

# An Agency + MSR REIT

Second Quarter 2023  
Earnings Call

AUGUST 1, 2023



**TWO HARBORS**  
Investment Corp.

# Safe Harbor Statement



## FORWARD-LOOKING STATEMENTS

This presentation includes “forward-looking statements” within the meaning of the safe harbor provisions of the United States Private Securities Litigation Reform Act of 1995. Actual results may differ from expectations, estimates and projections and, consequently, readers should not rely on these forward-looking statements as predictions of future events. Words such as “expect,” “target,” “assume,” “estimate,” “project,” “budget,” “forecast,” “anticipate,” “intend,” “plan,” “may,” “will,” “could,” “should,” “believe,” “predicts,” “potential,” “continue,” and similar expressions are intended to identify such forward-looking statements. These forward-looking statements involve significant risks and uncertainties that could cause actual results to differ materially from expected results, including, among other things, 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.” Factors that could cause actual results to differ include, but are not limited to: the state of credit markets and general economic conditions; changes in interest rates and the market value of our assets; changes in prepayment rates of mortgages underlying our target assets; the rates of default or decreased recovery on the mortgages underlying our target assets; declines in home prices; our ability to establish, adjust and maintain appropriate hedges for the risks in our portfolio; the availability and cost of our target assets; the availability and cost of financing; changes in the competitive landscape within our industry; our ability to effectively execute and to 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 LLC; our decision to terminate our management agreement with PRCM Advisers LLC and the ongoing litigation related to such termination; our ability to manage various operational risks and costs associated with our business; interruptions in or impairments to our communications and information technology systems; our ability to acquire mortgage servicing rights (MSR) and successfully operate our seller-servicer subsidiary and oversee our subservicers; the impact of any deficiencies in the servicing or foreclosure practices of third parties and related delays in the foreclosure process; our exposure to legal and regulatory claims; legislative and regulatory actions affecting our business; the impact of new or modified government mortgage refinance or principal reduction programs; our ability to maintain our REIT qualification; and limitations imposed on our business due to our REIT status and our exempt status under the Investment Company Act of 1940.

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Readers are advised that the financial information in this presentation is based on company data available at the time of this presentation and, in certain circumstances, may not have been audited by the company’s independent auditors.

# Financials Overview

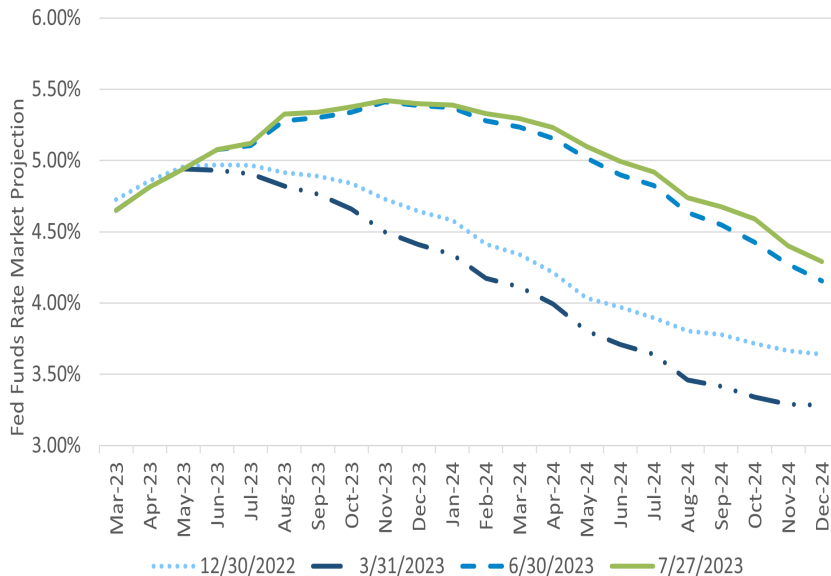
*Benefitted From Attractive Spreads and Volatility Trending Lower*



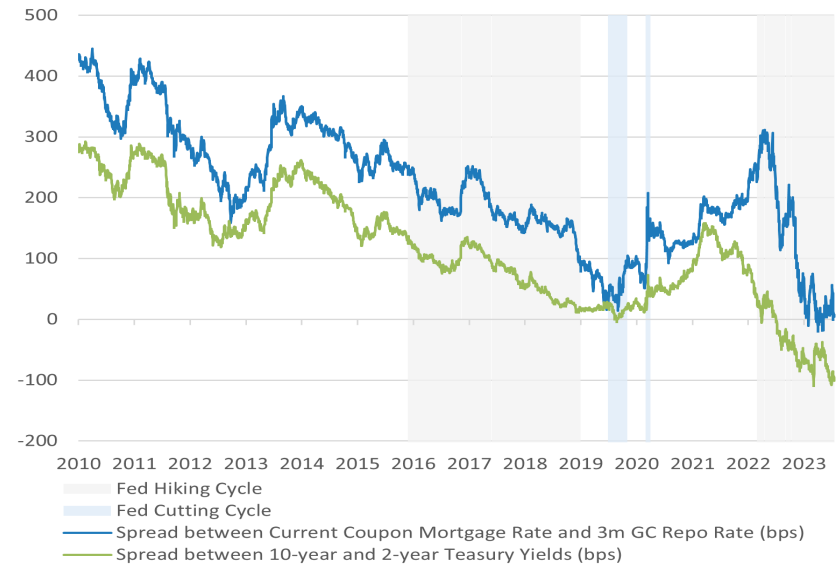
Note: Financial data throughout this presentation is as of or for the quarter ended June 30, 2023, unless otherwise noted. Per share metrics utilize basic common shares as the denominator. The End Notes are an integral part of this presentation. See slides 31 through 36 at the back of this presentation for information related to certain financial metrics and defined terms used herein.

# Markets Overview

## I. FED FUNDS RATE EXPECTATIONS<sup>(1)</sup>



## II. HISTORICAL YIELD SPREADS<sup>(2)</sup>



- Amidst ongoing concerns about stress in the banking system and the debt ceiling debate, the Federal Reserve hiked interest rates once in the quarter to 5.25% and subsequently in July to 5.5%, while signaling that any future rate hikes will be data dependent
- Hawkish sentiment from the Fed resulted in higher rates, led by the front end of the yield curve: 2-year Treasury rates increased by 87 basis points to 4.90% while 10-year Treasury rates increased by 37 basis points to 3.84%, taking the spread back to pre-banking crisis levels of -106 basis points
- With the re-flattening of the yield curve, short-term funding rates are approximately equal to the current coupon mortgage rate, with a spread of 23 basis points as of June 30th

# Hedging Mitigates Funding Rate Risk

Consider a REIT with a portfolio of RMBS that is levered 9x and funded with repo funding tied to SOFR

## I. UNHEDGED REIT EXPOSED TO LEVEL OF REPO FUNDING

- Unhedged REIT is highly exposed to net asset value changes due to the duration gap that exists



