December 31, 2022					
		Unrealized Loss Position for					
		Less than 12 Months		12 Months or More		Total	
		Estimated Fair Value	Gross Unrealized Losses	Estimated Fair Value	Gross Unrealized Losses	Estimated Fair Value	Gross Unrealized Losses
(in thousands)							
	Agency	\$ 7,168,694	\$ (328,258)	\$ —	\$ —	\$ 7,168,694	\$ (328,258)
	Non-Agency	117,816	(5,933)	—	—	117,816	(5,933)
	Total	<u>\$ 7,286,510</u>	<u>\$ (334,191)</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 7,286,510</u>	<u>\$ (334,191)</u>

		December 31, 2021					
		Unrealized Loss Position for					
		Less than 12 Months		12 Months or More		Total	
		Estimated Fair Value	Gross Unrealized Losses	Estimated Fair Value	Gross Unrealized Losses	Estimated Fair Value	Gross Unrealized Losses
(in thousands)							
	Agency	\$ 2,371,216	\$ (12,031)	\$ —	\$ —	\$ 2,371,216	\$ (12,031)
	Non-Agency	9,613	(1,230)	—	—	9,613	(1,230)
	Total	<u>\$ 2,380,829</u>	<u>\$ (13,261)</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 2,380,829</u>	<u>\$ (13,261)</u>

Realized Gains and Losses

Gains and losses from the sale of AFS securities are recorded as realized gains (losses) within (loss) gain on investment securities in the Company's consolidated statements of comprehensive loss. The following table presents details around sales of AFS securities during the years ended December 31, 2022, 2021 and 2020:

		Year Ended December 31,		
		2022	2021	2020
(in thousands)				
	Proceeds from sales of available-for-sale securities	\$ 7,793,705	\$ 6,274,193	\$ 18,349,338
	Amortized cost of available-for-sale securities sold	(8,359,967)	(6,137,824)	(19,273,667)
	Total realized (losses) gains on sales, net	<u>\$ (566,262)</u>	<u>\$ 136,369</u>	<u>\$ (924,329)</u>
	Gross realized gains	\$ 40,574	\$ 167,269	\$ 337,360
	Gross realized losses	(606,836)	(30,900)	(1,261,689)
	Total realized (losses) gains on sales, net	<u>\$ (566,262)</u>	<u>\$ 136,369</u>	<u>\$ (924,329)</u>

Note 5. Servicing Activities

Mortgage Servicing Rights, at Fair Value

A wholly owned subsidiary of the Company has approvals from Fannie Mae and Freddie Mac to own and manage MSR, which represent the right to control the servicing of residential mortgage loans. The Company and its subsidiaries do not originate or directly service mortgage loans, and instead contract with appropriately licensed subservicers to handle substantially all servicing functions in the name of the subservicer for the loans underlying the Company's MSR.

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Notes to the Consolidated Financial Statements

The following table summarizes activity related to MSR for the years ended December 31, 2022, 2021 and 2020.

(in thousands)	Year Ended December 31,		
	2022	2021	2020
Balance at beginning of period	\$ 2,191,578	\$ 1,596,153	\$ 1,909,444
Purchases of mortgage servicing rights	640,051	777,305	623,284
Sales of mortgage servicing rights	(259,059)	(43,411)	1,976
Changes in fair value due to:			
Changes in valuation inputs or assumptions used in the valuation model ⁽¹⁾	793,631	562,843	(396,900)
Other changes in fair value ⁽²⁾	(371,023)	(666,160)	(538,761)
Other changes ⁽³⁾	(10,241)	(35,152)	(2,890)
Balance at end of period ⁽⁴⁾	<u>\$ 2,984,937</u>	<u>\$ 2,191,578</u>	<u>\$ 1,596,153</u>

(1) Includes the impact of acquiring MSR at a cost different from fair value.

(2) Primarily represents changes due to the realization of cash flows.

(3) Includes purchase price adjustments, contractual prepayment protection, and changes due to the Company's purchase of the underlying collateral.

(4) Based on the principal balance of the loans underlying the MSR reported by servicers on a month lag, adjusted for current month purchases.

At December 31, 2022 and December 31, 2021, the Company pledged MSR with a carrying value of \$3.0 billion and \$2.1 billion, respectively, as collateral for repurchase agreements, revolving credit facilities and term notes payable. See Note 11 - *Repurchase Agreements*, Note 12 - *Revolving Credit Facilities* and Note 13 - *Term Notes Payable*.

As of December 31, 2022 and December 31, 2021, the key economic assumptions and sensitivity of the fair value of MSR to immediate 10% and 20% adverse changes in these assumptions were as follows:

(dollars in thousands, except per loan data)	December 31, 2022	December 31, 2021
Weighted average prepayment speed:	6.9 %	12.9 %
Impact on fair value of 10% adverse change	\$ (50,192)	\$ (110,222)
Impact on fair value of 20% adverse change	\$ (100,995)	\$ (210,406)
Weighted average delinquency:	0.9 %	1.3 %
Impact on fair value of 10% adverse change	\$ (3,880)	\$ (3,470)
Impact on fair value of 20% adverse change	\$ (7,777)	\$ (6,947)
Weighted average option-adjusted spread:	5.3 %	4.7 %
Impact on fair value of 10% adverse change	\$ (44,431)	\$ (42,188)
Impact on fair value of 20% adverse change	\$ (87,354)	\$ (82,126)
Weighted average per loan annual cost to service:	\$ 67.92	\$ 66.76
Impact on fair value of 10% adverse change	\$ (20,148)	\$ (25,919)
Impact on fair value of 20% adverse change	\$ (39,401)	\$ (51,911)

These assumptions and sensitivities are hypothetical and should be considered with caution. Changes in fair value based on 10% and 20% variations in assumptions generally cannot be extrapolated because the relationship of the change in assumptions to the change in fair value may not be linear. Also, the effect of a variation in a particular assumption on the fair value of MSR is calculated without changing any other assumptions. In reality, changes in one factor may result in changes in another (e.g., increased market interest rates may result in lower prepayments and increased credit losses) that could magnify or counteract the sensitivities. Further, these sensitivities show only the change in the asset balances and do not show any expected change in the fair value of the instruments used to manage the interest rates and prepayment risks associated with these assets.

TWO HARBORS INVESTMENT CORP.

Notes to the Consolidated Financial Statements

Risk Mitigation Activities

The primary risks associated with the Company's MSR are changes in interest rates, mortgage spreads and prepayments. The Company economically hedges interest rate and mortgage spread risk primarily with its Agency RMBS portfolio. Prepayment risk is carefully monitored and partially mitigated through the Company's ability to retain the MSR, in certain circumstances, through recapture agreements with its subservicers if the underlying loan is refinanced.

Mortgage Servicing Income

The following table presents the components of servicing income recorded on the Company's consolidated statements of comprehensive loss for the years ended December 31, 2022, 2021 and 2020:

(in thousands)	Year Ended December 31,		
	2022	2021	2020
Servicing fee income	\$ 564,923	\$ 461,381	\$ 416,936
Ancillary and other fee income	1,932	2,436	1,945
Float income	37,056	4,589	24,470
Total	\$ 603,911	\$ 468,406	\$ 443,351

Mortgage Servicing Advances

As the servicer of record for the MSR assets, the Company may be required to advance principal and interest payments to security holders, and intermittent tax and insurance payments to local authorities and insurance companies on mortgage loans that are in forbearance, delinquency or default. The Company is responsible for funding these advances, potentially for an extended period of time, before receiving reimbursement from Fannie Mae and Freddie Mac. Servicing advances are priority cash flows in the event of a loan principal reduction or foreclosure and ultimate liquidation of the real estate-owned property, thus making their collection reasonably assured. These servicing advances totaled \$119.0 million and \$130.6 million and were included in other assets on the consolidated balance sheets as of December 31, 2022 and December 31, 2021, respectively. At December 31, 2022 and December 31, 2021, mortgage loans in 60+ day delinquent status (whether or not subject to forbearance) accounted for approximately 0.8% and 1.3%, respectively, of the aggregate principal balance of loans for which the Company had servicing advance funding obligations.

The Company has one revolving credit facility to finance its servicing advance obligations. At December 31, 2022 and December 31, 2021, the Company had pledged servicing advances with a carrying value of \$67.8 million and \$33.8 million, respectively, as collateral for this revolving credit facility. See Note 12 - *Revolving Credit Facilities*.

Serviced Mortgage Assets

The Company's total serviced mortgage assets consist of residential mortgage loans underlying its MSR assets, off-balance sheet residential mortgage loans owned by other entities for which the Company acts as servicing administrator and other assets. The following table presents the number of loans and unpaid principal balance of the mortgage assets for which the Company manages the servicing as of December 31, 2022 and December 31, 2021:

(dollars in thousands)	December 31, 2022		December 31, 2021	
	Number of Loans	Unpaid Principal Balance	Number of Loans	Unpaid Principal Balance
Mortgage servicing rights	809,025	\$ 204,876,693	796,205	\$ 193,770,566
Residential mortgage loans	636	374,005	868	519,270
Other assets	4	269	2	40
Total serviced mortgage assets	809,665	\$ 205,250,967	797,075	\$ 194,289,876

Note 6. Cash, Cash Equivalents and Restricted Cash

Cash and cash equivalents include cash held in bank accounts and cash held in money market funds on an overnight basis.

The Company is required to maintain certain cash balances with counterparties for securities and derivatives trading activity, servicing activities and collateral for the Company's borrowings in restricted accounts. The Company has also placed cash in a restricted account pursuant to a letter of credit on an office space lease.

TWO HARBORS INVESTMENT CORP.

Notes to the Consolidated Financial Statements

The following table presents the Company’s restricted cash balances as of December 31, 2022 and December 31, 2021:

(in thousands)	December 31, 2022	December 31, 2021
Restricted cash balances held by trading counterparties:		
For securities trading activity	\$ 2,202	\$ 23,800
For derivatives trading activity	79,220	136,271
For servicing activities	36,690	26,704
As restricted collateral for borrowings	324,854	747,979
Total restricted cash balances held by trading counterparties	442,966	934,754
Restricted cash balance pursuant to letter of credit on office lease	60	60
Total	\$ 443,026	\$ 934,814

The following table provides a reconciliation of cash, cash equivalents, and restricted cash reported on the Company’s consolidated balance sheets as of December 31, 2022 and December 31, 2021 that sum to the total of the same such amounts shown in the statements of cash flows:

(in thousands)	December 31, 2022	December 31, 2021
Cash and cash equivalents	\$ 683,479	\$ 1,153,856
Restricted cash	443,026	934,814
Total cash, cash equivalents and restricted cash	\$ 1,126,505	\$ 2,088,670

Note 7. Derivative Instruments and Hedging Activities

The Company enters into a variety of derivative and non-derivative instruments in connection with its risk management activities. The primary objective for executing these derivative and non-derivative instruments is to mitigate the Company’s economic exposure to future events that are outside its control, principally cash flow volatility associated with interest rate risk (including associated prepayment risk). Specifically, the Company enters into derivative and non-derivative instruments to economically hedge interest rate risk or “duration mismatch (or gap)” by adjusting the duration of its floating-rate borrowings into fixed-rate borrowings to more closely match the duration of its assets. This particularly applies to floating-rate borrowing agreements with maturities or interest rate resets of less than six months. Typically, the interest receivable terms (*e.g.*, LIBOR, Overnight Index Swap Rate, or OIS, or SOFR) of certain derivatives match the terms of the underlying debt, resulting in an effective conversion of the rate of the related borrowing agreement from floating to fixed. The objective is to manage the cash flows associated with current and anticipated interest payments on borrowings, as well as the ability to roll or refinance borrowings at the desired amount by adjusting the duration.

To help manage the adverse impact of interest rate changes on the value of the Company’s portfolio as well as its cash flows, the Company may, at times, enter into various forward contracts, including short securities, Agency to-be-announced securities, or TBAs, options, futures, swaps, caps and total return swaps. In executing on the Company’s current risk management strategy, the Company has entered into TBAs, interest rate swap and swaption agreements, futures and options on futures. The Company has also entered into a number of non-derivative instruments to manage interest rate risk, principally MSR and interest-only securities (see discussion below).

The following summarizes the Company’s significant asset and liability classes, the risk exposure for these classes, and the Company’s risk management activities used to mitigate these risks. The discussion includes both derivative and non-derivative instruments used as part of these risk management activities. Any of the Company’s derivative and non-derivative instruments may be entered into in conjunction with one another in order to mitigate risks. As a result, the following discussions of each type of instrument should be read as a collective representation of the Company’s risk mitigation efforts and should not be considered independent of one another. While the Company uses derivative and non-derivative instruments to achieve the Company’s risk management activities, it is possible that these instruments will not effectively mitigate all or a substantial portion of the Company’s market rate risk. In addition, the Company might elect, at times, not to enter into certain hedging arrangements in order to maintain compliance with REIT requirements.

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Notes to the Consolidated Financial Statements

Balance Sheet Presentation

In accordance with ASC 815, the Company records derivative financial instruments on its consolidated balance sheets as assets or liabilities at fair value. Changes in fair value are accounted for depending on the use of the derivative instruments and whether they are designated or qualifying as hedge instruments. Due to the volatility of the interest rate and credit markets and difficulty in effectively matching pricing or cash flows, the Company has not designated any current derivatives as hedging instruments.

The following tables present the gross fair value and notional amounts of the Company's derivative financial instruments treated as trading derivatives as of December 31, 2022 and December 31, 2021:

(in thousands)	December 31, 2022			
	Derivative Assets		Derivative Liabilities	
	Fair Value	Notional	Fair Value	Notional
Inverse interest-only securities	\$ 15,293	\$ 196,456	\$ —	\$ —
Interest rate swap agreements	—	—	—	—
Swaptions, net	—	—	—	—
TBAs	11,145	(650,000)	(34,048)	4,476,000
Futures, net	—	(18,285,452)	—	—
Total	<u>\$ 26,438</u>	<u>\$ (18,738,996)</u>	<u>\$ (34,048)</u>	<u>\$ 4,476,000</u>

(in thousands)	December 31, 2021			
	Derivative Assets		Derivative Liabilities	
	Fair Value	Notional	Fair Value	Notional
Inverse interest-only securities	\$ 41,367	\$ 247,101	\$ —	\$ —
Interest rate swap agreements	—	20,387,300	—	—
Swaptions, net	—	—	(51,743)	(1,761,000)
TBAs	3,405	3,523,000	(1,915)	593,000
Futures, net	35,362	(5,829,600)	—	—
Total	<u>\$ 80,134</u>	<u>\$ 18,327,801</u>	<u>\$ (53,658)</u>	<u>\$ (1,168,000)</u>

Comprehensive Loss Statement Presentation

The Company has not applied hedge accounting to its current derivative portfolio held to mitigate interest rate risk and credit risk. As a result, the Company is subject to volatility in its earnings due to movement in the unrealized gains and losses associated with its derivative instruments.