### Unhedged Levered REIT Static Return

$$= \$1,000 \times \text{Yield} - \$900 \times \text{SOFR} \quad (1)$$

$$= \$100 \times \text{Yield} + \$900 \times (\text{Yield} - \text{SOFR}) \quad (2)$$

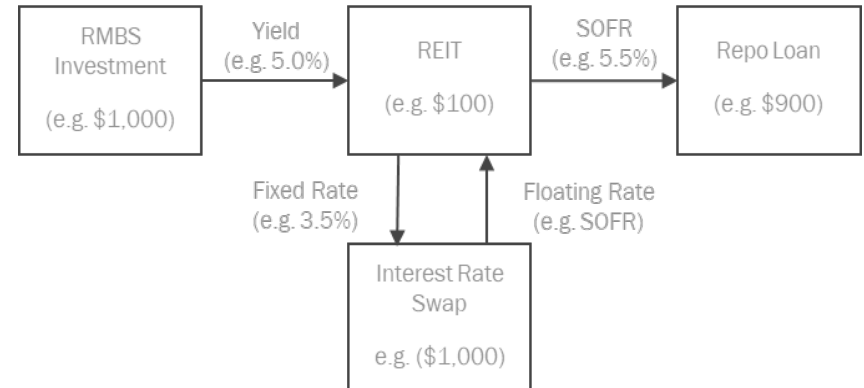
$$= 5.0\% + 9 \times (5.0 - 5.5)\% = 0.5\% \quad (3)$$

#### Duration without Interest Rate Swap Debt Hedges

RMBS Investment	+ 5.0 years
Repo Loan	0.0 years
<b>Net Duration Gap</b>	<b>+ 5.0 years</b>

## II. HEDGED REIT MITIGATES EXPOSURE FROM CHANGES TO SOFR

- Hedged REIT eliminates the duration gap by hedging the repo loan with an interest rate swap



### Hedged Levered REIT Static Return

$$= [\$1,000 \times \text{Yield} - \$900 \times \text{SOFR}] + [\$1,000 \times (\text{SOFR} - \text{Fixed Rate})] \quad (4)$$

$$= \$100 \times \text{SOFR} + \$1,000 \times (\text{Yield} - \text{Fixed Rate}) \quad (5)$$

$$= 5.5\% + 10 \times (5.0\% - 3.5\%) = 20.5\% \quad (6)$$

#### Duration with Interest Rate Swap Debt Hedges

RMBS Investment	+ 5.0 years
Repo Loan + <b>IRS Hedge</b>	< 5.0 > years
<b>Net Duration Gap</b>	<b>0.0 years</b>

# Book Value Summary

(\$ millions, except per share data)	Q2-2023 Book Value	Q2-2023 Book Value per share
<b>Beginning common stockholders' equity</b>	<b>\$ 1,593.4</b>	<b>\$ 16.48</b>
Net income	197.4	
Other comprehensive income	(156.3)	
Comprehensive income	41.1	
Dividend declaration - preferred	(12.1)	
Gain on repurchase and retirement of preferred stock	2.5	
Comprehensive income attributable to common stockholders	31.5	
Common stock dividends declared	(43.6)	
Other	1.7	
Repurchase and retirement of preferred stock	0.4	
Repurchases of common stock	(7.0)	
Issuance of common stock, net of offering costs	0.1	
<b>Ending common stockholders' equity</b>	<b>\$ 1,576.5</b>	<b>\$ 16.39</b>
Total preferred stock liquidation preference	639.5	
<b>Ending total equity</b>	<b>\$ 2,216.0</b>	

- Book value of \$16.39 per common share, resulting in a 2.2% quarterly economic return on book value<sup>(2)</sup>
  - Both components of our strategy contributed positive returns this quarter, which reflected the high carry of the portfolio partially offset by a small widening in higher coupon spreads
- Generated Comprehensive Income of \$31.5 million, or \$0.31 per weighted average common share
- Repurchased 513,818 shares of preferred stock at an average price of \$19.39 per share<sup>(3)</sup>
- Repurchased 593,453 shares of common stock at an average price of \$11.89 per share

# Results and Return Contributions



(\$ in thousands)	GAAP Net Income	Other Comprehensive Loss	Total Comprehensive Income	Market-Driven Value Changes and Nonrecurring Operating Expenses	Income Excluding Market-Driven Value Changes <sup>(1)</sup>
<b>RMBS and other Agency securities<sup>(2)</sup></b>					
RMBS and other Agency securities income (loss)	\$ 103,688	\$ (156,306)	\$ (52,618)	\$ (195,343)	\$ 142,725
RMBS and other Agency securities funding expense	(111,317)		(111,317)	—	(111,317)
<b>MSR</b>					
MSR income	171,712		171,712	92,105	79,607
MSR funding expense	(43,552)		(43,552)	—	(43,552)
<b>Derivatives and other</b>					
Swaps and swaptions	56,533		56,533	57,085	(552)
TBAs	(77,083)		(77,083)	(87,800)	10,717
Futures	126,923		126,923	126,923	—
Interest on cash, reverse repurchase agreements and other	15,767		15,767	2,201	13,566
<b>Expenses</b>					
Convertible debt interest expense	(4,692)		(4,692)	—	(4,692)
Operating expenses	(20,754)		(20,754)	(7,134)	(13,620)
Tax expense	(19,780)		(19,780)	(16,514)	(3,266)
<b>Earnings (losses) attributable to Two Harbors</b>	<b>197,445</b>	<b>(156,306)</b>	<b>41,139</b>	<b>(28,477)</b>	<b>69,616</b>
Dividends on preferred stock	(12,115)		(12,115)	—	(12,115)
Gain on repurchase and retirement of preferred stock	2,454		2,454	2,454	—
<b>Earnings (losses) attributable to common stockholders</b>	<b>\$ 187,784</b>	<b>\$ (156,306)</b>	<b>\$ 31,478</b>	<b>\$ (26,023)</b>	<b>\$ 57,501</b>
<b>Annualized return on common equity</b>					
					<b>14.8%</b>
<b>Quarterly return per weighted average basic common share</b>					
					<b>\$ 0.60</b>

# Earnings Available for Distribution

(\$ millions, except per share data)	Q2-2023	Q1-2023	Variance
Interest income	\$ 117.8	\$ 116.6	\$ 1.2
Interest expense	159.6	142.5	(17.1)
Net interest (expense) income	(41.8)	(25.9)	(15.9)
Servicing income	175.2	153.3	21.9
MSR amortization <sup>(1)</sup>	(91.8)	(76.5)	(15.3)
Interest spread income on interest rate swaps	3.5	3.6	(0.1)
TBA dollar roll income <sup>(2)</sup>	(3.5)	6.3	(9.8)
U.S. Treasury futures income <sup>(3)</sup>	5.6	0.4	5.2
Other derivatives income	0.1	0.1	—
Total other income	89.1	87.2	1.9
Servicing expenses	25.5	26.8	1.3
Operating expenses	11.9	13.1	1.2
Total expenses	37.4	39.9	2.5
Provision for income taxes	1.5	0.8	(0.7)
<b>Earnings Available for Distribution<sup>(4)</sup></b>	<b>\$ 8.4</b>	<b>\$ 20.6</b>	<b>\$ (12.2)</b>
Dividends on preferred stock	(12.1)	(12.3)	(0.2)
<b>Earnings Available for Distribution available to common stockholders</b>	<b>\$ (3.7)</b>	<b>\$ 8.3</b>	<b>\$ (12.0)</b>
<b>Earnings Available for Distribution per weighted average basic common share</b>	<b>\$ (0.04)</b>	<b>\$ 0.09</b>	
<b>Earnings Available for Distribution annualized return on average common equity</b>	<b>(1.0)%</b>	<b>2.0 %</b>	
Operating expenses, excluding non-cash LTIP amortization and nonrecurring expenses, as a percentage of average equity	2.2 %	2.3 %	

- Second quarter EAD primarily driven by:
  - Increased interest expense as a result of higher rates and higher average balances on both RMBS and MSR financing
  - Increase in servicing income, net of estimated MSR amortization
  - Losses on TBA dollar rolls, partially offset by an increase in U.S. Treasury futures income
- EAD is expected to continue to diverge from ongoing earnings power<sup>(5)</sup>
  - EAD for assets utilizes concepts of amortized cost and yield-to-maturity at purchase (RMBS) or amortized cost and original pricing yield (MSR), as opposed to market value and expected return
  - EAD may not reflect total return of hedging derivatives, and impacts to EAD differ depending on the instrument utilized

# Portfolio Yields and Financing Costs

- Portfolio yield increased 15 bps to 5.24% primarily due to purchases of higher coupon available-for-sale securities with lower unamortized premium and a higher proportion of the total portfolio invested in higher yielding assets, offset by a slightly higher CPR experienced by available-for-sale securities
  - Portfolio yields based on amortized cost, not market values and market returns
- Net spread narrowed by 36 bps due to higher rates and higher borrowing balances on both RMBS and MSR

(\$ thousands)	Q2-2023			Q1-2023		
Portfolio Asset Type	Average Amortized Cost	Income <sup>(1)</sup>	Average Yield	Average Amortized Cost	Income <sup>(1)</sup>	Average Yield
Available-for-sale securities	\$ 8,960,056	\$ 104,195	4.65%	\$ 8,649,865	\$ 97,038	4.49%
Mortgage servicing rights <sup>(2)</sup>	2,026,643	57,941	11.44%	1,900,434	50,004	10.52%
Agency derivatives <sup>(3)</sup>	19,424	98	2.02%	20,158	65	1.29%
TBAs <sup>(4)</sup>	3,291,680	25,219	3.06%	4,109,533	39,539	3.85%
Total portfolio	\$ 14,297,803	\$ 187,453	5.24%	\$ 14,679,990	\$ 186,646	5.09%
Financing Collateral Type	Average Outstanding Balance	Expense <sup>(5)</sup>	Average Cost	Average Outstanding Balance	Expense <sup>(5)</sup>	Average Cost
Available-for-sale securities	\$ 8,533,628	\$ 111,090	5.21%	\$ 8,181,110	\$ 92,023	4.50%
Mortgage servicing rights and advances	2,001,554	43,552	8.70%	1,878,322	38,895	8.28%
Agency derivatives <sup>(3)</sup>	12,295	175	5.69%	12,463	159	5.10%
Other - unsecured <sup>(6)</sup>	272,753	4,692	6.88%	282,729	4,836	6.84%
Interest rate swaps <sup>(7)</sup>		(3,453)	(0.10)%		(3,610)	(0.10)%
U.S. Treasury futures <sup>(8)</sup>		(5,652)	(0.16)%		(403)	(0.01)%
TBAs <sup>(4)</sup>	3,291,680	28,745	3.49%	4,109,533	33,198	3.23%
Total financing	\$ 14,111,910	\$ 179,149	5.08%	\$ 14,464,157	\$ 165,098	4.57%
<b>Net Spread</b>			<b>0.16%</b>			<b>0.52%</b>

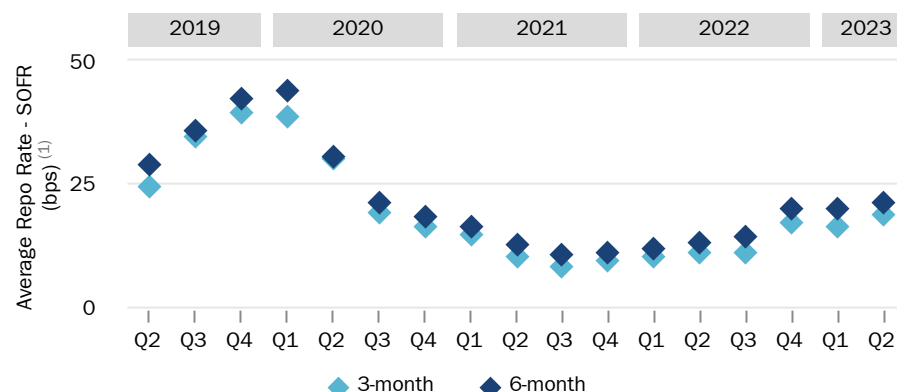
# Strong Balance Sheet and Liquidity Position

## BALANCE SHEET AS OF JUNE 30, 2023

Agency RMBS \$8.9 billion	Agency RMBS repurchase agreements \$8.8 billion
MSR \$3.3 billion	MSR financing \$2.1 billion
Cash & cash equivalents \$0.7 billion	Convertible debt \$0.3 billion
All other assets \$1.1 billion	All other liabilities \$0.6 billion
	Preferred equity \$0.6 billion
	Common equity \$1.6 billion

## AGENCY RMBS

- \$8.8 billion of outstanding repurchase agreements with 18 counterparties
- Weighted average days to maturity of 67 days



## MORTGAGE SERVICING RIGHTS

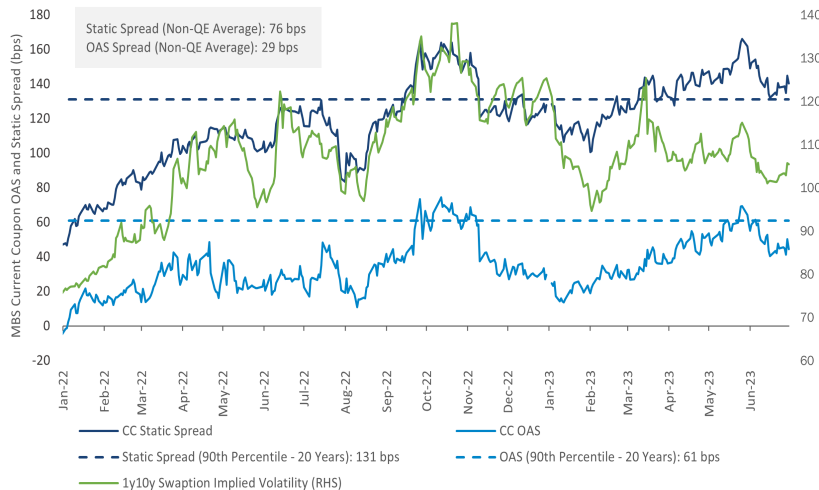
- \$1.7 billion of outstanding borrowings under bilateral MSR asset financing facilities
- \$400 million of outstanding 5-year MSR term notes<sup>(2)</sup>
- \$428 million of unused MSR asset financing capacity; \$85 million committed and \$342 million uncommitted
- \$43 million outstanding borrowings and \$157 million of unused, committed capacity for servicing advance receivables