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The following table summarizes the location and amount of gains and losses on derivative instruments reported in the consolidated statements of comprehensive loss:

Derivative Instruments	Location of Gain (Loss) Recognized in Income	Amount of Gain (Loss) Recognized in Income		
		Year Ended		
		December 31,		
(in thousands)		2022	2021	2020
Interest rate risk management:				
TBAs	Gain (loss) on other derivative instruments	\$ (487,713)	\$ (193,479)	\$ 60,798
Futures	Gain (loss) on other derivative instruments	514,467	(49,213)	18,143
Options on TBAs	Gain (loss) on other derivative instruments	—	(5,683)	—
Options on futures	Gain (loss) on other derivative instruments	(2,224)	—	—
Interest rate swaps - Payers	Gain (loss) on interest rate swap, cap and swaption agreements	772,829	92,317	(1,128,788)
Interest rate swaps - Receivers	Gain (loss) on interest rate swap, cap and swaption agreements	(756,744)	(66,828)	879,289
Swaptions	Gain (loss) on interest rate swap, cap and swaption agreements	13,414	16,602	(61,307)
Markit IOS total return swaps	Gain (loss) on other derivative instruments	—	—	(2,430)
Non-risk management:				
Inverse interest-only securities	Gain (loss) on other derivative instruments	(15,220)	(2,908)	13,512
Total		<u>\$ 38,809</u>	<u>\$ (209,192)</u>	<u>\$ (220,783)</u>

For the years ended December 31, 2022, 2021 and 2020, the Company recognized \$4.8 million of expense, \$14.3 million of income, and \$66.2 million of expense, respectively, for the accrual and/or settlement of the net interest expense associated with its interest rate swaps and caps. The income resulted from paying either a fixed interest rate or a floating interest rate (e.g., LIBOR, OIS or SOFR) and receiving either a floating interest rate (e.g., LIBOR, OIS or SOFR) or a fixed interest rate on an average \$12.4 billion, \$15.9 billion and \$27.1 billion notional, respectively.

The following tables present information with respect to the volume of activity in the Company's derivative instruments during the years ended December 31, 2022 and 2021:

(in thousands)	Year Ended December 31, 2022					
	Beginning of Period Notional Amount	Additions	Settlement, Termination, Expiration or Exercise	End of Period Notional Amount	Average Notional Amount	Realized Gain (Loss), net ⁽¹⁾
Inverse interest-only securities	\$ 247,101	\$ —	\$ (50,645)	\$ 196,456	\$ 219,813	\$ —
Interest rate swap agreements	20,387,300	22,398,148	(42,785,448)	—	12,424,320	29,543
Swaptions, net	(1,761,000)	(1,000,000)	2,761,000	—	(1,274,101)	13,654
TBAs, net	4,116,000	69,828,000	(70,118,000)	3,826,000	4,743,504	(463,320)
Futures, net	(5,829,600)	(68,777,002)	56,321,150	(18,285,452)	(13,921,620)	487,267
Options on futures, net	—	2,000	(2,000)	—	416	(2,224)
Total	<u>\$ 17,159,801</u>	<u>\$ 22,451,146</u>	<u>\$ (53,873,943)</u>	<u>\$(14,262,996)</u>	<u>\$ 2,192,332</u>	<u>\$ 64,920</u>

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Notes to the Consolidated Financial Statements

Year Ended December 31, 2021

(in thousands)	Beginning of Period Notional Amount	Additions	Settlement, Termination, Expiration or Exercise	End of Period Notional Amount	Average Notional Amount	Realized Gain (Loss), net ⁽¹⁾
Inverse interest-only securities	\$ 318,162	\$ —	\$ (71,061)	\$ 247,101	\$ 282,380	\$ (398)
Interest rate swap agreements	12,646,341	10,107,476	(2,366,517)	20,387,300	15,870,590	(5,778)
Swaptions, net	3,750,000	(2,871,000)	(2,640,000)	(1,761,000)	(428,586)	8,147
TBAs, net	5,197,000	90,927,000	(92,008,000)	4,116,000	6,538,666	(175,368)
Options on TBAs, net	—	1,500,000	(1,500,000)	—	267,123	(5,683)
Futures, net	2,021,100	7,447,600	(15,298,300)	(5,829,600)	(2,197,734)	(80,867)
Total	<u>\$ 23,932,603</u>	<u>\$ 107,111,076</u>	<u>\$(113,883,878)</u>	<u>\$ 17,159,801</u>	<u>\$ 20,332,439</u>	<u>\$(259,947)</u>

(1) Excludes net interest paid or received in full settlement of the net interest spread liability.

Cash flow activity related to derivative instruments is reflected within the operating activities and investing activities sections of the consolidated statements of cash flows. Realized gains and losses and derivative fair value adjustments are reflected within the realized and unrealized (gains) losses on interest rate swaps, caps and swaptions and unrealized losses (gains) on other derivative instruments line items within the operating activities section of the consolidated statements of cash flows. The remaining cash flow activity related to derivative instruments is reflected within the (purchases) short sales of derivative instruments, net; proceeds from sales and settlement (payments for termination and settlement) of derivative instruments, net; and increase in due to counterparties, net line items within the investing activities section of the consolidated statements of cash flows.

Interest Rate Sensitive Assets/Liabilities

The Company's Agency RMBS portfolio is generally subject to change in value when interest rates or prepayment speeds decrease or increase, depending on the type of investment. Periods of rising interest rates with corresponding decreasing prepayment speeds generally result in a decline in the value of the Company's fixed-rate Agency principal and interest (P&I) RMBS. The impact of this effect on the Company's fixed-rate Agency P&I RMBS portfolio is partially mitigated by the presence of fixed-rate interest-only Agency RMBS, which generally increase in value when prepayment speeds decrease and MSR, which generally increase in value when prepayment speeds decrease and interest rates increase. As of December 31, 2022 and December 31, 2021, the Company had \$23.8 million and \$274.1 million, respectively, of interest-only securities, and \$3.0 billion and \$2.2 billion, respectively, of MSR. Interest-only securities are included in AFS securities, at fair value, in the consolidated balance sheets.

The Company monitors its borrowings under repurchase agreements and revolving credit facilities, which are generally floating-rate debt, in relation to the rate profile of its portfolio. In connection with its risk management activities, the Company enters into a variety of derivative and non-derivative instruments to economically hedge interest rate risk or duration mismatch (or gap) by adjusting the duration of its floating-rate borrowings into fixed-rate borrowings to more closely match the duration of its assets. This particularly applies to borrowing agreements with maturities or interest rate resets of less than six months. Typically, the interest receivable terms (e.g., LIBOR, OIS or SOFR) of certain derivatives match the terms of the underlying debt, resulting in an effective conversion of the rate of the related borrowing agreement from floating to fixed. The objective is to manage the cash flows associated with current and anticipated interest payments on borrowings, as well as the ability to roll or refinance borrowings at the desired amount by adjusting the duration. To help manage the adverse impact of interest rate changes on the value of the Company's portfolio as well as its cash flows, the Company may, at times, enter into various forward contracts, including short securities, TBAs, options, futures, swaps, caps, credit default swaps and total return swaps. In executing on the Company's current interest rate risk management strategy, the Company has entered into TBAs, interest rate swap and swaption agreements, futures and options on futures.

The Company did not hold any derivative instruments that incorporate LIBOR as the referenced rate as of December 31, 2022. See Note 2 - *Basis of Presentation and Significant Accounting Policies* for further discussion of the transition away from LIBOR.

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TBAs. The Company may use TBAs as a means of deploying capital until targeted investments are available or to take advantage of temporary displacements, funding advantages or valuation differentials in the marketplace. Additionally, the Company may use TBAs independently, or in conjunction with other derivative and non-derivative instruments, in order to mitigate risks. TBAs are forward contracts for the purchase (long notional positions) or sale (short notional positions) of Agency RMBS. The issuer, coupon and stated maturity of the Agency RMBS are predetermined as well as the trade price, face amount and future settle date (published each month by the Securities Industry and Financial Markets Association). However, the specific Agency RMBS to be delivered upon settlement is not known at the time of the TBA transaction. As a result, and because physical delivery of the Agency RMBS upon settlement cannot be assured, the Company accounts for TBAs as derivative instruments.

The Company may hold both long and short notional TBA positions, which are disclosed on a gross basis according to the unrealized gain or loss position of each TBA contract regardless of long or short notional position. The following tables present the notional amount, cost basis, market value and carrying value (which approximates fair value) of the Company's TBA positions as of December 31, 2022 and December 31, 2021:

December 31, 2022					
(in thousands)	Notional Amount ⁽¹⁾	Cost Basis ⁽²⁾	Market Value ⁽³⁾	Net Carrying Value ⁽⁴⁾	
				Derivative Assets	Derivative Liabilities
Purchase contracts	\$ 4,826,000	\$ 4,802,009	\$ 4,767,989	\$ 28	\$ (34,048)
Sale contracts	(1,000,000)	(878,711)	(867,594)	11,117	—
TBAs, net	\$ 3,826,000	\$ 3,923,298	\$ 3,900,395	\$ 11,145	\$ (34,048)

December 31, 2021					
(in thousands)	Notional Amount ⁽¹⁾	Cost Basis ⁽²⁾	Market Value ⁽³⁾	Net Carrying Value ⁽⁴⁾	
				Derivative Assets	Derivative Liabilities
Purchase contracts	\$ 4,116,000	\$ 4,238,881	\$ 4,240,371	\$ 3,405	\$ (1,915)
Sale contracts	—	—	—	—	—
TBAs, net	\$ 4,116,000	\$ 4,238,881	\$ 4,240,371	\$ 3,405	\$ (1,915)

(1) Notional amount represents the face amount of the underlying Agency RMBS.

(2) Cost basis represents the forward price to be paid (received) for the underlying Agency RMBS.

(3) Market value represents the current market value of the TBA (or of the underlying Agency RMBS) as of period-end.

(4) Net carrying value represents the difference between the market value of the TBA as of period-end and its cost basis, and is reported in derivative assets / (liabilities), at fair value, in the consolidated balance sheets.

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Notes to the Consolidated Financial Statements

Futures. The Company may use a variety of types of futures independently, or in conjunction with other derivative and non-derivative instruments, in order to mitigate risks. The following table summarizes certain characteristics of the Company's futures as of December 31, 2022 and December 31, 2021:

Type & Maturity	December 31, 2022			December 31, 2021		
	Notional Amount	Carrying Value	Weighted Average Days to Expiration	Notional Amount	Carrying Value	Weighted Average Days to Expiration
U.S. Treasury futures - 2 year	\$ (562,200)	\$ —	95	\$ —	\$ —	0
U.S. Treasury futures - 5 year	(3,855,500)	—	95	—	—	0
U.S. Treasury futures - 10 year	(2,397,200)	—	90	687,900	1,809	90
U.S. Treasury futures - 20 year	101,000	—	90	—	—	0
Federal Funds futures - 30 day	(7,948,552)	—	92	—	—	0
Eurodollar futures - 3 month:						
≤ 1 year	(2,957,000)	—	184	(3,582,000)	15,121	213
> 1 and ≤ 2 years	(666,000)	—	489	(2,269,500)	14,952	560
> 2 and ≤ 3 years	—	—	0	(666,000)	3,480	854
Total futures	<u><u>\$(18,285,452)</u></u>	<u><u>\$ —</u></u>	<u><u>122</u></u>	<u><u>\$(5,829,600)</u></u>	<u><u>\$ 35,362</u></u>	<u><u>370</u></u>

Interest Rate Swap Agreements. The Company may use interest rate swaps independently, or in conjunction with other derivative and non-derivative instruments, in order to mitigate risks. The Company did not hold any interest rate swaps as of December 31, 2022. As of December 31, 2021, the Company held the following interest rate swaps that were utilized as economic hedges of interest rate exposure (or duration) whereby the Company receives interest at a floating interest rate (OIS or SOFR):

(notional in thousands)

Swaps Maturities	December 31, 2021			
	Notional Amount	Weighted Average Fixed Pay Rate	Weighted Average Receive Rate	Weighted Average Maturity (Years)
2022	\$ 7,415,818	0.420 %	0.070 %	0.66
2023	2,582,084	0.113 %	0.068 %	1.51
2024	—	— %	— %	0.00
2025	377,610	1.030 %	0.050 %	3.96
2026 and Thereafter	2,782,057	0.652 %	0.063 %	6.56
Total	<u><u>\$ 13,157,569</u></u>	<u><u>0.213 %</u></u>	<u><u>0.067 %</u></u>	<u><u>2.17</u></u>

Additionally, as of December 31, 2021, the Company held the following interest rate swaps in order to mitigate mortgage interest rate exposure (or duration) risk whereby the Company pays interest at a floating interest rate (OIS or SOFR):

(notional in thousands)

Swaps Maturities	December 31, 2021			
	Notional Amount	Weighted Average Pay Rate	Weighted Average Fixed Receive Rate	Weighted Average Maturity (Years)
2022	\$ 2,221,658	0.070 %	0.118 %	1.19
2023	—	— %	— %	0.00
2024	—	— %	— %	0.00
2025	—	— %	— %	0.00
2026 and Thereafter	5,008,073	0.058 %	1.049 %	10.00
Total	<u><u>\$ 7,229,731</u></u>	<u><u>0.062 %</u></u>	<u><u>0.763 %</u></u>	<u><u>7.29</u></u>

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Notes to the Consolidated Financial Statements

Interest Rate Swaptions. The Company may use interest rate swaptions (which provide the option to enter into interest rate swap agreements for a predetermined notional amount, stated term and pay and receive interest rates in the future) independently, or in conjunction with other derivative and non-derivative instruments, in order to mitigate risks. The Company did not hold any interest rate swaptions as of December 31, 2022. As of December 31, 2021, the Company had the following outstanding interest rate swaptions:

December 31, 2021							
(notional and dollars in thousands)	Option				Underlying Swap		
	Swaption	Expiration	Cost	Fair Value	Average Months to Expiration	Notional Amount	Average Fixed Rate ⁽¹⁾
Purchase contracts:							
Payer	< 6 Months	\$ 11,314	\$ 3,539	5.33	\$ 886,000	2.26 %	10.0
Sale contracts:							
Payer	≥ 6 Months	\$ (26,329)	\$ (23,958)	17.79	\$ (780,000)	1.72 %	10.0
Receiver	< 6 Months	\$ (10,640)	\$ (6,856)	5.11	\$ (1,087,000)	1.26 %	10.0
Receiver	≥ 6 Months	\$ (26,329)	\$ (24,468)	18.91	\$ (780,000)	1.72 %	10.0

(1) As of December 31, 2021, 100.0% of the underlying swap floating rates were tied to 3-Month LIBOR.

Credit Risk

The Company's exposure to credit losses on its Agency RMBS portfolio is limited due to implicit or explicit backing from either a GSE or a U.S. government agency. The payment of principal and interest on the Freddie Mac and Fannie Mae mortgage-backed securities are guaranteed by those respective agencies, and the payment of principal and interest on the Ginnie Mae mortgage-backed securities are backed by the full faith and credit of the U.S. government.

In future periods, the Company could enhance its credit risk protection, enter into further paired derivative positions, including both long and short credit default swaps, and/or seek opportunistic trades in the event of a market disruption (see discussion under "Non-Risk Management Activities" below). The Company also has processes and controls in place to monitor, analyze, manage and mitigate its credit risk with respect to non-Agency securities.

Derivative financial instruments contain an element of credit risk if counterparties are unable to meet the terms of the agreements. Credit risk associated with derivative financial instruments is measured as the net replacement cost should the counterparties that owe the Company under such contracts completely fail to perform under the terms of these contracts, assuming there are no recoveries of underlying collateral, as measured by the market value of the derivative financial instruments. As of December 31, 2022, the fair value of derivative financial instruments as an asset and liability position was \$26.4 million and \$34.0 million, respectively.

The Company attempts to mitigate its credit risk exposure on derivative financial instruments by limiting its counterparties to banks and financial institutions that meet established internal credit guidelines. The Company also seeks to spread its credit risk exposure across multiple counterparties in order to reduce its exposure to any single counterparty. Additionally, the Company reduces credit risk on the majority of its derivative instruments by entering into agreements that permit the closeout and netting of transactions with the same counterparty or clearing agency upon the occurrence of certain events. To further mitigate the risk of counterparty default, the Company maintains collateral agreements with certain of its counterparties and clearing agencies, which require both parties to maintain cash deposits in the event the fair values of the derivative financial instruments exceed established thresholds. The Company's centrally cleared interest rate swaps and exchange-traded futures and options on futures require the Company to post an "initial margin" amount determined by the clearing exchange, which is generally intended to be set at a level sufficient to protect the exchange from the derivative instrument's maximum estimated single-day price movement. The Company also exchanges "variation margin" based upon daily changes in fair value, as measured by the exchange. The exchange of variation margin is considered a settlement of the derivative instrument, as opposed to pledged collateral. Accordingly, the Company accounts for the receipt or payment of variation margin as a direct reduction to the carrying value of the centrally cleared or exchange-traded derivative asset or liability.

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Notes to the Consolidated Financial Statements

Note 8. Reverse Repurchase Agreements

As of December 31, 2022 and December 31, 2021, the Company had \$189.5 million and \$129.2 million in amounts due to counterparties as collateral for reverse repurchase agreements that could be pledged, delivered or otherwise used, with a fair value of \$189.3 million and \$134.7 million, respectively. Additionally, as of December 31, 2022, the Company had entered into \$877.6 million in reverse repurchase agreements in order to effectively borrow U.S. Treasury securities and pledge them as collateral for \$888.3 million of repurchase agreements (see Note 11 - *Repurchase Agreements* for further detail).

Note 9. Offsetting Assets and Liabilities

Certain of the Company's repurchase agreements are governed by underlying agreements that provide for a right of setoff in the event of default by either party to the agreement. The Company also has netting arrangements in place with all derivative counterparties pursuant to standard documentation developed by the International Swap and Derivatives Association, or ISDA, or central clearing exchange agreements. The Company and the counterparty or clearing agency are required to post cash collateral based upon the net underlying market value of the Company's open positions with the counterparty. Additionally, the Company's centrally cleared interest rate swaps and exchange-traded futures and options on futures require the Company to post an initial margin amount determined by the clearing exchange, which is generally intended to be set at a level sufficient to protect the exchange from the derivative instrument's maximum estimated single-day price movement. The Company also exchanges variation margin based upon daily changes in fair value, as measured by the exchange.

Under U.S. GAAP, if the Company has a valid right of setoff, it may offset the related asset and liability and report the net amount. Based on rules governing certain central clearing and exchange-trading activities, the exchange of variation margin is considered a settlement of the derivative instrument, as opposed to pledged collateral. Accordingly, the Company accounts for the receipt or payment of variation margin on Chicago Mercantile Exchange, or CME, and London Clearing House, or LCH, cleared positions as a direct reduction to the carrying value of the centrally cleared or exchange-traded derivative asset or liability. The receipt or payment of initial margin is accounted for separate from the derivative asset or liability.

Reverse repurchase agreements and repurchase agreements with the same counterparty and the same maturity are presented net in the Company's consolidated balance sheets when the terms of the agreements meet the criteria to permit netting. The Company reports cash flows on repurchase agreements as financing activities and cash flows on reverse repurchase agreements as investing activities in the consolidated statements of cash flows. The Company presents derivative assets and liabilities (other than centrally cleared or exchange-traded derivative instruments) subject to master netting arrangements or similar agreements on a net basis, based on derivative type and counterparty, in its consolidated balance sheets. Separately, the Company presents cash collateral subject to such arrangements (other than variation margin on centrally cleared or exchange-traded derivative instruments) on a net basis, based on counterparty, in its consolidated balance sheets. However, the Company does not offset repurchase agreements, reverse repurchase agreements or derivative assets and liabilities (other than centrally cleared or exchange-traded derivative instruments) with the associated cash collateral on its consolidated balance sheets.

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The following tables present information about the Company's assets and liabilities that are subject to master netting arrangements or similar agreements and can potentially be offset on the Company's consolidated balance sheets as of December 31, 2022 and December 31, 2021:

		December 31, 2022					
						Gross Amounts Not Offset with Financial Assets (Liabilities) in the Balance Sheets ⁽¹⁾	
(in thousands)	Gross Amounts of Recognized Assets (Liabilities)	Gross Amounts Offset in the Balance Sheets	Net Amounts of Assets (Liabilities) Presented in the Balance Sheets	Financial Instruments	Cash Collateral (Received) Pledged	Net Amount	
Assets							
Derivative assets	\$ 98,609	\$ (72,171)	\$ 26,438	\$ (26,438)	\$ —	\$ —	
Reverse repurchase agreements	1,066,935	—	1,066,935	(888,295)	(178,640)	—	
Total Assets	\$ 1,165,544	\$ (72,171)	\$ 1,093,373	\$ (914,733)	\$ (178,640)	\$ —	
Liabilities							
Repurchase agreements	\$ (8,603,011)	\$ —	\$ (8,603,011)	\$ 8,603,011	\$ —	\$ —	
Derivative liabilities	(106,219)	72,171	(34,048)	26,438	—	(7,610)	
Total Liabilities	\$ (8,709,230)	\$ 72,171	\$ (8,637,059)	\$ 8,629,449	\$ —	\$ (7,610)	
		December 31, 2021					
						Gross Amounts Not Offset with Financial Assets (Liabilities) in the Balance Sheets ⁽¹⁾	
(in thousands)	Gross Amounts of Recognized Assets (Liabilities)	Gross Amounts Offset in the Balance Sheets	Net Amounts of Assets (Liabilities) Presented in the Balance Sheets	Financial Instruments	Cash Collateral (Received) Pledged	Net Amount	
Assets							
Derivative assets	\$ 215,084	\$ (134,950)	\$ 80,134	\$ (53,658)	\$ —	\$ 26,476	
Reverse repurchase agreements	134,682	—	134,682	—	(129,227)	5,455	
Total Assets	\$ 349,766	\$ (134,950)	\$ 214,816	\$ (53,658)	\$ (129,227)	\$ 31,931	
Liabilities							
Repurchase agreements	\$ (7,656,445)	\$ —	\$ (7,656,445)	\$ 7,656,445	\$ —	\$ —	
Derivative liabilities	(188,608)	134,950	(53,658)	53,658	—	—	
Total Liabilities	\$ (7,845,053)	\$ 134,950	\$ (7,710,103)	\$ 7,710,103	\$ —	\$ —	

(1) Amounts presented are limited in total to the net amount of assets or liabilities presented in the consolidated balance sheets by instrument. Excess cash collateral or financial assets that are pledged to counterparties may exceed the financial liabilities subject to a master netting arrangement or similar agreement, or counterparties may have pledged excess cash collateral to the Company that exceed the corresponding financial assets. These excess amounts are excluded from the table above, although separately reported within restricted cash, due from counterparties, or due to counterparties in the Company's consolidated balance sheets.

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Notes to the Consolidated Financial Statements

Note 10. Fair Value

Fair Value Measurements

ASC 820 defines fair value as 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. ASC 820 clarifies that fair value should be based on the assumptions market participants would use when pricing an asset or liability and establishes a fair value hierarchy that prioritizes the information used to develop those assumptions. The fair value hierarchy gives the highest priority to quoted prices available in active markets (*i.e.*, observable inputs) and the lowest priority to data lacking transparency (*i.e.*, unobservable inputs). Additionally, ASC 820 requires an entity to consider all aspects of nonperformance risk, including the entity's own credit standing, when measuring fair value of a liability.

ASC 820 establishes a three-level hierarchy to be used when measuring and disclosing fair value. An instrument's categorization within the fair value hierarchy is based on the lowest level of significant input to its valuation. The following is a description of the three levels:

- Level 1** Inputs are quoted prices in active markets for identical assets or liabilities as of the measurement date under current market conditions. Additionally, the entity must have the ability to access the active market and the quoted prices cannot be adjusted by the entity.
- Level 2** Inputs include quoted prices in active markets for similar assets or liabilities; quoted prices in inactive markets for identical or similar assets or liabilities; or inputs that are observable or can be corroborated by observable market data by correlation or other means for substantially the full-term of the assets or liabilities.
- Level 3** Unobservable inputs are supported by little or no market activity. The unobservable inputs represent the assumptions that market participants would use to price the assets and liabilities, including risk. Generally, Level 3 assets and liabilities are valued using pricing models, discounted cash flow methodologies, or similar techniques that require significant judgment or estimation.

The following are descriptions of the valuation methodologies used to measure material assets and liabilities at fair value and details of the valuation models, key inputs to those models and significant assumptions utilized.

Available-for-sale securities. The Company holds a portfolio of AFS securities that are carried at fair value in the consolidated balance sheets and primarily comprised of Agency RMBS and non-Agency securities. The Company determines the fair value of its Agency RMBS based upon prices obtained from third-party brokers and pricing vendors received using bid price, which are deemed indicative of market activity. The third-party pricing vendors use pricing models that generally incorporate such factors as coupons, primary and secondary mortgage rates, rate reset period, issuer, prepayment speeds, credit enhancements and expected life of the security. In determining the fair value of its non-Agency securities, management judgment may be used to arrive at fair value that considers prices obtained from third-party pricing vendors and other applicable market data. If observable market prices are not available or insufficient to determine fair value due principally to illiquidity in the marketplace, then fair value is based upon models that are primarily based on observable market-based inputs but also include unobservable market data inputs (including prepayment speeds, delinquency levels, and credit losses).

The Company classified 98.4% and 1.6% of its AFS securities as Level 2 and Level 3 fair value assets, respectively, at December 31, 2022.

Mortgage servicing rights. The Company holds a portfolio of MSR that are carried at fair value on the consolidated balance sheets. The Company determines fair value of its MSR based on prices obtained from third-party pricing vendors. Although MSR transactions may be observable in the marketplace, the details of those transactions are not necessarily reflective of the value of the Company's MSR portfolio. Third-party vendors use both observable market data and unobservable market data (including forecasted prepayment speeds, delinquency levels, OAS, and cost to service) as inputs into models, which help to inform their best estimates of fair value market price. As a result, the Company classified 100% of its MSR as Level 3 fair value assets at December 31, 2022.

Derivative instruments. The Company may enter into a variety of derivative financial instruments as part of its hedging strategies. The Company principally executes over-the-counter, or OTC, derivative contracts, such as interest rate swaps and swaptions. The Company utilizes third-party brokers to value its financial derivative instruments. The Company did not hold any interest rate swaps or swaptions at December 31, 2022.

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The Company may also enter into certain other derivative financial instruments, such as inverse interest-only securities, TBAs, futures and options on futures. The Company utilizes third-party pricing vendors to value inverse interest-only securities, as these instruments are similar in form to the Company's AFS securities. The Company classified 100% of its inverse interest-only securities at fair value as Level 2 at December 31, 2022. TBAs, futures and options on futures are considered to be active markets such that participants transact with sufficient frequency and volume to provide transparent pricing information for identical instruments. The Company utilizes third-party pricing vendors to value TBAs, futures and options on futures. The Company reported 100% of its TBAs and futures as Level 1 as of December 31, 2022. The Company did not hold any options on futures at December 31, 2022.

The Company's policy is to minimize credit exposure related to financial derivatives used for hedging by limiting the hedge counterparties to major banks, financial institutions, exchanges, and private investors who meet established capital and credit guidelines as well as by limiting the amount of exposure to any individual counterparty.

The Company has netting arrangements in place with all derivative counterparties pursuant to standard documentation developed by ISDA or central clearing exchange agreements. Additionally, both the Company and the counterparty or clearing agency are required to post cash margin based upon the net underlying market value of the Company's open positions with the counterparty. Posting of cash margin typically occurs daily, subject to certain dollar thresholds. Due to the existence of netting arrangements, as well as frequent cash margin posting at low posting thresholds, credit exposure to the Company and/or to the counterparty or clearing agency is considered materially mitigated. Based on the Company's assessment, there is no requirement for any additional adjustment to derivative valuations specifically for credit.

The following tables display the Company's assets and liabilities measured at fair value on a recurring basis. The Company often economically hedges the fair value change of its assets or liabilities with derivatives and other financial instruments. The tables below display the hedges separately from the hedged items, and therefore do not directly display the impact of the Company's risk management activities:

Recurring Fair Value Measurements				
December 31, 2022				
(in thousands)	Level 1	Level 2	Level 3	Total
Assets:				
Available-for-sale securities	\$ —	\$ 7,653,576	\$ 125,158	\$ 7,778,734
Mortgage servicing rights	—	—	2,984,937	2,984,937
Derivative assets	11,145	15,293	—	26,438
Total assets	\$ 11,145	\$ 7,668,869	\$ 3,110,095	\$ 10,790,109
Liabilities:				
Derivative liabilities	\$ 34,048	\$ —	\$ —	\$ 34,048
Total liabilities	\$ 34,048	\$ —	\$ —	\$ 34,048

Recurring Fair Value Measurements				
December 31, 2021				
(in thousands)	Level 1	Level 2	Level 3	Total
Assets:				
Available-for-sale securities	\$ —	\$ 7,149,399	\$ 12,304	\$ 7,161,703
Mortgage servicing rights	—	—	2,191,578	2,191,578
Derivative assets	38,767	41,367	—	80,134
Total assets	\$ 38,767	\$ 7,190,766	\$ 2,203,882	\$ 9,433,415
Liabilities:				
Derivative liabilities	\$ 1,915	\$ 51,743	\$ —	\$ 53,658
Total liabilities	\$ 1,915	\$ 51,743	\$ —	\$ 53,658

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Notes to the Consolidated Financial Statements

The Company may be required to measure certain assets or liabilities at fair value from time to time. These periodic fair value measures typically result from application of certain impairment measures under U.S. GAAP. These items would constitute nonrecurring fair value measures under ASC 820. As of December 31, 2022, the Company did not have any assets or liabilities measured at fair value on a nonrecurring basis in the periods presented.

The valuation of Level 3 instruments requires significant judgment by the third-party pricing vendors and/or management. The third-party pricing vendors and/or management rely on inputs such as market price quotations from market makers (either market or indicative levels), original transaction price, recent transactions in the same or similar instruments, and changes in financial ratios or cash flows to determine fair value. Level 3 instruments may also be discounted to reflect illiquidity and/or non-transferability, with the amount of such discount estimated by the third-party pricing vendors in the absence of market information. Assumptions used by the third-party pricing vendors due to lack of observable inputs may significantly impact the resulting fair value and therefore the Company's consolidated financial statements.

The Company's valuation committee reviews all valuations that are based on pricing information received from third-party pricing vendors. As part of this review, prices are compared against other pricing or input data points in the marketplace, along with internal valuation expertise, to ensure the pricing is reasonable. In addition, the Company performs back-testing of pricing information to validate price information and identify any pricing trends of a third-party pricing vendors.

In determining fair value, third-party pricing vendors use various valuation approaches, including market and income approaches. Inputs that are used in determining fair value of an instrument may include pricing information, credit data, volatility statistics, and other factors. In addition, inputs can be either observable or unobservable.