# Market Conditions

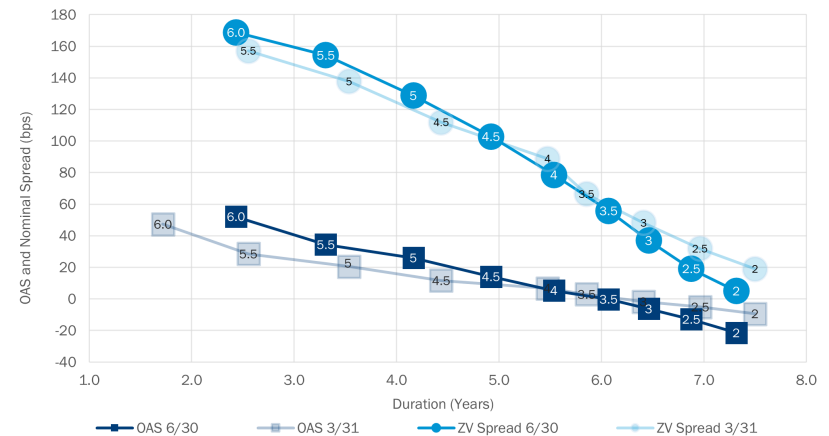
## VOLATILITY TRENDED LOWER INTO QUARTER END, DRIVING RMBS PERFORMANCE

- Spreads initially widened in the beginning of the quarter, but the resolution of the debt ceiling in late May coupled with falling rate volatility drove spreads tighter across the coupon stack into the end of the quarter
- Lower coupons net outperformed as supply concerns from FDIC-related sales diminished, while higher coupon performance was aided by higher spread
- MSR spreads performed well as strong demand kept pace with supply and prepayment speeds remained slow
- Spreads for RMBS remain at historically attractive levels; we favor belly coupons for their combination of dollar price and spread
- Organic supply of RMBS in second half of 2023 will likely be a headwind for spread tightening; inflows into RMBS are expected to remain strong, providing good support for spreads
- Barring a drop in rates, prepayment speeds should decline in the third quarter owing to weaker seasonal factors and high primary mortgage rates

### I. RMBS SPREADS REMAIN ATTRACTIVE<sup>(1)</sup>



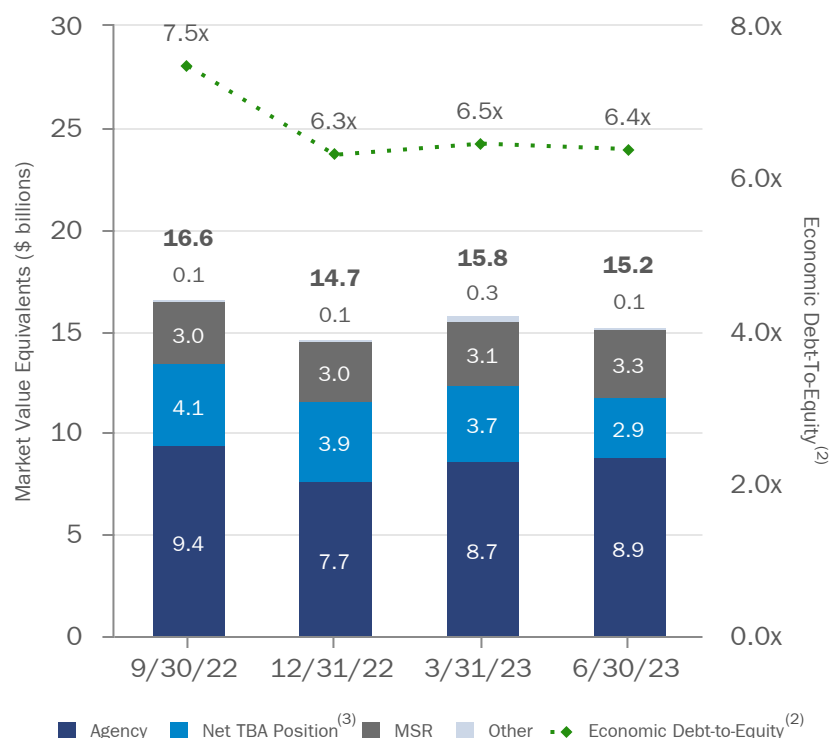
### II. 4.0%-6.0% COUPONS HAVE WIDER SPREADS<sup>(2)</sup>



# Quarterly Activity and Portfolio Composition

## PORTFOLIO COMPOSITION<sup>(1)</sup>

At June 30, 2023, \$15.2 billion portfolio  
Includes \$12.3 billion settled positions



## LEVERAGE AND RISK POSITIONING

- Quarter-end economic debt-to-equity decreased slightly to 6.4x from 6.5x<sup>(2)</sup>
  - Average economic debt-to-equity of 6.4x in the second quarter, compared to 6.3x in the first quarter<sup>(2)</sup>
  - Maintained a neutral leverage position balancing wide nominal spreads against elevated rate volatility
- Low book value exposure to changes in rates

## PORTFOLIO ACTIVITY

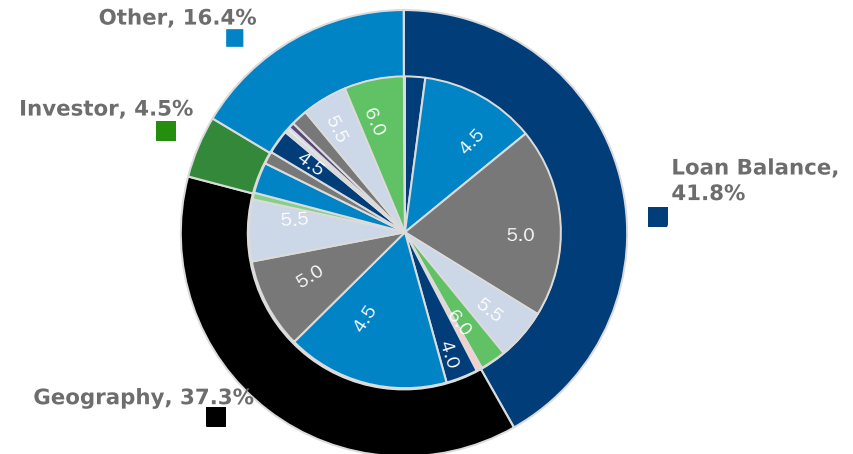
- Moved \$1.2 billion notional of higher coupon TBAs into lower coupon TBAs to capture the relative widening of lower coupons triggered by FDIC sale of failed bank assets
- Subsequently, rotated approximately \$330 million notional of lower coupon TBAs into semi-seasoned specified pools to improve carry
- Settled \$14.2 billion UPB of MSR through three bulk acquisitions and \$539.1 million UPB in MSR recapture and flow sale purchases
- Post quarter end, securitized approximately 1.2 basis points of servicing fee on our aggregate portfolio through Fannie Mae and Freddie Mac