The availability of observable inputs can vary by instrument and is affected by a wide variety of factors, including the type of instrument, whether the instrument is new and not yet established in the marketplace and other characteristics particular to the instrument. The third-party pricing vendor uses prices and inputs that are current as of the measurement date, including during periods of market dislocations. In periods of market dislocation, the availability of prices and inputs may be reduced for many instruments. This condition could cause an instrument to be reclassified to or from various levels within the fair value hierarchy.

Securities that are priced using third-party broker quotations are valued at the bid price (in the case of long positions) or the ask price (in the case of short positions) at the close of trading on the date as of which value is determined. Exchange-traded securities for which no bid or ask price is available are valued at the last traded price. OTC derivative contracts, including interest rate swap and swaption agreements, are valued by the Company using observable inputs, specifically quotations received from third-party brokers. Exchange-traded derivative instruments, including futures and options on futures, are valued based on quoted prices for identical instruments in active markets.

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Notes to the Consolidated Financial Statements

The following table presents the reconciliation for the Company's Level 3 assets measured at fair value on a recurring basis:

(in thousands)	Year Ended December 31,			
	2022		2021	
	Available- For-Sale Securities	Mortgage Servicing Rights	Available- For-Sale Securities	Mortgage Servicing Rights
Beginning of period level 3 fair value	\$ 12,304	\$ 2,191,578	\$ 13,031	\$ 1,596,153
Gains (losses) included in net income (loss):				
Realized	(1,405)	(368,255)	(10,905)	(677,784)
Unrealized	(3,632) ⁽¹⁾	793,631 ⁽²⁾	(1,185) ⁽¹⁾	562,843 ⁽²⁾
Reversal of provision for credit losses	1,213	—	11,188	—
Net gains (losses) included in net income (loss)	<u>(3,824)</u>	<u>425,376</u>	<u>(902)</u>	<u>(114,941)</u>
Other comprehensive income	1,023	—	(9,449)	—
Purchases	122,030	640,051	11,201	777,305
Sales	(6,375)	(261,827)	(1,577)	(31,787)
Settlements	—	(10,241)	—	(35,152)
Gross transfers into level 3	—	—	—	—
Gross transfers out of level 3	—	—	—	—
End of period level 3 fair value	<u>\$ 125,158</u>	<u>\$ 2,984,937</u>	<u>\$ 12,304</u>	<u>\$ 2,191,578</u>
Change in unrealized gains or losses for the period included in earnings for assets held at the end of the reporting period	<u>\$ (4,535) ⁽³⁾</u>	<u>\$ 696,807 ⁽⁴⁾</u>	<u>\$ (1,185) ⁽³⁾</u>	<u>\$ 461,258 ⁽⁴⁾</u>
Change in unrealized gains or losses for the period included in other comprehensive (loss) income for assets held at the end of the reporting period	<u>\$ (3,512)</u>	<u>\$ —</u>	<u>\$ (10,635)</u>	<u>\$ —</u>

(1) The change in unrealized gains or losses on available-for-sale securities accounted for under the fair value option was recorded in (loss) gain on investment securities on the consolidated statements of comprehensive loss.

(2) The change in unrealized gains or losses on MSR was recorded in gain (loss) on servicing asset on the consolidated statements of comprehensive loss.

(3) The change in unrealized gains or losses on available-for-sale securities accounted for under the fair value option that were held at the end of the reporting period was recorded in (loss) gain on investment securities on the consolidated statements of comprehensive loss.

(4) The change in unrealized gains or losses on MSR that were held at the end of the reporting period was recorded in gain (loss) on servicing asset on the consolidated statements of comprehensive loss.

No transfers between Level 1, Level 2 or Level 3 were made during the years ended December 31, 2022 and 2021. Transfers between Levels are deemed to take place on the first day of the reporting period in which the transfer has taken place.

The Company used multiple third-party pricing vendors in the fair value measurement of its Level 3 AFS securities. The significant unobservable inputs used by the third-party pricing vendors included expected default, severity and discount rate. Significant increases (decreases) in any of the inputs in isolation may result in significantly lower (higher) fair value measurement.

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The Company also used multiple third-party pricing vendors in the fair value measurement of its Level 3 MSR. The tables below present information about the significant unobservable market data used by the third-party pricing vendors as inputs into models utilized to inform their best estimates of the fair value measurement of the Company's MSR classified as Level 3 fair value assets at December 31, 2022 and December 31, 2021:

December 31, 2022			
Valuation Technique	Unobservable Input	Range	Weighted Average ⁽¹⁾
Discounted cash flow	Constant prepayment speed	6.2% - 7.6%	6.9%
	Delinquency	0.8% - 0.9%	0.9%
	Option-adjusted spread	5.1% - 8.5%	5.3%
	Per loan annual cost to service	\$67.41 - \$80.96	\$67.92
December 31, 2021			
Valuation Technique	Unobservable Input	Range	Weighted Average ⁽¹⁾
Discounted cash flow	Constant prepayment speed	10.0% - 17.9%	12.9%
	Delinquency	0.9% - 1.8%	1.3%
	Option-adjusted spread	4.6% - 9.2%	4.7%
	Per loan annual cost to service	\$66.04 - \$83.91	\$66.76

(1) Calculated by averaging the weighted average significant unobservable inputs used by the multiple third-party pricing vendors in the fair value measurement of MSR.

Fair Value of Financial Instruments

In accordance with ASC 820, the Company is required to disclose the fair value of financial instruments, both assets and liabilities recognized and not recognized in the consolidated balance sheets, for which fair value can be estimated.

The following describes the Company's methods for estimating the fair value for financial instruments.

- AFS securities, MSR, and derivative assets and liabilities are recurring fair value measurements; carrying value equals fair value. See discussion of valuation methods and assumptions within the *Fair Value Measurements* section of this Note 10.
- Cash and cash equivalents and restricted cash have a carrying value which approximates fair value because of the short maturities of these instruments. The Company categorizes the fair value measurement of these assets as Level 1.
- Reverse repurchase agreements have a carrying value which approximates fair value due to their short-term nature. The Company categorizes the fair value measurement of these assets as Level 2.
- The carrying value of repurchase agreements and revolving credit facilities that mature in less than one year generally approximates fair value due to the short maturities. As of December 31, 2022, the Company had outstanding borrowings of \$918.8 million under revolving credit facilities that are considered long-term. The Company's long-term revolving credit facilities have floating rates based on an index plus a spread and the credit spread is typically consistent with those demanded in the market. Accordingly, the interest rates on these borrowings are at market and thus carrying value approximates fair value. The Company categorizes the fair value measurement of these liabilities as Level 2.
- Term notes payable are recorded at outstanding principal balance, net of any unamortized deferred debt issuance costs. In determining the fair value of term notes payable, management judgment may be used to arrive at fair value that considers prices obtained from third-party pricing vendors, broker quotes received and other applicable market data. If observable market prices are not available or insufficient to determine fair value due principally to illiquidity in the marketplace, then fair value is based upon internally developed models that are primarily based on observable market-based inputs but also include unobservable market data inputs (including prepayment speeds, delinquency levels, and credit losses). The Company categorizes the fair value measurement of these liabilities as Level 2.
- Convertible senior notes are carried at their unpaid principal balance, net of any unamortized deferred issuance costs. The Company estimates the fair value of its convertible senior notes using the market transaction price nearest to December 31, 2022. The Company categorizes the fair value measurement of these assets as Level 2.

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Notes to the Consolidated Financial Statements

The following table presents the carrying values and estimated fair values of assets and liabilities that are required to be recorded or disclosed at fair value at December 31, 2022 and December 31, 2021:

(in thousands)	December 31, 2022		December 31, 2021	
	Carrying Value	Fair Value	Carrying Value	Fair Value
Assets:				
Available-for-sale securities	\$ 7,778,734	\$ 7,778,734	\$ 7,161,703	\$ 7,161,703
Mortgage servicing rights	\$ 2,984,937	\$ 2,984,937	\$ 2,191,578	\$ 2,191,578
Cash and cash equivalents	\$ 683,479	\$ 683,479	\$ 1,153,856	\$ 1,153,856
Restricted cash	\$ 443,026	\$ 443,026	\$ 934,814	\$ 934,814
Derivative assets	\$ 26,438	\$ 26,438	\$ 80,134	\$ 80,134
Reverse repurchase agreements	\$ 1,066,935	\$ 1,066,935	\$ 134,682	\$ 134,682
Other assets	\$ 3,493	\$ 3,493	\$ 3,332	\$ 3,332
Liabilities:				
Repurchase agreements	\$ 8,603,011	\$ 8,603,011	\$ 7,656,445	\$ 7,656,445
Revolving credit facilities	\$ 1,118,831	\$ 1,118,831	\$ 420,761	\$ 420,761
Term notes payable	\$ 398,011	\$ 361,905	\$ 396,776	\$ 395,030
Convertible senior notes	\$ 282,496	\$ 246,727	\$ 424,827	\$ 435,774
Derivative liabilities	\$ 34,048	\$ 34,048	\$ 53,658	\$ 53,658

Note 11. Repurchase Agreements

As of December 31, 2022 and December 31, 2021, the Company had outstanding \$8.6 billion and \$7.7 billion, respectively, of repurchase agreements. Excluding the effect of the Company's interest rate swaps, the repurchase agreements had a weighted average borrowing rate of 3.95% and 0.24% and weighted average remaining maturities of 59 and 67 days as of December 31, 2022 and December 31, 2021, respectively. As of December 31, 2022, none of the Company's repurchase agreements incorporated LIBOR as the referenced rate. See Note 2 - *Basis of Presentation and Significant Accounting Policies* for further discussion of the transition away from LIBOR.

At December 31, 2022 and December 31, 2021, the Company's repurchase agreements had the following characteristics and remaining maturities:

(in thousands)	December 31, 2022					
	Collateral Type					
	Agency RMBS	Non-Agency Securities	Agency Derivatives	Mortgage Servicing Rights	U.S Treasuries ⁽¹⁾	Total Amount Outstanding
Within 30 days	\$ 2,570,254	\$ 59,648	\$ 4,177	\$ —	\$ 57,116	\$ 2,691,195
30 to 59 days	1,774,622	10,984	—	—	375,131	2,160,737
60 to 89 days	2,280,675	177	503	—	255,282	2,536,637
90 to 119 days	696,283	—	8,393	—	200,766	905,442
120 to 364 days	—	—	—	309,000	—	309,000
Total	\$ 7,321,834	\$ 70,809	\$ 13,073	\$ 309,000	\$ 888,295	\$ 8,603,011
Weighted average borrowing rate	3.70 %	5.73 %	4.83 %	7.91 %	4.49 %	3.95 %

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December 31, 2021

(in thousands)	Collateral Type					Total Amount Outstanding
	Agency RMBS	Non-Agency Securities	Agency Derivatives	Mortgage Servicing Rights	U.S. Treasuries ⁽¹⁾	
Within 30 days	\$ 1,617,186	\$ —	\$ 10,097	\$ —	\$ —	\$ 1,627,283
30 to 59 days	1,807,544	—	—	—	—	1,807,544
60 to 89 days	1,979,717	171	1,168	—	—	1,981,056
90 to 119 days	1,240,915	—	8,520	—	—	1,249,435
120 to 364 days	849,868	—	16,259	125,000	—	991,127
Total	\$ 7,495,230	\$ 171	\$ 36,044	\$ 125,000	\$ —	\$ 7,656,445
Weighted average borrowing rate	0.17 %	1.24 %	0.74 %	4.00 %	— %	0.24 %

(1) U.S. Treasury securities effectively borrowed under reverse repurchase agreements.

The following table summarizes assets at carrying values that are pledged or restricted as collateral for the future payment obligations of the Company's repurchase agreements:

(in thousands)	December 31, 2022	December 31, 2021
Available-for-sale securities, at fair value	\$ 7,426,953	\$ 7,009,449
Mortgage servicing rights, at fair value ⁽¹⁾	667,238	725,985
Restricted cash	324,654	747,779
Due from counterparties	22,055	30,764
Derivative assets, at fair value	14,738	39,609
U.S. Treasuries ⁽²⁾	877,632	—
Total	\$ 9,333,270	\$ 8,553,586

(1) MSR repurchase agreements are secured by a VFN issued in connection with the Company's securitization of MSR, which is collateralized by the Company's MSR.

(2) U.S. Treasury securities effectively borrowed under reverse repurchase agreements..

Although the transactions under repurchase agreements represent committed borrowings until maturity, the respective lender retains the right to mark the underlying collateral to fair value. A reduction in the value of pledged assets would require the Company to provide additional collateral or fund margin calls.

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Notes to the Consolidated Financial Statements

The following table summarizes certain characteristics of the Company's repurchase agreements and counterparty concentration at December 31, 2022 and December 31, 2021:

(dollars in thousands)	December 31, 2022				December 31, 2021			
	Amount Outstanding	Net Counterparty Exposure ⁽¹⁾	Percent of Equity	Weighted Average Days to Maturity	Amount Outstanding	Net Counterparty Exposure ⁽¹⁾	Percent of Equity	Weighted Average Days to Maturity
Credit Suisse	\$ 309,000	\$ 158,252	7 %	363	\$ 125,000	\$ 353,975	13 %	181
All other counterparties ⁽²⁾	8,294,011	316,564	14 %	48	7,531,445	314,258	11 %	65
Total	\$ 8,603,011	\$ 474,816			\$ 7,656,445	\$ 668,233		

(1) Represents the net carrying value of the assets sold under agreements to repurchase, including accrued interest plus any cash or assets on deposit to secure the repurchase obligation, less the amount of the repurchase liability, including accrued interest.

(2) Represents amounts outstanding with 19 and 19 counterparties at December 31, 2022 and December 31, 2021, respectively.

The Company does not anticipate any defaults by its repurchase agreement counterparties. There can be no assurance, however, that any such default or defaults will not occur.

Note 12. Revolving Credit Facilities

To finance MSR assets and related servicing advance obligations, the Company has entered into revolving credit facilities collateralized by the value of the MSR and/or servicing advances pledged. As of December 31, 2022 and December 31, 2021, the Company had outstanding short- and long-term borrowings under revolving credit facilities of \$1.1 billion and \$420.8 million with a weighted average borrowing rate of 7.68% and 3.46% and weighted average remaining maturities of 1.1 and 1.2 years, respectively. As of December 31, 2022, none of the Company's revolving credit facilities incorporated LIBOR as the referenced rate. See Note 2 - *Basis of Presentation and Significant Accounting Policies* for further discussion of the transition away from LIBOR.

At December 31, 2022 and December 31, 2021, borrowings under revolving credit facilities had the following remaining maturities:

(in thousands)	December 31, 2022	December 31, 2021
Within 30 days	\$ —	\$ —
30 to 59 days	—	—
60 to 89 days	—	—
90 to 119 days	—	—
120 to 364 days	200,000	274,511
One year and over	918,831	146,250
Total	\$ 1,118,831	\$ 420,761

Although the transactions under revolving credit facilities represent committed borrowings from the time of funding until maturity, the respective lender retains the right to mark the underlying collateral to fair value. A reduction in the value of pledged assets below a designated threshold would require the Company to provide additional collateral or pay down the facility. As of December 31, 2022 and December 31, 2021, MSR with a carrying value of \$1.8 billion and \$904.8 million, respectively, was pledged as collateral for the Company's future payment obligations under its MSR revolving credit facilities. As of December 31, 2022 and December 31, 2021, servicing advances with a carrying value of \$67.8 million and \$33.8 million, respectively, were pledged as collateral for the Company's future payment obligations under its servicing advance revolving credit facility. The Company does not anticipate any defaults by its revolving credit facility counterparties, although there can be no assurance that any such default or defaults will not occur.