# Specified Pools

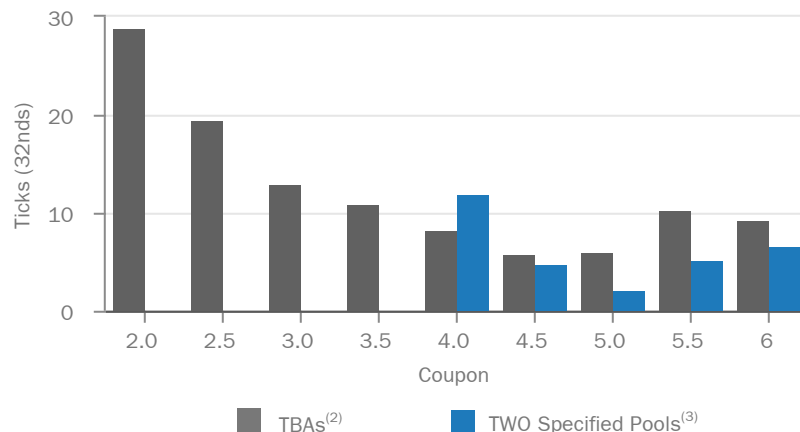
## QUARTERLY HIGHLIGHTS

- The TBA stack outperformed over the quarter driven by (1) the continued market recovery from bank stress initiated in March, (2) inflows into fixed-income funds and (3) strong money manager interest in bonds sold by the FDIC
- Specified pool performance varied across the stack, with production coupon specs underperforming and lower coupon specs outperforming same coupon TBAs
- Weighted average specified pool portfolio speeds increased to 6.5% in the second quarter, from 5.3% in the first quarter, driven by increased turnover seasonality

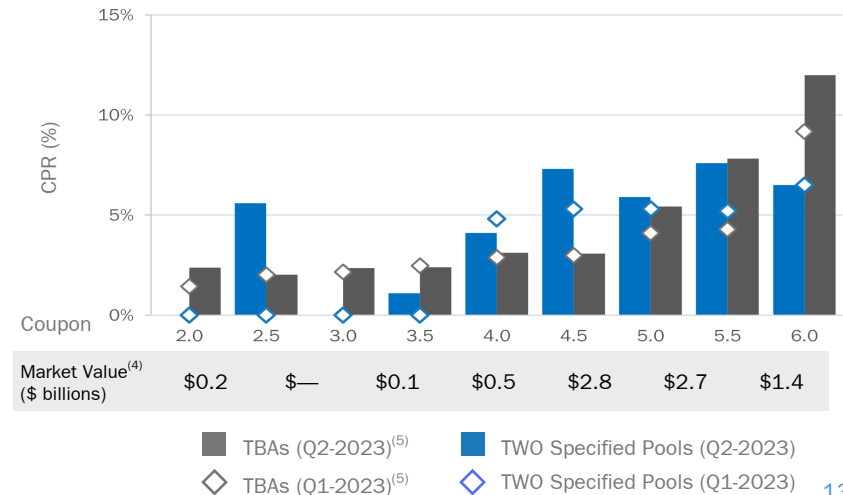
## I. SPECIFIED POOL PORTFOLIO<sup>(1)</sup>



## II. RMBS QUARTERLY PERFORMANCE



## III. SPECIFIED POOL PREPAYMENT SPEEDS



# Mortgage Servicing Rights

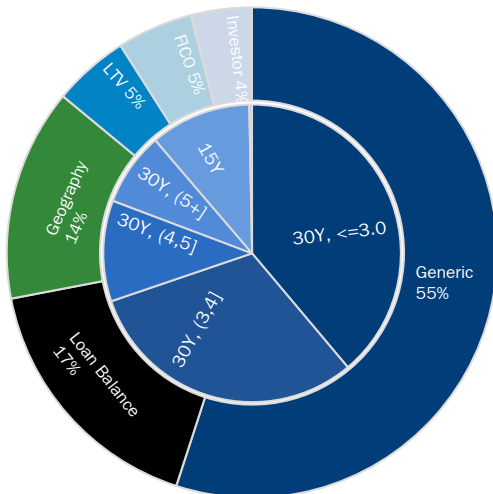
## QUARTERLY HIGHLIGHTS

- MSR bulk packages remain well bid with notable strong demand: \$145 billion UPB of conventional MSR offered in the second quarter, bringing total to \$370 billion UPB in the first half of 2023
- Settled \$14.2 billion UPB of MSR through 3 bulk purchases and \$539.1 million through flow purchases and recapture
- MSR price multiple increased slightly quarter-over-quarter to 5.5x from 5.4x
- MSR speeds increased to 5.4% in the second quarter, from 4.1% in the first quarter, as expected, due to seasonality
- Completed transfers of approximately 63% of our MSR from our subservicing network to RoundPoint through June 30th
- Post quarter end, securitized approximately 1.2 basis points of servicing fee on our aggregate portfolio through Fannie Mae and Freddie Mac

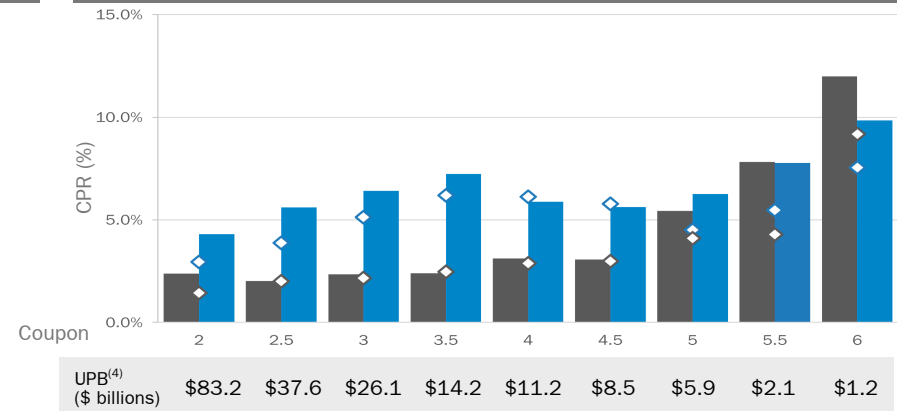
## I. MSR PORTFOLIO CHARACTERISTICS<sup>(1)</sup>

	6/30/2023	3/31/2023
Fair value (\$ millions)	\$ 3,274	\$ 3,072
Price multiple	5.5x	5.4x
UPB (\$ millions)	\$ 224,327	\$ 213,905
Gross coupon rate	3.43%	3.38%
Current loan size (\$ thousands)	\$ 340	\$ 338
Original FICO <sup>(2)</sup>	759	760
Original Loan-to-Value (LTV)	72%	72%
60+ day delinquencies	0.6%	0.7%
Net servicing fee (bps)	26.4	26.5
Loan age (months)	36	34
3-month CPR	5.4%	4.1%