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Notes to the Consolidated Financial Statements

Note 13. Term Notes Payable

The debt issued in connection with the Company's on-balance sheet securitization is classified as term notes payable and carried at outstanding principal balance, which was \$400.0 million as of both December 31, 2022 and December 31, 2021, net of any unamortized deferred debt issuance costs, on the Company's consolidated balance sheets. As of December 31, 2022 and December 31, 2021, the outstanding amount due on term notes payable was \$398.0 million and \$396.8 million, net of deferred debt issuance costs, with a weighted average interest rate of 7.19% and 2.90% and weighted average remaining maturities of 1.5 years and 2.5 years. The Company's term notes incorporate LIBOR as the referenced rate and mature after the phase-out of LIBOR. However, the related agreements have provisions in place that provide for an alternative to LIBOR upon its phase-out. See Note 2 - *Basis of Presentation and Significant Accounting Policies* for further discussion of the transition away from LIBOR.

At December 31, 2022 and December 31, 2021, the Company pledged MSR with a carrying value of \$500.0 million and \$500.0 million and weighted average underlying loan coupon of 3.33% and 3.36%, respectively, as collateral for term notes payable. Additionally, as of December 31, 2022 and December 31, 2021, \$0.2 million and \$0.2 million of cash was held in restricted accounts as collateral for the future payment obligations of outstanding term notes payable, respectively.

Note 14. Convertible Senior Notes

In January 2017, the Company closed an underwritten public offering of \$287.5 million aggregate principal amount of convertible senior notes due 2022, or the 2022 notes. The net proceeds from the offering were approximately \$282.2 million after deducting underwriting discounts and estimated offering expenses payable by the Company. The Company used a portion of the net proceeds from the offering of the 2026 notes (defined below) to fund the repurchase via privately negotiated transactions of \$143.7 million principal amount of its 2022 notes. As of December 31, 2021, \$143.8 million principal amount of the 2022 notes remained outstanding, and these remaining 2022 notes matured pursuant to their terms in January 2022. The 2022 notes were unsecured, paid interest semiannually at a rate of 6.25% per annum and were convertible at the option of the holder into shares of the Company's common stock.

In February 2021, the Company closed an underwritten public offering of \$287.5 million aggregate principal amount of convertible senior notes due 2026, or the 2026 notes. The net proceeds from the offering were approximately \$279.9 million after deducting underwriting discounts and estimated offering expenses payable by the Company. The 2026 notes are unsecured, pay interest semiannually at a rate of 6.25% per annum and are convertible at the option of the holder into shares of the Company's common stock. As of December 31, 2022 and December 31, 2021, the 2026 notes had a conversion rate of 33.8752 and 33.8753 shares of common stock per \$1,000 principal amount of the notes, respectively (based on the retroactive adjustment due to the Company's one-for-four reverse stock split described in Note 16 - *Stockholders' Equity*). The 2026 notes will mature in January 2026, unless earlier converted or repurchased in accordance with their terms. The Company does not have the right to redeem the 2026 notes prior to maturity, but may repurchase the 2026 notes in open market or privately negotiated transactions at the same or differing price without giving prior notice to or obtaining any consent of the holders. The Company may also be required to repurchase the notes from holders under certain circumstances.

The aggregate outstanding amount due on the 2026 notes as of December 31, 2022 and the 2022 notes and 2026 notes as of December 31, 2021 was \$282.5 million and \$424.8 million, respectively, net of deferred issuance costs.

Note 15. Commitments and Contingencies

The following represent the material commitments and contingencies of the Company as of December 31, 2022:

Legal and regulatory. From time to time, the Company may be subject to liability under laws and government regulations and various claims and legal actions arising in the ordinary course of business. Under ASC 450, *Contingencies*, or ASC 450, liabilities are established for legal claims when payments associated with the claims become probable and the costs can be reasonably estimated. The actual costs of resolving legal claims may be substantially higher or lower than the amounts established or the range of reasonably possible loss disclosed for those claims.

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As previously disclosed, on July 15, 2020, the Company provided PRCM Advisers with a notice of termination of the Management Agreement for “cause” in accordance with Section 15(a) of the Management Agreement. The Company terminated the Management Agreement for “cause” on the basis of certain material breaches and certain events of gross negligence on the part of PRCM Advisers in the performance of its duties under the Management Agreement. On July 21, 2020, PRCM Advisers filed a complaint against the Company in the United States District Court for the Southern District of New York, or the Court. Subsequently, Pine River Domestic Management L.P. and Pine River Capital Management L.P. were added as plaintiffs to the matter. As amended, the complaint, or the Federal Complaint, alleges, among other things, the misappropriation of trade secrets in violation of both the Defend Trade Secrets Act and New York common law, breach of contract, breach of the implied covenant of good faith and fair dealing, unfair competition and business practices, unjust enrichment, conversion, and tortious interference with contract. The Federal Complaint seeks, among other things, an order enjoining the Company from making any use of or disclosing PRCM Advisers’ trade secret, proprietary, or confidential information; damages in an amount to be determined at a hearing and/or trial; disgorgement of the Company’s wrongfully obtained profits; and fees and costs incurred by the plaintiffs in pursuing the action. The Company has filed its answer to the Federal Complaint and made counterclaims against PRCM Advisers and Pine River Capital Management L.P. On May 5, 2022, the plaintiffs filed a motion for judgment on the pleadings, seeking judgment in their favor on all but one of the Company’s counterclaims and on one of the Company’s affirmative defenses. The Company has opposed the motion for judgment on the pleadings, which is pending with the Court. Discovery has commenced and is ongoing. The Company’s board of directors believes the Federal Complaint is without merit and that the Company has fully complied with the terms of the Management Agreement.

As of December 31, 2022, the Company’s consolidated financial statements do not recognize a contingency liability or disclose a range of reasonably possible loss under ASC 450 because management does not believe that a loss or expense related to the Federal Complaint is probable or reasonably estimable. The specific factors that limit the Company’s ability to reasonably estimate a loss or expense related to the Federal Complaint include that the matter is in early stages and no amount of damages has been specified. If and when management believes losses associated with the Federal Complaint are a probable future event that may result in a loss or expense to the Company and the loss or expense is reasonably estimable, the Company will recognize a contingency liability and resulting loss in such period.

Based on information currently available, management is not aware of any other legal or regulatory claims that would have a material effect on the Company’s consolidated financial statements and therefore no accrual is required as of December 31, 2022.

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Notes to the Consolidated Financial Statements

Note 16. Stockholders' Equity

Redeemable Preferred Stock

The following is a summary of the Company's series of cumulative redeemable preferred stock issued and outstanding as of December 31, 2022. In the event of a voluntary or involuntary liquidation, dissolution or winding up of the Company, each series of preferred stock will rank on parity with one another and rank senior to the Company's common stock with respect to the payment of the dividends and the distribution of assets.

(dollars in thousands)

Class of Stock	Issuance Date	Shares Issued and Outstanding	Carrying Value	Contractual Rate	Redemption Eligible Date ⁽¹⁾	Fixed to Floating Rate Conversion Date ⁽²⁾	Floating Annual Rate ⁽³⁾
Series A	March 14, 2017	5,321,451	\$ 128,522	8.125 %	April 27, 2027	April 27, 2027	3M LIBOR + 5.660%
Series B	July 19, 2017	10,713,154	259,066	7.625 %	July 27, 2027	July 27, 2027	3M LIBOR + 5.352%
Series C	November 27, 2017	10,057,445	243,411	7.250 %	January 27, 2025	January 27, 2025	3M LIBOR + 5.011%
Total		<u>26,092,050</u>	<u>\$ 630,999</u>				

- (1) Subject to the Company's right under limited circumstances to redeem the preferred stock earlier than the redemption eligible date disclosed in order to preserve its qualification as a REIT or following a change in control of the Company.
- (2) The dividend rate on the fixed-to-floating rate redeemable preferred stock will remain at an annual fixed rate of the \$25.00 per share liquidation preference from the issuance date up to but not including the transition date disclosed within. Effective as of the fixed-to-floating rate conversion date and onward, dividends will accumulate on a floating rate basis according to the terms disclosed in footnote (3) below.
- (3) On and after the fixed-to-floating rate conversion date, the dividend will accumulate and be payable quarterly at a percentage of the \$25.00 per share liquidation preference equal to an annual floating rate of three-month LIBOR plus the spread indicated within each preferred class. Each series that becomes callable at the time the stock begins to pay a LIBOR-based rate has existing LIBOR cessation fallback language.

For each series of preferred stock, the Company may redeem the stock on or after the redemption date in whole or in part, at any time or from time to time. The Company may also purchase shares of preferred stock from time to time in the open market by tender or in privately negotiated transactions. Each series of preferred stock has a par value of \$0.01 per share and a liquidation and redemption price of \$25.00, plus any accumulated and unpaid dividends thereon up to, but excluding, the redemption date. Through December 31, 2022, the Company had declared and paid all required quarterly dividends on the Company's preferred stock.

On February 4, 2021, the Company announced the redemption of all outstanding shares of the Company's 7.75% Series D Cumulative Redeemable Preferred Stock and 7.5% Series E Cumulative Redeemable Preferred Stock. The redemption date for each series was March 15, 2021 and holders of record as of such date received the redemption payment of \$25.00, plus any accumulated and unpaid dividends thereon up to, but excluding, the redemption date.

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Notes to the Consolidated Financial Statements

Preferred Share Repurchase Program

On June 22, 2022, the Company's Board of Directors authorized the repurchase of up to an aggregate of 5,000,000 shares of the Company's preferred stock, which includes each series shown in the table above under the heading Redeemable Preferred Stock. Preferred shares may be repurchased from time to time through privately negotiated transactions or open market transactions, pursuant to trading plans in accordance with Rule 10b5-1 under the Securities Exchange Act of 1934, as amended, or the Exchange Act, or by any combination of such methods. The manner, price, number and timing of preferred share repurchases are subject to a variety of factors, including market conditions and applicable SEC rules. The preferred share repurchase program does not require the purchase of any minimum number of shares, and, subject to SEC rules, purchases may be commenced or suspended at any time without prior notice. The preferred share repurchase program does not have an expiration date. As of December 31, 2022, a total of 428,549 shares of the Company's 8.125% Series A Cumulative Redeemable Preferred Stock, 786,846 shares of the Company's 7.625% Series B Cumulative Redeemable Preferred Stock and 1,742,555 shares of the Company's 7.25% Series C Cumulative Redeemable Preferred Stock had been repurchased by the Company under the program for an aggregate cost of \$7.8 million, \$13.8 million and \$29.8 million, respectively, all during the year ended December 31, 2022. The difference between the consideration transferred and the carrying value of the preferred stock resulted in a gain attributable to common stockholders of \$20.1 million during the year ended December 31, 2022.

Common Stock

Reverse Stock Split

On September 21, 2022, the Company's board of directors approved a one-for-four reverse stock split of its outstanding shares of common stock. The reverse stock split was effected on November 1, 2022 at 5:01 p.m. Eastern Time. At the effective time, every four issued and outstanding shares of the Company's common stock were converted into one share of common stock. No fractional shares were issued in connection with the reverse stock split; instead, each stockholder holding fractional shares was entitled to receive, in lieu of such fractional shares, cash in an amount determined on the basis of the volume weighted average price of the Company's common stock on the NYSE on November 1, 2022. In connection with the reverse stock split, the number of authorized shares of the Company's common stock was also reduced on a one-for-four basis, from 700,000,000 to 175,000,000. The par value of each share of common stock remained unchanged. All per share amounts, common shares outstanding and common equity-based awards for all periods presented have been adjusted on a retroactive basis to reflect the reverse stock split.

Public Offerings

On July 14, 2021, the Company completed a public offering of 10,000,000 shares of its common stock. The underwriters purchased the shares from the Company at a price of \$25.68 per share, for net proceeds to the Company of approximately \$256.5 million after deducting offering expenses. The underwriters did not exercise any portion of their 30-day over-allotment option to purchase up to 1,500,000 additional shares.

On October 28, 2021, the Company completed a public offering of 7,500,000 shares of its common stock. The underwriters purchased the shares from the Company at a price of \$25.872 per share, for net proceeds to the Company of approximately \$193.7 million after deducting offering expenses. The underwriters did not exercise any portion of their 30-day over-allotment option to purchase up to 1,125,000 additional shares.

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Notes to the Consolidated Financial Statements

As of December 31, 2022, the Company had 86,428,845 shares of common stock outstanding. The following table presents a reconciliation of the common shares outstanding for the years ended December 31, 2022, 2021 and 2020:

	Number of common shares
Common shares outstanding, December 31, 2019	68,233,933
Issuance of common stock	15,306
Repurchase of common stock	(26,325)
Non-cash equity award compensation ⁽¹⁾	203,057
Common shares outstanding, December 31, 2020	68,425,971
Issuance of common stock	17,516,255
Non-cash equity award compensation ⁽¹⁾	35,606
Common shares outstanding, December 31, 2021	85,977,831
Issuance of common stock	324,896
Non-cash equity award compensation ⁽¹⁾	126,118
Common shares outstanding, December 31, 2022	86,428,845

(1) See Note 17 - *Equity Incentive Plans* for further details regarding the Company's Equity Incentive Plans.

Distributions to Stockholders

The following table presents cash dividends declared by the Company on its preferred and common stock during the years ended December 31, 2022, 2021 and 2020:

(dollars in thousands)	Year Ended December 31,					
	2022		2021		2020	
	Amount	Per Share	Amount	Per Share	Amount	Per Share
Class of Stock						
Series A Preferred Stock	\$ 11,462	\$ 2.03	\$ 11,680	\$ 2.03	\$ 11,680	\$ 2.03
Series B Preferred Stock	\$ 21,547	\$ 1.91	\$ 21,921	\$ 1.91	\$ 21,922	\$ 1.91
Series C Preferred Stock	\$ 20,598	\$ 1.81	\$ 21,388	\$ 1.81	\$ 21,388	\$ 1.81
Series D Preferred Stock ⁽¹⁾	\$ —	\$ —	\$ 969	\$ 0.32	\$ 5,812	\$ 1.94
Series E Preferred Stock ⁽¹⁾	\$ —	\$ —	\$ 2,500	\$ 0.31	\$ 15,000	\$ 1.88
Common Stock	\$ 228,845	\$ 2.64	\$ 205,623	\$ 2.72	\$ 136,842	\$ 2.00

(1) On March 15, 2021, the Company redeemed all outstanding shares of the Company's Series D Preferred Stock and Series E Preferred Stock. Holders of record as of such date received the redemption payment of \$25.00, plus any accumulated and unpaid dividends thereon up to, but excluding, the redemption date.

Dividend Reinvestment and Direct Stock Purchase Plan

The Company sponsors a dividend reinvestment and direct stock purchase plan through which stockholders may purchase additional shares of the Company's common stock by reinvesting some or all of the cash dividends received on shares of the Company's common stock. Stockholders may also make optional cash purchases of shares of the Company's common stock subject to certain limitations detailed in the plan prospectus. The plan allows for the issuance of up to an aggregate of 937,500 shares of the Company's common stock. As of December 31, 2022, 113,665 shares have been issued under the plan for total proceeds of approximately \$6.0 million, of which 17,653, 13,206 and 15,307 shares were issued for total proceeds of \$0.3 million, \$0.4 million and \$0.4 million during the years ended December 31, 2022, 2021 and 2020, respectively.