## II. MSR PORTFOLIO<sup>(3)</sup>



## III. 30-YEAR MSR PREPAYMENT SPEEDS<sup>(4)</sup>



■ TBA's (Q2-2023)<sup>(5)</sup>
■ TWO MSR (Q2-2023)
   
◇ TBA's (Q1-2023)<sup>(5)</sup>
◇ TWO MSR (Q1-2023)

# Return Potential and Outlook

## ATTRACTIVE RETURN OPPORTUNITIES FOR UNIQUELY POSITIONED AGENCY RMBS AND MSR PORTFOLIO

PROSPECTIVE MARKET RETURNS As of June 30, 2023	PORTFOLIO MARKET VALUE (\$ millions)	INVESTED CAPITAL ALLOCATED <sup>(1)</sup>	STATIC MARKET RETURN ESTIMATE <sup>(2)</sup>		
<b>RMBS + MSR</b>					
MSR	3,274				
TBA <sup>(3)</sup>	4,427				
<b>Hedged MSR</b>	<b>7,701</b>	<b>62%</b>	<b>13%</b>	-	<b>16%</b>
<b>RMBS + RATES</b>					
Pools	8,603				
TBA <sup>(3)</sup>	(1,526)				
Other Securities	404				
<b>Hedged Securities</b>	<b>7,481</b>	<b>38%</b>	<b>11%</b>	-	<b>13%</b>

PROSPECTIVE TWO HARBORS RETURNS As of June 30, 2023	INVESTED CAPITAL (\$ millions)	STATIC TWO HARBORS RETURN ESTIMATE <sup>(4)</sup>		
<b>Total Portfolio Before Expenses</b>			<b>12.5%</b>	- <b>15.0%</b>
Operating and Tax Expenses <sup>(5)</sup>			(3.0)%	(3.0)%
<b>Total Portfolio After Expenses</b>			<b>9.5%</b>	- <b>12.0%</b>
<b>INVESTED CAPITAL</b>				
Convertible Notes	272		6.2%	
Preferred Equity	639		7.6%	
<b>Common Equity</b>	<b>1,593</b>		<b>10.9%</b>	- <b>14.9%</b>
<b>PROSPECTIVE QUARTERLY STATIC RETURN PER BASIC COMMON SHARE<sup>(6)</sup>:</b>			<b>\$0.45</b>	- <b>\$0.61</b>

- **Market Presence:** Our size allows us to be nimble and actively allocate capital to our paired Agency and MSR strategy
- **Investment Strategy:** Our portfolio is uniquely constructed with Agency RMBS and MSR; we believe this strategy will further benefit from the acquisition of RoundPoint, which will help us grow our MSR business, realize additional cost efficiencies and provide potential opportunities to more broadly capitalize in the mortgage finance space
- **Market Environment:** Agency spreads are historically wide and we believe are very attractive at their current levels, even in the absence of spread tightening; MSR in this market environment generate a very stable cash flow, with speeds that are historically low and very little duration and convexity
- **Financing and Liquidity:** We have a strong balance sheet and diversified financing for both Agency and MSR

Note: This slide presents estimates for illustrative purposes only, using Two Harbors' base case assumptions (e.g., spreads, prepayment speeds, financing costs and expenses), and does not contemplate market-driven value changes, active portfolio management, nonrecurring expenses or future impacts from the acquisition of RoundPoint Mortgage Servicing LLC. Actual results may differ materially.

An aerial photograph of a suburban neighborhood with white houses and green trees. A large, semi-transparent blue rectangle is overlaid on the center of the image. The word "Appendix" is written in white text in the center of the blue rectangle.

# Appendix

# Effective Coupon Positioning

Coupon (%)	TBA Market Price <sup>(1)</sup>	TBA Notional (\$m)	Specified Pools Par Value (\$m) <sup>(2)</sup>	MSR/Agency IO UPB (\$m) <sup>(3)</sup>	Combined (\$m)
<b>2.5%</b>	\$ 84.75	\$ 187	\$ 248	\$ —	\$ 435
<b>3.0%</b>	\$ 87.97	—	—	—	—
<b>3.5%</b>	\$ 91.09	670	80	—	750
<b>4.0%</b>	\$ 93.81	353	527	—	880
<b>4.5%</b>	\$ 96.13	189	2,889	—	3,078
<b>5.0%</b>	\$ 97.97	1,852	2,793	—	4,645
<b>5.5%</b>	\$ 99.53	50	1,405	(4,140)	(2,685)
<b>6.0%</b>	\$ 100.88	(250)	810	(331)	229
<b>Total</b>		<b>\$ 3,051</b>	<b>\$ 8,752</b>	<b>\$ (4,471)</b>	<b>\$ 7,332</b>

# Risk Positioning

## BOOK VALUE EXPOSURE TO CHANGES IN RATES

			% Change in Common Book Value			
2-Year Rate (basis points)	10-Year Rate (basis points)		Agency P&I RMBS/TBA	MSR/Agency IO RMBS <sup>(1)</sup>	Other <sup>(2)</sup>	Combined
-25	0	Bull Steepener <sup>(3)</sup>	2.4 %	0.7 %	(2.0)%	1.1 %
0	-25	Bull Flatteners <sup>(4)</sup>	6.0 %	(3.2)%	(4.4)%	(1.6)%
-50	-50	Parallel Shift <sup>(5)</sup>	16.5 %	(5.7)%	(13.0)%	(2.2)%
-25	-25	Parallel Shift <sup>(5)</sup>	8.5 %	(2.5)%	(6.5)%	(0.5)%
0	0	Base	— %	— %	— %	— %
+25	+25	Parallel Shift <sup>(5)</sup>	(8.9)%	2.0 %	6.3 %	(0.6)%
+50	+50	Parallel Shift <sup>(5)</sup>	(18.3)%	3.4 %	12.6 %	(2.3)%
+25	0	Bear Flatteners <sup>(3)</sup>	(2.2)%	(0.4)%	2.0 %	(0.6)%
0	+25	Bear Steepener <sup>(4)</sup>	(6.7)%	2.5 %	4.3 %	0.1 %

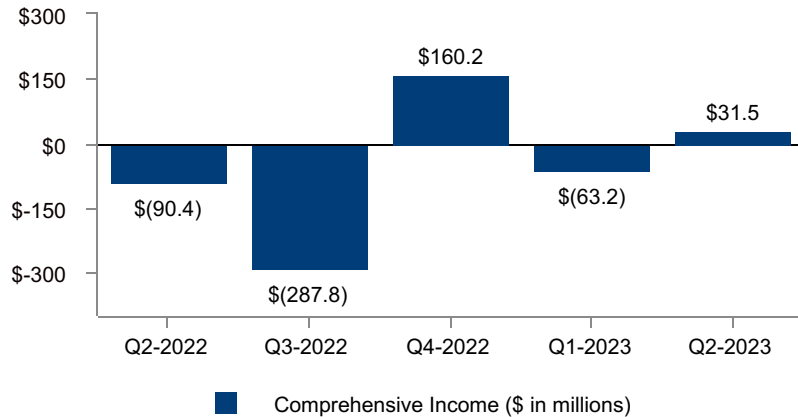
## BOOK VALUE EXPOSURE TO CURRENT COUPON SPREAD<sup>(6)</sup>

		% Change in Common Book Value		
Parallel Shift in Spreads (basis points)		Agency P&I RMBS/TBA	MSR/Agency IO RMBS <sup>(1)</sup>	Combined
-25		8.3 %	(3.0)%	5.3 %
0		— %	— %	— %
+25		(8.6)%	2.6 %	(6.0)%

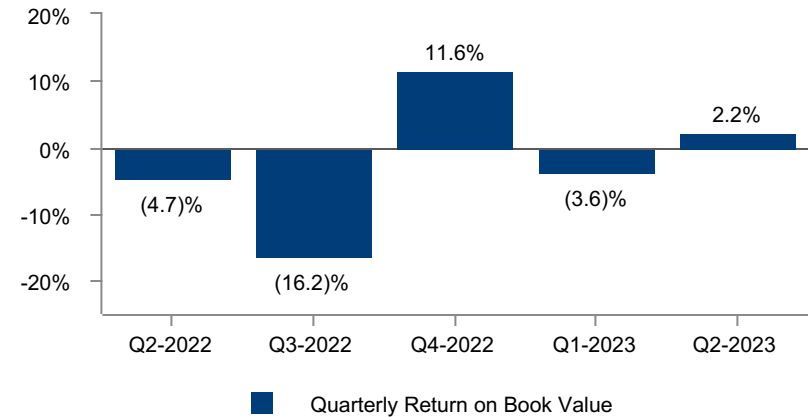
Note: Sensitivity data as of June 30, 2023. The above scenarios are provided for illustration purposes only and is not necessarily indicative of Two Harbors' financial condition and operating results, nor are they necessarily indicative of the financial condition or results of operations that may be expected for any future period or date.

# Financial Performance

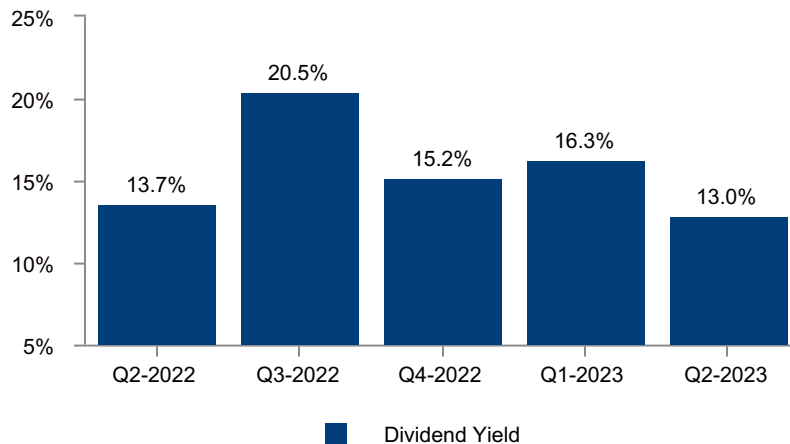
## COMPREHENSIVE (LOSS) INCOME



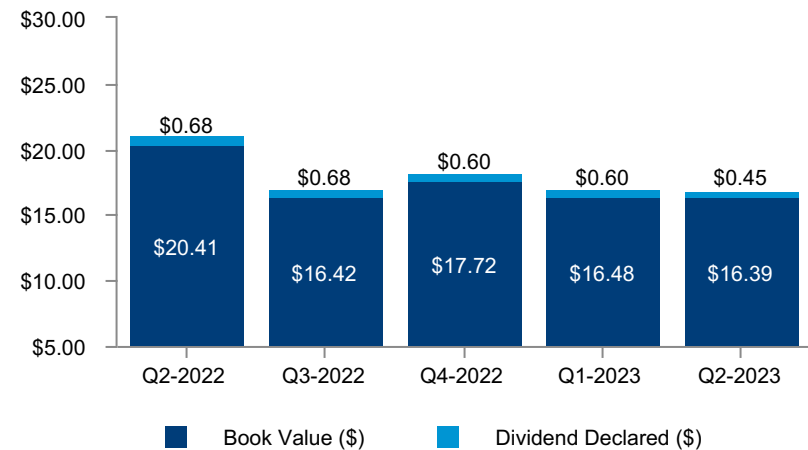
## QUARTERLY ECONOMIC RETURN ON BOOK VALUE<sup>(1)</sup>



## DIVIDEND YIELD<sup>(2)</sup>



## BOOK VALUE AND DIVIDEND PER COMMON SHARE<sup>(2)</sup>



# Comparison of GAAP and non-GAAP Measures

(\$ in thousands)	Comprehensive Income	Earnings Available for Distribution (EAD) <sup>(1)</sup>	Income Excluding Market-Driven Value Changes (IXM) <sup>(2)</sup>	
<b>RMBS and other Agency securities<sup>(3)</sup></b>				
Coupon income	\$ 112,678	\$ 112,678	\$ 112,678	
Amortization	(8,385)	(8,385)	(8,385)	
Realized and unrealized, and provision for credit losses	(156,911)	—	38,432	(4)
Funding expense	(111,317)	(111,317)	(111,317)	
<b>MSR</b>				
Servicing fee income	144,370	144,370	144,370	
Float, ancillary and other income	30,853	30,853	30,853	
Servicing expenses	(25,491)	(25,491)	(23,123)	(5)
Amortization	(60,517)	(91,836)	(60,517)	
Realized and unrealized, including change in servicing reserves	82,497	—	(11,977)	(6)
Funding expense	(43,552)	(43,552)	(43,552)	
<b>Derivatives and other</b>				
Swaps net interest spread	3,453	3,453	3,453	
Swaps and swaptions realized and unrealized	53,080	—	(4,004)	(7)
TBAs	(77,083)	(3,526)	10,717	(8)
U.S. Treasury futures	107,676	5,652	—	
Other futures	19,247	—	—	
Interest on cash, reverse repurchase agreements and other	15,767	13,566	13,566	(9)
<b>Expenses</b>				
Convertible debt interest expense	(4,692)	(4,692)	(4,692)	
Operating expenses	(20,754)	(11,885)	(13,620)	(10)
Tax benefit (expense) <sup>(11)</sup>	(19,780)	(1,490)	(3,266)	
<b>(Losses) earnings attributable to Two Harbors</b>	41,139	8,398	69,616	
Dividends on preferred stock	(12,115)	(12,115)	(12,115)	
Gain on repurchase and retirement of preferred stock	2,454	—	—	
<b>(Losses) earnings attributable to common stockholders</b>	<b>\$ 31,478</b>	<b>\$ (3,717)</b>	<b>\$ 57,501</b>	
<b>Annualized return on common equity</b>				
	<b>8.1%</b>	<b>(1.0)%</b>	<b>14.8%</b>	
<b>Quarterly return per weighted average basic common share</b>				
	<b>\$ 0.31</b>	<b>\$ (0.04)</b>	<b>\$ 0.60</b>	