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Notes to the Consolidated Financial Statements

Common Share Repurchase Program

The Company's common share repurchase program allows for the repurchase of up to an aggregate of 9,375,000 shares of the Company's common stock. Common shares may be repurchased from time to time through privately negotiated transactions or open market transactions, pursuant to a trading plan in accordance with Rules 10b5-1 and 10b-18 under the Exchange Act, or by any combination of such methods. The manner, price, number and timing of common share repurchases are subject to a variety of factors, including market conditions and applicable SEC rules. The common share repurchase program does not require the purchase of any minimum number of shares, and, subject to SEC rules, purchases may be commenced or suspended at any time without prior notice. The common share repurchase program does not have an expiration date. As of December 31, 2022, a total of 3,043,575 shares had been repurchased by the Company under the program for an aggregate cost of \$201.5 million; of these, 26,325 shares were repurchased for a total cost of \$1.1 million during the year ended December 31, 2020. No shares were repurchased during the years ended December 31, 2022 and 2021.

At-the-Market Offerings

The Company is party to an equity distribution agreement under which the Company is authorized to sell up to an aggregate of 11,000,000 shares of its common stock from time to time in any method permitted by law deemed to be an "at the market" offering as defined in Rule 415 under the Securities Act of 1933, as amended, or the Securities Act. As of December 31, 2022, 2,183,178 shares of common stock had been sold under the current or prior equity distribution agreements for total accumulated net proceeds of approximately \$134.8 million, of which 307,569 and 3,050 shares were sold for net proceeds of \$6.1 million and \$0.1 million during the years ended December 31, 2022 and 2021, respectively. No shares were sold during the year ended December 31, 2020.

Accumulated Other Comprehensive (Loss) Income

Accumulated other comprehensive (loss) income at December 31, 2022 and December 31, 2021 was as follows:

(in thousands)	<u>December 31, 2022</u>	<u>December 31, 2021</u>
Available-for-sale securities:		
Unrealized gains	\$ 47,656	\$ 208,619
Unrealized losses	(326,367)	(22,273)
Accumulated other comprehensive (loss) income	<u>\$ (278,711)</u>	<u>\$ 186,346</u>

Reclassifications out of Accumulated Other Comprehensive (Loss) Income

The Company reclassifies unrealized gains and losses on AFS securities in accumulated other comprehensive (loss) income to net income (loss) upon the recognition of any realized gains and losses on sales as individual securities are sold. For the years ended December 31, 2022, December 31, 2021 and 2020, the Company reclassified \$428.5 million in unrealized losses, \$135.6 million in unrealized gains and \$530.5 million in unrealized gains, respectively, on sold AFS securities from accumulated other comprehensive (loss) income to (loss) gain on investment securities on the consolidated statements of comprehensive loss.

Note 17. Equity Incentive Plans

All per share amounts, common shares outstanding and common equity-based awards for all periods presented have been adjusted on a retroactive basis to reflect the reverse stock split.

On May 19, 2021, the Company's stockholders approved the 2021 Equity Incentive Plan, or the 2021 Plan, which replaced the Second Restated 2009 Equity Incentive Plan, or the 2009 Plan. The 2021 Plan provides for the issuance of up to 4,250,000 shares of the Company's common stock pursuant to awards granted thereunder. Awards previously granted under the 2009 Plan remain outstanding and valid in accordance with their terms, but no new awards will be granted under the 2009 Plan.

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The Company's 2009 Plan and 2021 Plan, or collectively, the Equity Incentive Plans, provide incentive compensation to attract and retain qualified directors, officers, personnel and other parties who may provide significant services to the Company. The Equity Incentive Plans are administered by the compensation committee of the Company's board of directors. The compensation committee has the full authority to administer and interpret the Equity Incentive Plans, to authorize the granting of awards, to determine the eligibility of potential recipients to receive an award, to determine the number of shares of common stock to be covered by each award (subject to the individual participant limitations provided in the Equity Incentive Plans), to determine the terms, provisions and conditions of each award (which may not be inconsistent with the terms of the Equity Incentive Plans), to prescribe the form of instruments evidencing awards and to take any other actions and make all other determinations that it deems necessary or appropriate in connection with the Equity Incentive Plans or the administration or interpretation thereof. In connection with this authority, the compensation committee may, among other things, establish performance goals that must be met in order for awards to be granted or to vest, or for the restrictions on any such awards to lapse.

The Equity Incentive Plans provide for grants of restricted common stock, restricted stock units, or RSUs, performance-based awards (including performance share units, or PSUs), phantom shares, dividend equivalent rights and other equity-based awards. The 2021 Plan is subject to a ceiling of 4,250,000 shares and the 2009 Plan is subject to a ceiling of 1,625,000 shares of the Company's common stock; however, following stockholder approval of the 2021 Plan, no new awards will be granted under the 2009 Plan. The Equity Incentive Plans allow for the Company's board of directors to expand the types of awards available under the Equity Incentive Plans to include long-term incentive plan units in the future. If an award granted under the Equity Incentive Plans expires or terminates, the shares subject to any portion of the award that expires or terminates without having been exercised or paid, as the case may be, will again become available for the issuance of additional awards. Unless earlier terminated by the Company's board of directors, no new award may be granted under the Equity Incentive Plans after the tenth anniversary of the date that the Equity Incentive Plans were approved by the Company's board of directors. No award may be granted under the Equity Incentive Plans to any person who, assuming payment of all awards held by such person, would own or be deemed to own more than 9.8% of the outstanding shares of the Company's common stock.

Restricted Stock Units

The following table summarizes the activity related to RSUs for the years ended December 31, 2022 and 2021:

	Year Ended December 31,			
	2022		2021	
	Units	Weighted Average Grant Date Fair Market Value	Units	Weighted Average Grant Date Fair Market Value
Outstanding at Beginning of Period	293,426	\$ 28.39	—	\$ —
Granted	320,783	20.94	334,180	28.42
Vested	(127,283)	(28.17)	(39,336)	(28.60)
Forfeited	(18,294)	(23.73)	(1,418)	(28.20)
Outstanding at End of Period	468,632	\$ 23.54	293,426	\$ 28.39

The estimated fair value of RSUs on grant date is based on the closing market price of the Company's common stock on the NYSE on such date. The shares underlying RSUs granted to independent directors are subject to a one-year vesting period. RSUs granted to certain eligible employees vest in three equal annual installments commencing on the first anniversary of the grant date, as long as such grantee complies with the terms and conditions of the applicable RSU agreement. All RSUs entitle the grantee to receive dividend equivalent rights, or DERs, during the vesting period. A DER represents the right to receive a payment equal to the amount of cash dividends declared and payable on the grantee's unvested and outstanding equity incentive awards. In the case of RSUs, DERs are paid in cash within 60 days of the quarterly dividend payment date based on the number of unvested and outstanding RSUs held by the grantee on the applicable dividend record date. In the event that an RSU is forfeited, the related DERs which have not yet been paid shall be forfeited.

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Notes to the Consolidated Financial Statements

Performance Share Units

The following table summarizes the activity related to PSUs for the years ended December 31, 2022 and 2021:

	Year Ended December 31,			
	2022		2021	
	Target Units	Weighted Average Grant Date Fair Market Value	Target Units	Weighted Average Grant Date Fair Market Value
Outstanding at Beginning of Period	109,356	\$ 34.68	—	\$ —
Granted	165,820	21.83	127,868	34.68
Vested	—	—	—	—
Forfeited	(9,915)	(27.21)	(18,512)	(34.68)
Outstanding at End of Period	<u>265,261</u>	<u>\$ 26.93</u>	<u>109,356</u>	<u>\$ 34.68</u>

The estimated fair value of PSUs on grant date is determined using a Monte Carlo simulation. PSUs vest promptly following the completion of a three year performance period, as long as such grantee complies with the terms and conditions of the applicable PSU award agreement. The number of underlying shares of common stock that vest and that the grantee becomes entitled to receive at the time of vesting will be determined based on the level of achievement of certain Company performance goals during the performance period and will generally range from 0% to 200% of the target number of PSUs granted. All PSUs entitle the grantee to DERs during the vesting period, which accrue in the form of additional PSUs reflecting the value of any dividends declared on the Company's common stock during the vesting period. In the event that a PSU is forfeited, the related accrued DERs shall be forfeited.

Restricted Common Stock

The following table summarizes the activity related to restricted common stock for the years ended December 31, 2022 and 2021:

	Year Ended December 31,			
	2022		2021	
	Shares	Weighted Average Grant Date Fair Market Value	Shares	Weighted Average Grant Date Fair Market Value
Outstanding at Beginning of Period	113,239	\$ 60.18	305,499	\$ 54.43
Granted	—	—	5,245	28.60
Vested	(69,191)	(59.71)	(188,530)	(51.76)
Forfeited	(1,164)	(60.92)	(8,975)	(22.88)
Outstanding at End of Period	<u>42,884</u>	<u>\$ 60.91</u>	<u>113,239</u>	<u>\$ 60.18</u>

The estimated fair value of restricted common stock on grant date is based on the closing market price of the Company's common stock on the NYSE on such date. The shares underlying restricted common stock grants to independent directors in 2021 vested immediately. The shares underlying restricted common stock grants to independent directors prior to 2021 and shown as vested or forfeited in the table above were subject to a one-year vesting period. The shares underlying restricted common stock grants to the Company's executive officers and other eligible individuals vest in three equal annual installments commencing on the first anniversary of the grant date, as long as such grantee complies with the terms and conditions of the applicable restricted stock award agreement.

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Non-Cash Equity Compensation Expense

For the years ended December 31, 2022, 2021 and 2020 the Company recognized compensation related to RSUs, PSUs and restricted common stock granted pursuant to the Equity Incentive Plans of \$11.6 million, \$11.5 million and \$9.7 million, respectively. As of December 31, 2022, the Company had \$4.4 million of total unrecognized compensation cost related to unvested share-based compensation arrangements. This cost is expected to be recognized over a weighted average period of 1.34 years.

Note 18. Restructuring Charges

On April 13, 2020, the Company announced that it had elected to not renew the Management Agreement with PRCM Advisers on the basis of unfair compensation payable to the manager pursuant to Section 13(a)(ii) of the Management Agreement. As a result, the Company had expected the Management Agreement to terminate on September 19, 2020, at which time the Company would have been required to pay a termination fee equal to three times the sum of the average annual base management fee earned by PRCM Advisers during the 24-month period immediately preceding the date of termination, calculated as of the end of the most recently completed fiscal quarter prior to the date of termination, pursuant to the terms of the Management Agreement. The termination fee was calculated to be \$139.8 million based on results as of June 30, 2020 and recorded during the three months ended June 30, 2020.

On July 15, 2020, the Company provided PRCM Advisers with a notice of termination of the Management Agreement for “cause” on the basis of certain material breaches of the Management Agreement by PRCM Advisers, its agents and/or its assignees that are incapable of being cured within the time period set forth therein and certain events of gross negligence on the part of PRCM Advisers in the performance of its duties under the Management Agreement. The Management Agreement subsequently terminated on August 14, 2020. No termination fee was payable to PRCM Advisers in connection with such termination pursuant to Section 15(a) of the Management Agreement.

In connection with the termination of the Management Agreement for cause, the Company reversed the \$139.8 million accrued fee attributable to the non-renewal during the three months ended September 30, 2020. For the year ended December 31, 2020, the Company incurred a total of \$5.7 million in contract termination costs, which includes all estimated costs incurred for legal and advisory services provided to facilitate the termination of the Management Agreement. In accordance with ASC 420, *Exit or Disposal Cost Obligations*, all expenses incurred for contract terminations are included within restructuring charges on the Company’s consolidated statements of comprehensive loss.

Note 19. Income Taxes

For the years ended December 31, 2022, 2021 and 2020, the Company qualified to be taxed as a REIT under the Code for U.S. federal income tax purposes. As long as the Company qualifies as a REIT, the Company generally will not be subject to U.S. federal income taxes on its taxable income to the extent it annually distributes its net taxable income to stockholders, and does not engage in prohibited transactions. The Company intends to distribute 100% of its REIT taxable income and comply with all requirements to continue to qualify as a REIT. The majority of states also recognize the Company’s REIT status. The Company’s TRSs file separate tax returns and are fully taxed as standalone U.S. C corporations. It is assumed that the Company will retain its REIT status and will incur no REIT level taxation as it intends to comply with the REIT regulations and annual distribution requirements.

Certain activities the Company performs may produce income that will not be qualifying income for REIT purposes. These activities include the designated portion of MSR treated as normal mortgage servicing, residential mortgage loans, certain derivative financial instruments and other risk-management instruments. The Company has designated its TRSs to engage in these activities.

TWO HARBORS INVESTMENT CORP.

Notes to the Consolidated Financial Statements

On August 16, 2022, President Biden signed into law the Inflation Reduction Act of 2022, or the IRA, sweeping legislation addressing healthcare, climate change and renewable energy incentives, and inflation, among other priorities. The bill includes numerous tax provisions that impact corporations, including the implementation of a corporate alternative minimum tax as well as a 1% excise tax on certain stock repurchases and economically similar transactions. However, REITs are excluded from the definition of an “applicable corporation” and therefore are not subject to the corporate alternative minimum tax. Additionally, stock repurchases by REITs are specifically excepted from the 1% excise tax. The Company’s TRSs operate as standalone corporations and therefore could be adversely affected by the tax law changes. The Company’s preliminary analysis of the accounting implications of the IRA result in no impact being recorded to its 2022 financial statements. As the Company completes its analysis of the IRA, collects and prepares necessary data, and interprets any additional guidance, it may make adjustments to the provisional amounts. Technical corrections or other amendments to the IRA or administrative guidance interpreting the IRA may be forthcoming at any time. While the Company does not anticipate a material effect on its operations, it will continue to analyze and monitor the application of the IRA to its business.

The following table summarizes the tax provision (benefit) recorded at the taxable subsidiary level for the years ended December 31, 2022, 2021 and 2020:

(in thousands)	Year Ended December 31,		
	2022	2021	2020
Current tax (benefit) provision:			
Federal	\$ —	\$ —	\$ 3,275
State	(1,028)	(1,768)	1,304
Total current tax (benefit) provision	(1,028)	(1,768)	4,579
Deferred tax provision (benefit):			
Federal	90,916	14,851	(40,267)
State	14,325	(8,891)	—
Total deferred tax provision (benefit)	105,241	5,960	(40,267)
Total provision for (benefit from) income taxes	\$ 104,213	\$ 4,192	\$ (35,688)

During the year ended December 31, 2022, the Company’s TRSs recognized a provision for income taxes of \$104.2 million, which was primarily due to income from MSR servicing activity and net gains recognized on MSR, offset by net losses recognized on derivative instruments and operating expenses. During the year ended December 31, 2021, the Company’s TRSs recognized a provision for income taxes of \$4.2 million, which was primarily due to income from MSR servicing activity and gains recognized on MSR, offset by net losses recognized on derivative instruments and operating expenses. During the year ended December 31, 2020, the Company’s TRSs recognized a benefit from income taxes of \$35.7 million, which was primarily due to losses recognized on MSR, offset by net gains recognized on derivative instruments held in the Company’s TRSs.

The Company’s taxable income before dividend distributions differs from its pre-tax net income for U.S. GAAP purposes primarily due to unrealized gains and losses, the deferral of capital losses for tax, the recognition of credit losses for U.S. GAAP purposes but not tax purposes, differences in timing of income recognition due to market discount and original issue discount and the calculations surrounding each. These book to tax differences in the REIT are not reflected in the consolidated financial statements as the Company intends to retain its REIT status.

As of December 31, 2022, the Company had \$304.6 million of net operating loss carryforwards for federal income tax purposes at the REIT, which may be utilized to offset future taxable income after consideration for the dividends paid deduction. These federal net operating loss carryforwards do not have an expiration date and can be carried forward indefinitely. As of December 31, 2022, the Company had \$2.2 billion of capital net operating loss carryforwards for federal income tax purposes at the REIT, which may be utilized to offset future net gains from the sale of capital assets. These federal capital net operating loss carryforwards have an expiration date of five years of which the majority of these losses will expire between 2025 and 2027. The utilization of the capital net operating loss carryforwards will depend on the REIT’s ability to generate sufficient net capital gains prior to the expiration of the carryforward period.

TWO HARBORS INVESTMENT CORP.

Notes to the Consolidated Financial Statements

The following is a reconciliation of the statutory federal and state rates to the effective rates, for the years ended December 31, 2022, 2021 and 2020:

(dollars in thousands)	Year Ended December 31,					
	2022		2021		2020	
	Amount	Percent	Amount	Percent	Amount	Percent
Provision for (benefit from) income taxes at statutory federal tax rate	\$ 68,135	21 %	\$ 40,198	21 %	\$(349,823)	21 %
State taxes, net of federal benefit, if applicable	10,478	3 %	(8,420)	(4)%	1,030	— %
Permanent differences in taxable income from net income for U.S. GAAP purposes	(93)	— %	15	— %	(3,525)	— %
REIT income not subject to corporate income tax	25,693	8 %	(27,601)	(14)%	316,630	(19)%
Provision for (benefit from) income taxes/ effective tax rate ⁽¹⁾	<u>\$ 104,213</u>	<u>32 %</u>	<u>\$ 4,192</u>	<u>3 %</u>	<u>\$ (35,688)</u>	<u>2 %</u>

(1) The provision for (benefit from) income taxes is recorded at the taxable subsidiary level.

The Company's permanent differences in taxable income from net income (loss) for U.S. GAAP purposes in the years ended December 31, 2022 and 2021 were primarily due to state taxes, net of federal benefit in the Company's TRSs. The Company's permanent differences in taxable income from net income (loss) for U.S. GAAP purposes in the year ended December 31, 2020 were primarily due to the intercompany sale of securities between the Company's TRSs and the REIT. Additionally, the Company's recurring permanent differences in taxable income from net income (loss) for U.S. GAAP purposes in the years ended December 31, 2022, 2021 and 2020 were due to a difference in the dividends paid deduction for tax and compensation expense related to restricted stock dividends and vesting.

The Company's consolidated balance sheets, as of December 31, 2022 and December 31, 2021 contain the following current and deferred tax liabilities and assets, which are included in other assets, and are recorded at the taxable subsidiary level:

(in thousands)	December 31, 2022	December 31, 2021
Income taxes receivable:		
Federal income taxes receivable	\$ —	\$ —
State and local income taxes receivable	404	951
Income taxes receivable, net	404	951
Deferred tax assets (liabilities):		
Deferred tax asset	33,426	58,264
Deferred tax liability	(80,603)	(200)
Total net deferred tax assets (liabilities)	(47,177)	58,064
Total tax assets (liabilities), net	<u>\$ (46,773)</u>	<u>\$ 59,015</u>

TWO HARBORS INVESTMENT CORP.

Notes to the Consolidated Financial Statements

Deferred Tax Assets and Liabilities

Deferred income taxes reflect the net tax effect of temporary differences between the carrying amount of assets and liabilities for financial reporting and tax purposes at the TRS level. Components of the Company's deferred tax liabilities and assets as of December 31, 2022 and December 31, 2021 were as follows:

(in thousands)	December 31, 2022	December 31, 2021
Mortgage servicing rights	\$ (80,492)	\$ 26,382
Net operating loss carryforward	32,301	30,569
Other	1,014	1,113
Total deferred tax assets (liabilities)	(47,177)	58,064
Valuation allowance	—	—
Total net deferred tax assets (liabilities)	<u>\$ (47,177)</u>	<u>\$ 58,064</u>

As of December 31, 2022 and December 31, 2021, the Company had not recorded a valuation allowance for any portion of its deferred tax assets as it did not believe, at a more likely than not level, that any portion of its deferred tax assets would not be realized.

Based on the Company's evaluation, it has been concluded that there are no significant uncertain tax positions requiring recognition in the Company's consolidated financial statements of a contingent tax liability for uncertain tax positions. Additionally, there were no amounts accrued for penalties or interest as of or during the periods presented in these consolidated financial statements.

TWO HARBORS INVESTMENT CORP.

Notes to the Consolidated Financial Statements

Note 20. Earnings Per Share

The following table presents a reconciliation of the earnings (loss) and shares used in calculating basic and diluted earnings (loss) per share for the years ended December 31, 2022, 2021 and 2020. All per share amounts, common shares outstanding and common equity-based awards for all periods presented have been adjusted on a retroactive basis to reflect the reverse stock split.

(in thousands, except share data)	Year Ended December 31,		
	2022	2021	2020
Basic Earnings (Loss) Per Share:			
Net income (loss)	\$ 220,239	\$ 187,227	\$ (1,630,135)
Dividends on preferred stock	(53,607)	(58,458)	(75,802)
Gain on repurchase and retirement of preferred stock	20,149	—	—
Dividends and undistributed earnings allocated to participating restricted stock units	(1,203)	(731)	—
Net income (loss) attributable to common stockholders, basic	<u>\$ 185,578</u>	<u>\$ 128,038</u>	<u>\$ (1,705,937)</u>
Basic weighted average common shares	86,179,418	74,443,000	68,400,237
Basic earnings (loss) per weighted average common share	\$ 2.15	\$ 1.72	\$ (24.94)
Diluted Earnings (Loss) Per Share:			
Net income (loss) attributable to common stockholders, basic	\$ 185,578	\$ 128,038	\$ (1,705,937)
Reallocation impact of undistributed earnings to participating restricted stock units	—	—	—
Interest expense attributable to convertible notes ⁽¹⁾	19,382	—	—
Net income (loss) attributable to common stockholders, diluted	<u>\$ 204,960</u>	<u>\$ 128,038</u>	<u>\$ (1,705,937)</u>
Basic weighted average shares	86,179,418	74,443,000	68,400,237
Effect of dilutive shares issued in an assumed vesting of performance share units	157,591	67,884	—
Effect of dilutive shares issued in an assumed conversion	9,739,166	—	—
Diluted weighted average shares	<u>96,076,175</u>	<u>74,510,884</u>	<u>68,400,237</u>
Diluted earnings (loss) per weighted average common share	\$ 2.13	\$ 1.72	\$ (24.94)

(1) If applicable, includes a nondiscretionary adjustment for the assumed change in the management fee calculation.

For the years ended December 31, 2022 and 2021, participating RSUs were included in the calculations of basic and diluted earnings per share under the two-class method since it was more dilutive than the alternative treasury stock method. For the years ended December 31, 2022 and 2021, the assumed vesting of outstanding PSUs was included in the calculation of diluted earnings per share under the two-class method since it was more dilutive than the alternative treasury stock method. The Company did not have any RSUs or PSUs during the year ended December 31, 2020.

For the years ended December 31, 2022, 2021 and 2020, excluded from the calculation of diluted earnings per share was the effect of adding back \$0.2 million, \$28.0 million and \$19.2 million of interest expense and 87,137, 12,555,567 and 4,542,788 weighted average common share equivalents, respectively, related to the assumed conversion of the Company's convertible senior notes, as their inclusion would have been antidilutive. For the year ended December 31, 2022, only the 2022 notes were excluded from the calculation of diluted earnings per share, and the assumed conversion of the Company's 2026 notes was included in the calculation of diluted earnings per share under the if-converted method.

Note 21. Related Party Transactions

The following summary provides disclosure of the material transactions with affiliates of the Company.

TWO HARBORS INVESTMENT CORP.

Notes to the Consolidated Financial Statements

Through August 14, 2020, the Company was externally managed and advised by PRCM Advisers under the terms of a Management Agreement between the Company and PRCM Advisers. The Company terminated the Management Agreement effective August 14, 2020 for “cause” in accordance with Section 15(a) thereof. On August 15, 2020, the Company completed its transition to self-management and directly hired the senior management team and other personnel who had historically provided services to the Company. Prior to the termination of the Management Agreement, all of our named executive officers were employees of an affiliate of PRCM Advisers and provided services to us under the Management Agreement.

Prior to the termination of the Management Agreement, PRCM Advisers was responsible for administering the Company’s business activities and day-to-day operations, at all times subject to the supervision and oversight of the Company’s board of directors. Under the Management Agreement, PRCM Advisers was required to provide the Company with its personnel, including its executive officers, investment professionals and other support personnel. The Company did not have its own employees. Each of the Company’s executive officers was an employee or partner of an affiliate of PRCM Advisers. The Company paid PRCM Advisers a management fee equal to 1.5% per annum, calculated and payable quarterly in arrears, of the Company’s stockholders’ equity, and reimbursed it for certain expenses, as described below.

For purposes of calculating the management fee, the Company’s stockholders’ equity represented the sum of the net proceeds from all issuances of the Company’s equity securities since inception (allocated on a pro rata daily basis for such issuances during the fiscal quarter of any such issuance), plus the Company’s retained earnings at the end of the most recently completed calendar quarter (without taking into account any non-cash equity compensation expense incurred in current or prior periods), less any amount that the Company has paid for repurchases of its common stock since inception, and excluding any unrealized gains, losses or other items that do not affect realized net income (regardless of whether such items are included in other comprehensive income or loss, or in net income), among other certain adjustments outlined in the Management Agreement. The base management fee was subject to other adjustments from time to time, as described in the Management Agreement.

In accordance with the Management Agreement, the Company incurred \$31.7 million as a management fee to PRCM Advisers for the year ended December 31, 2020.

Additionally, prior to the termination of the Management Agreement, the Company reimbursed PRCM Advisers for (a) the Company’s allocable share of the compensation paid by PRCM Advisers to its personnel serving as the Company’s principal financial officer and general counsel and personnel employed by PRCM Advisers as in-house legal, tax, accounting, consulting, auditing, administrative, information technology, valuation, computer programming and development and back-office resources to the Company, (b) any amounts for personnel of PRCM Advisers’ affiliates arising under a shared facilities and services agreement, and (c) certain costs allocated to the Company by PRCM Advisers for data services and technology. In accordance with the Management Agreement, expense reimbursements to PRCM Advisers were required to be made in cash on a quarterly basis following the end of each quarter. The Company reimbursed PRCM Advisers for direct and allocated costs incurred by PRCM Advisers on behalf of the Company of approximately \$19.3 million for the year ended December 31, 2020.

Following the termination of the Management Agreement, the Company no longer pays a management fee to, or reimburses the expenses of, PRCM Advisers. Expenses for which the Company previously reimbursed PRCM Advisers are now paid directly by the Company. The Company is also now responsible for the cash compensation and employee benefits of the Company’s Chief Executive Officer, Chief Investment Officer and investment professionals, which were previously the responsibility of PRCM Advisers. Prior to the termination of the Management Agreement, the Company was only responsible for the equity compensation paid to such individuals.

Note 22. Subsequent Events

On February 6, 2023, the Company completed a public offering of 10,000,000 shares of its common stock. The underwriters purchased the shares from the Company at a price of \$17.59 per share, for net proceeds to the Company of approximately \$175.6 million after deducting offering expenses. In connection with the offering, the Company also granted the underwriters an option for 30 days to purchase up to an additional 1,500,000 shares of common stock.

Events subsequent to December 31, 2022 were evaluated through the date these consolidated financial statements were issued and no other additional events were identified requiring further disclosure in these consolidated financial statements.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosures

None.

Item 9A. Controls and Procedures

A review and evaluation was performed by our management, including our Chief Executive Officer, or CEO, and Chief Financial Officer, or CFO, of the effectiveness of our disclosure controls and procedures (as such term is defined in Rule 13a-15(e) and 15d-15(e) under the Exchange Act) as of the end of the period covered by this Annual Report on Form 10-K. Based on that review and evaluation, the CEO and CFO have concluded that our current disclosure controls and procedures, as designed and implemented, were effective as of December 31, 2022. Although our CEO and CFO have determined our disclosure controls and procedures were effective at the end of the period covered by this Annual Report on Form 10-K, a control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that it will detect or uncover failures within the company to disclose material information otherwise required to be set forth in the reports we submit under the Exchange Act.

There was no change in our internal control over financial reporting that occurred during the quarter ended December 31, 2022 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Management's Report On Internal Control Over Financial Reporting

Management of the Company is responsible for establishing and maintaining adequate internal control over financial reporting for the Company. Internal control over financial reporting is defined in Rules 13a-15(f) and 15d-15(f) promulgated under the Exchange Act as a process designed by, or under the supervision of, the Company's principal executive and principal financial officers and effected by the Company's Board, management and other personnel to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with U.S. GAAP and includes those policies and procedures that:

- pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of the assets of the Company;
- provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with U.S. GAAP, and that receipts and expenditures of the Company are being made only in accordance with authorizations of management and directors of the Company; and
- 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. Projections of any evaluation of effectiveness to future periods are subject to the risks that controls may become inadequate because of changes in conditions or that the degree of compliance with the policies or procedures may deteriorate.

The Company's management assessed the effectiveness of the Company's internal control over financial reporting as of December 31, 2022. In making this assessment the Company's management used criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission in Internal Control-Integrated Framework (2013 framework).

Based on its assessment, the Company's management believes that, as of December 31, 2022, the Company's internal control over financial reporting was effective based on those criteria.

The Company's independent auditors, Ernst & Young LLP, have issued an attestation report on the effectiveness of the Company's internal control over financial reporting. This report appears on page 112 of this annual report on Form 10-K.

Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors
of Two Harbors Investment Corp.

Opinion on Internal Control over Financial Reporting

We have audited Two Harbors Investment Corp.'s internal control over financial reporting as of December 31, 2022, based on criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (the COSO criteria). In our opinion, Two Harbors Investment Corp. (the Company) maintained, in all material respects, effective internal control over financial reporting as of December 31, 2022, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of December 31, 2022 and 2021, the related consolidated statements of comprehensive loss, stockholders' equity and cash flows for each of the three years in the period ended December 31, 2022, and the related notes and our report dated February 28, 2023 expressed an unqualified opinion thereon.

Basis for Opinion

The Company's management is responsible 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 an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the 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 audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects.

Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

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 (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (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 the company are being made only in accordance with authorizations of management and directors of the company; and (3) 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.

/s/ Ernst & Young LLP

Minneapolis, Minnesota
February 28, 2023

Item 9B. Other Information

None.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections

None.

PART III

Items 10, 11, 12 and 13.

The information required by Items 10, 11, 12 and 13 of Part III of this Annual Report is incorporated by reference to information to be set forth in the Company's definitive Proxy Statement for its 2023 Annual Meeting of Stockholders, which will be filed with the SEC, pursuant to Regulation 14A, not later than 120 days after December 31, 2022.

Item 14. Principal Accounting Fees and Services

We retained Ernst & Young LLP, or EY, to audit our consolidated financial statements for the years ended December 31, 2022 and 2021. We also retained EY to provide various other services in during the years ended December 31, 2022 and 2021. The table below presents the aggregate fees billed to us for professional services performed by EY for the years ended December 31, 2022 and 2021:

	Year Ended	
	December 31,	
	2022	2021
Audit fees ⁽¹⁾	\$ 1,405,530	\$ 1,163,730
Audit-related fees ⁽²⁾	49,100	46,100
Tax fees ⁽³⁾	272,575	278,261
Total principal accountant fees	<u>\$ 1,727,205</u>	<u>\$ 1,488,091</u>

- (1) Audit fees pertain to the audit of our annual Consolidated Financial Statements, including review of the interim financial statements contained in our Quarterly Reports on Form 10-Q, comfort letters to underwriters in connection with our registration statements and common stock offerings, attest services, consents to the incorporation of the EY audit report in publicly filed documents and assistance with and review of documents filed with the SEC.
- (2) Audit-related fees pertain to assurance and related services that are traditionally performed by the principal accountant, including accounting consultations and audits in connection with proposed or consummated acquisitions, internal control reviews and consultation concerning financial accounting and reporting standards.
- (3) Tax fees pertain to services performed for tax compliance, including REIT compliance, tax planning and tax advice, including preparation of tax returns and claims for refund and tax-payment planning services. Tax planning and advice also includes assistance with tax audits and appeals, and tax advice related to specific transactions.

The services performed by EY in 2022 were pre-approved by our Audit Committee in accordance with the pre-approval policy set forth in our Audit Committee Charter. This policy requires that all engagement fees and the terms and scope of all auditing and non-auditing services be reviewed and approved by the Audit Committee in advance of their formal initiation.

PART IV

Item 15. Exhibits, Financial Statement Schedules

(a) The following documents are filed as part of this Annual Report on Form 10-K:

(1) Consolidated Financial Statements:

The consolidated financial statements of the Company, together with the independent registered public accounting firm's report thereon, are set forth in Part II, Item 8 on pages 56 through 64 of this Annual Report on Form 10-K and are incorporated herein by reference.

(2) Schedules to Consolidated Financial Statements:

All consolidated financial statement schedules not included have been omitted because they are either inapplicable or the information required is provided in the Company's Consolidated Financial Statements and Notes thereto, included in Part II, Item 8, of this Annual Report on Form 10-K.

(3) Exhibits:

The exhibits listed on the accompanying Exhibits Index are filed or incorporated by reference as part of this Annual Report on Form 10-K.

Item 16. Form 10-K Summary

None.

Exhibit Number	Exhibit Index
1.1	Equity Distribution Agreement between Two Harbors Investment Corp. and JMP Securities LLC dated November 10, 2022 (incorporated by reference to Exhibit 1.1 to the Registrant’s Current Report on Form 8-K filed with the SEC on November 10, 2022).
2.1	Agreement and Plan of Merger, dated as of June 11, 2009, by and among Capitol Acquisition Corp., Two Harbors Investment Corp., Two Harbors Merger Corp. and Pine River Capital Management L.P. (incorporated by reference to Annex A filed with Pre Effective Amendment No. 4 to the Registrant’s Registration Statement on Form S-4 (File No. 333-160199) filed with the Securities and Exchange Commission, or SEC, on October 8, 2009, or Amendment No. 4).
2.2	Amendment No. 1 to Agreement and Plan of Merger, dated as of August 17, 2009, by and among Capitol Acquisition Corp., Two Harbors Investment Corp., Two Harbors Merger Corp. and Pine River Capital Management L.P. (incorporated by reference to Annex A-2 filed with Amendment No. 4).
2.3	Amendment No. 2 to Agreement and Plan of Merger, dated as of September 20, 2009, by and among Capitol Acquisition Corp., Two Harbors Investment Corp., Two Harbors Merger Corp. and Pine River Capital Management L.P. (incorporated by reference to Annex A-3 filed with Amendment No. 4).
2.4	Agreement and Plan of Merger, by and among Two Harbors Investment Corp., Eiger Merger Subsidiary LLC and CYS Investments, Inc., dated as of April 25, 2018 (incorporated by reference to Exhibit 2.1 to the Registrant’s Current Report on Form 8-K filed with the SEC on April 26, 2018).
3.1	Articles of Amendment and Restatement of Two Harbors Investment Corp. (incorporated by reference to Exhibit 99.1 to Annex B filed with Amendment No. 4).
3.2	Articles of Amendment to the Articles of Amendment and Restatement of Two Harbors Investment Corp. (incorporated by reference to Exhibit 99.1 to the Registrant’s Current Report on Form 8-K, filed with the SEC on December 19, 2012).
3.3	Articles of Amendment to the Articles of Amendment and Restatement of Two Harbors Investment Corp., effective as of 5:01 PM Eastern Time on November 1, 2017 (incorporated by reference to Exhibit 3.1 to the Registrant’s Current Report on Form 8-K, filed with the SEC on November 2, 2017).
3.4	Articles of Amendment to the Articles of Amendment and Restatement of Two Harbors Investment Corp., effective as of 5:02 PM Eastern Time on November 1, 2017 (incorporated by reference to Exhibit 3.2 to the Registrant’s Current Report on Form 8-K, filed with the SEC on November 2, 2017).
3.5	Articles of Amendment to the Articles of Amendment and Restatement of Two Harbors Investment Corp. (incorporated by reference to Exhibit 3.1 to the Registrant’s Current Report on Form 8-K, filed with the SEC on September 23, 2020).
3.6	Articles of Amendment to the Articles of Amendment and Restatement of Two Harbors Investment Corp., effective as of 5:01 PM Eastern Time on November 1, 2022 (incorporated by reference to Exhibit 3.1 to the Registrant’s Current Report on Form 8-K filed with the SEC on November 2, 2022).
3.7	Articles of Amendment to the Articles of Amendment and Restatement of Two Harbors Investment Corp., effective as of 5:02 PM Eastern Time on November 1, 2022 (incorporated by reference to Exhibit 3.2 to the Registrant’s Current Report on Form 8-K filed with the SEC on November 2, 2022).
3.8	Articles Supplementary to the Articles of Amendment to the Articles of Amendment and Restatement of Two Harbors Investment Corp. designating the shares of 8.125% Series A Fixed-to-Floating Rate Cumulative Redeemable Preferred Stock, \$0.01 par value per share (incorporated by reference to Exhibit 3.3 of the Company’s Form 8-A filed with the SEC on March 13, 2017).
3.9	Articles Supplementary to the Articles of Amendment to the Articles of Amendment and Restatement of Two Harbors Investment Corp. designating the shares of 7.625% Series B Fixed-to-Floating Rate Cumulative Redeemable Preferred Stock, \$0.01 par value per share (incorporated by reference to Exhibit 3.4 of the Company’s Form 8-A filed with the SEC on July 17, 2017).
3.10	Articles Supplementary to the Articles of Amendment to the Articles of Amendment and Restatement of Two Harbors Investment Corp. designating the shares of 7.25% Series C Fixed-to-Floating Rate Cumulative Redeemable Preferred Stock, \$0.01 par value per share (incorporated by reference to Exhibit 3.7 of the Company’s Form 8-A filed with the SEC on November 22, 2017).
3.11	Articles Supplementary to the Articles of Amendment to the Articles of Amendment and Restatement of Two Harbors Investment Corp. reclassifying and redesignating (i) all 3,000,000 authorized but unissued shares of 7.75% Series D Cumulative Redeemable Preferred Stock, \$0.01 par value per share, as shares of undesignated preferred stock, and (ii) all 8,000,000 authorized but unissued shares of 7.50% Series E Cumulative Redeemable Preferred Stock, \$0.01 par value per share, as shares of undesignated preferred stock (incorporated by reference to Exhibit 3.1 of the Registrant’s Current Report on Form 8-K filed with the SEC on March 19, 2021).
3.12	Amended and Restated Bylaws of Two Harbors Investment Corp. (incorporated by reference to Exhibit 3.2 to the Company’s Current Report on Form 8-K, filed with the SEC on September 23, 2020).

Exhibit Number	Exhibit Index
4.1	Indenture, dated as of January 19, 2017, between Two Harbors Investment Corp. and The Bank of New York Mellon Trust Company, N.A. (incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K filed with the SEC on January 19, 2017).
4.2	Supplemental Indenture, dated as of February 1, 2021, between Two Harbors Investment Corp. and The Bank of New York Mellon Trust Company, N.A. (incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K file with the SEC on February 1, 2021).
4.3	Description of Securities. (filed herewith)
10.1*	Second Restated 2009 Equity Incentive Plan (incorporated by reference to Appendix A to the Registrant's Definitive Proxy Statement filed with the SEC on March 26, 2015).
10.2*	Form of Restricted Stock Agreement under the Second Restated 2009 Equity Incentive Plan (incorporated by reference to Exhibit 10.2 to the Registrant's Quarterly Report on Form 10-Q filed with the SEC on August 5, 2015).
10.3*	Two Harbors Investment Corp. 2021 Equity Incentive Plan (incorporated here by reference to Appendix A to the Registrant's Definitive Proxy Statement filed with the SEC on April 6, 2021).
10.4*	Form of Director Restricted Stock Unit Agreement under the Two Harbors Investment Corp. 2021 Equity Incentive Plan (incorporated by reference to Exhibit 10.2 of the Registrant's Registration Statement on Form S-8 filed with the SEC on May 19, 2021).
10.5*	Form of Officer Restricted Stock Unit Agreement under the Two Harbors Investment Corp. 2021 Equity Incentive Plan (incorporated by reference to Exhibit 10.3 of the Registrant's Registration Statement on Form S-8 filed with the SEC on May 19, 2021).
10.6*	Form of Officer Performance Share Unit Agreement under the Two Harbors Investment Corp. 2021 Equity Incentive Plan (incorporated by reference to Exhibit 10.4 of the Registrant's Registration Statement on Form S-8 filed with the SEC on May 19, 2021).
10.7*	Form of Common Stock Award Agreement under the Two Harbors Investment Corp. 2021 Equity Incentive Plan (incorporated by reference to Exhibit 10.5 of the Registrant's Registration Statement on Form S-8 filed with the SEC on May 19, 2021).
10.8	Form of Indemnification Agreement (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed with the SEC on November 19, 2009).
21.1	Subsidiaries of registrant. (filed herewith)
23.1	Consent of Independent Registered Public Accounting Firm of Ernst & Young LLP. (filed herewith)
24.1	Powers of Attorney (included on signature page).
31.1	Certification of the Chief Executive Officer, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002. (filed herewith)
31.2	Certification of the Chief Financial Officer, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002. (filed herewith)
32.1	Certification of the Chief Executive Officer, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002. (filed herewith)
32.2	Certification of the Chief Financial Officer, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002. (filed herewith)
101	Financial statements from the Annual Report on Form 10-K of Two Harbors Investment Corp. for the year ended December 31, 2022, formatted in Inline XBRL: (i) the Consolidated Balance Sheets, (ii) the Consolidated Statements of Comprehensive Loss, (iii) the Consolidated Statements of Stockholders' Equity, (iv) the Consolidated Statements of Cash Flows, and (v) the Notes to the Consolidated Financial Statements. (filed herewith)
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101). (filed herewith)

* Management or compensatory agreement

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.

TWO HARBORS INVESTMENT CORP.

Dated: February 28, 2023

By: /s/ William Greenberg

William Greenberg
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.

Each of the undersigned hereby appoints William Greenberg and Mary Risky, and each of them (with full power to act alone), as attorneys and agents for the undersigned, with full power of substitution, for and in the name, place and stead of the undersigned, to sign and file with the Securities and Exchange Commission under the Securities Act of 1934, any and all amendments and exhibits to this annual report on Form 10-K and any and all applications, instruments, and other documents to be filed with the Securities and Exchange Commission pertaining to this annual report on Form 10-K or any amendments thereto, with full power and authority to do and perform any and all acts and things whatsoever requisite and necessary or desirable.

Signature	Title	Date
<u>/s/ William Greenberg</u> William Greenberg	Director, President and Chief Executive Officer (Principal Executive Officer)	February 28, 2023
<u>/s/ Mary Risky</u> Mary Risky	Chief Financial Officer (Principal Financial and Accounting Officer)	February 28, 2023
<u>/s/ Stephen G. Kasnet</u> Stephen G. Kasnet	Chairman of the Board of Directors	February 28, 2023
<u>/s/ E. Spencer Abraham</u> E. Spencer Abraham	Director	February 28, 2023
<u>/s/ James J. Bender</u> James J. Bender	Director	February 28, 2023
<u>/s/ Karen Hammond</u> Karen Hammond	Director	February 28, 2023
<u>/s/ W. Reid Sanders</u> W. Reid Sanders	Director	February 28, 2023
<u>/s/ James A. Stern</u> James A. Stern	Director	February 28, 2023
<u>/s/ Hope B. Woodhouse</u> Hope B. Woodhouse	Director	February 28, 2023

COMPANY INFORMATION

BOARD OF DIRECTORS

Stephen G. Kasnet

Chairman of the Board of Directors

E. Spencer Abraham

Independent Director

James J. Bender

Independent Director

William Greenberg

President and Chief Executive Officer

Karen Hammond

Independent Director

W. Reid Sanders

Independent Director

James A. Stern

Independent Director

Hope B. Woodhouse

Independent Director

EXECUTIVE OFFICERS

William Greenberg

President and Chief Executive Officer

Nicholas Letica

Vice President and Chief Investment Officer

Rebecca B. Sandberg

Vice President, General Counsel, Secretary and Chief Compliance Officer

Mary Risky

Vice President and Chief Financial Officer

Robert Rush

Vice President and Chief Risk Officer

Alecia Hanson

Vice President and Chief Administrative Officer

Jason Vinar

Vice President and Chief Operating Officer

Matthew Keen

Vice President and Chief Technology Officer

ANNUAL REPORT MEETING OF SHAREHOLDERS

Two Harbors' stockholders are invited to attend our 2023 Annual Meeting of Stockholders, which will be held virtually on May 17, 2023, beginning at 10 a.m. Eastern Time. Stockholders can attend the virtual annual meeting via the internet at www.virtualshareholdermeeting.com/TWO2023.

CORPORATE HEADQUARTERS

Two Harbors Investment Corp.

1601 Utica Ave. S.

Suite 900

St. Louis Park, MN 55416

Telephone: 612.453.4100

www.twoharborsinvestment.com

INVESTOR AND MEDIA CONTACT

Maggie Karr

612.453.4080

investors@twoharborsinvestment.com

STOCK EXCHANGE

Two Harbors' common stock is listed on the NYSE under the symbol "TWO".

TRANSFER AGENT

Equiniti Trust Company

P.O. Box 64856

St. Paul, MN 55164-0856

Telephone: 800.468.9716

Outside the U.S.: 651.450.4064

www.shareowneronline.com

DIVIDEND REINVESTMENT AND DIRECT STOCK PURCHASE PLAN

Two Harbors maintains a Dividend Reinvestment and Direct Stock Purchase Plan that is administered by Equiniti Trust Company. The plan prospectus and additional plan information is available on the Two Harbors website in the Investors section.

INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Ernst & Young LLP

220 South Sixth Street

Suite 1400

Minneapolis, MN 55402

612.343.1000



TWO HARBORS
Investment Corp.

1601 Utica Ave. S.
Suite 900
St. Louis Park, MN 55416
612.453.4100

TWOHARBORSINVESTMENT.COM