For each of RMBS and MSR, combination of amounts represents price changes under realized forwards method<sup>(2)</sup>

# GAAP to IXM Reconciliation

Reconciliation of GAAP to non-GAAP Information (\$ thousands, except for per common share data)	Three Months Ended June 30, 2023	Three Months Ended March 31, 2023
<b>Comprehensive income (loss) attributable to common stockholders</b>	<b>\$ 31,478</b>	<b>\$ (63,242)</b>
Adjustments to exclude market-driven value changes and nonrecurring operating expenses:		
RMBS and other Agency securities market-driven value changes <sup>(1)</sup>	195,343	(107,556)
MSR market-driven value changes <sup>(2)</sup>	(94,172)	(34,469)
Swap and swaption market-driven value changes <sup>(3)</sup>	(57,085)	82,174
TBA market-driven value changes <sup>(4)</sup>	87,800	33,764
Realized and unrealized (gains) losses on futures	(126,923)	140,087
Other realized gains	(2,201)	—
Change in servicing reserves	(301)	1,564
Nonrecurring deboarding fees <sup>(5)</sup>	2,368	2,582
Other nonrecurring expenses	7,134	5,418
Gain on repurchase and retirement of preferred stock	(2,454)	—
Net provision for (benefit from) income taxes associated with market-driven value changes	16,514	(5,929)
<b>Income Excluding Market-Driven Value Changes to common stockholders</b>	<b>\$ 57,501</b>	<b>\$ 54,393</b>
Weighted average basic common shares	96,387,877	92,575,840
Income Excluding Market-Driven Value Changes per weighted average basic common share	\$ 0.60	\$ 0.59

Note: Income Excluding Market-Driven Value Changes, or IXM, is a non-GAAP measure defined as total comprehensive income attributable to common stockholders, excluding market-driven value changes on the aggregate portfolio, provision for income taxes associated with market-driven value changes, nonrecurring operating expenses and gains on the repurchase and retirement of preferred stock and convertible senior notes. As defined, IXM includes the realization of portfolio cash flows which incorporates actual prepayments, changes in portfolio accrued interest, recurring servicing income and servicing expenses, and certain modeled price changes. These modeled price changes are measured daily based on a “Realized Forwards” methodology, which includes the assumption that spreads, forward interest rates and volatility factored into the previous day ending fair value are unchanged. Assumptions for spreads, forward interest rates, volatility and the previous day ending fair value include applicable market data, data from third-party brokers and pricing vendors and management’s assessment. This applies to RMBS, MSR and derivatives, as applicable, and is net of all recurring operating expenses and provision for income taxes associated with IXM. IXM provides supplemental information to assist investors in analyzing the company’s results of operations and helps facilitate comparisons to industry peers. IXM is one of several measures the company’s board of directors considers to determine the amount of dividends to declare on the company’s common stock and should not be considered an indication of taxable income or as a proxy for the amount of dividends the company may declare.

# Q2-2023 Operating Performance



	Q2-2023			
(\$ millions, except for per common share data)	Earnings Available for Distribution <sup>(1)</sup>	Realized Gains (Losses)	Unrealized MTM	Total
Interest income	\$ 117.8	\$ —	\$ —	\$ 117.8
Interest expense	159.6	—	—	159.6
Net interest income	(41.8)	—	—	(41.8)
(Loss) gain on investment securities	—	(2.7)	4.9	2.2
Servicing income	175.2	—	—	175.2
(Loss) gain on servicing asset	(91.8)	—	113.5	21.7
Gain on interest rate swap and swaption agreements	3.5	—	53.0	56.5
Gain (loss) on other derivative instruments	2.2	(39.2)	84.2	47.2
Other income	—	2.2	—	2.2
Total other income (loss)	89.1	(39.7)	255.6	305.0
Servicing expenses	25.5	(0.3)	—	25.2
Operating expenses	11.9	8.9	—	20.8
Total expenses	37.4	8.6	—	46.0
Income (loss) before income taxes	9.9	(48.3)	255.6	217.2
Provision for income taxes	1.5	0.6	17.7	19.8
<b>Net income (loss)</b>	<b>8.4</b>	<b>(48.9)</b>	<b>237.9</b>	<b>197.4</b>
Dividends on preferred stock	(12.1)	—	—	(12.1)
Gain on repurchase and retirement of preferred stock	—	2.5	—	2.5
<b>Net (loss) income attributable to common stockholders</b>	<b>\$ (3.7)</b>	<b>\$ (46.4)</b>	<b>\$ 237.9</b>	<b>\$ 187.8</b>
(Loss) earnings per weighted average basic common share	\$ (0.04)	\$ (0.49)	\$ 2.47	\$ 1.94

# Q1-2023 Operating Performance



	Q1-2023			
(\$ millions, except for per common share data)	Earnings Available for Distribution(1)	Realized Gains (Losses)	Unrealized MTM	Total
Interest income	\$ 116.6	\$ —	\$ —	\$ 116.6
Interest expense	142.5	—	—	142.5
Net interest income	(25.9)	—	—	(25.9)
(Loss) gain on investment securities	—	(31.8)	42.6	10.8
Servicing income	153.3	—	—	153.3
(Loss) gain on servicing asset	(76.5)	0.5	47.9	(28.1)
Gain (loss) on interest rate swap and swaption agreements	3.6	(18.6)	(67.2)	(82.2)
Gain (loss) on other derivative instruments	6.8	(86.1)	(76.5)	(155.8)
Other income	—	—	—	—
Total other income (loss)	87.2	(136.0)	(53.2)	(102.0)
Servicing expenses	26.8	1.5	—	28.3
Operating expenses	13.1	11.5	—	24.6
Total expenses	39.9	13.0	—	52.9
Income (loss) before income taxes	21.4	(149.0)	(53.2)	(180.8)
Provision for (benefit from) income taxes	0.8	(2.2)	(2.5)	(3.9)
<b>Net income (loss)</b>	<b>20.6</b>	<b>(146.8)</b>	<b>(50.7)</b>	<b>(176.9)</b>
Dividends on preferred stock	(12.3)	—	—	(12.3)
Gain on repurchase and retirement of preferred stock	—	—	—	—
<b>Net income (loss) attributable to common stockholders</b>	<b>\$ 8.3</b>	<b>\$ (146.8)</b>	<b>\$ (50.7)</b>	<b>\$ (189.2)</b>
Earnings (loss) per weighted average basic common share	\$ 0.09	\$ (1.59)	\$ (0.55)	\$ (2.05)

# GAAP to EAD Reconciliation

Reconciliation of GAAP to non-GAAP Information (\$ thousands, except for per common share data)	Three Months Ended June 30, 2023	Three Months Ended March 31, 2023
<b>Comprehensive income (loss) attributable to common stockholders</b>	<b>\$ 31,478</b>	<b>\$ (63,242)</b>
Adjustment for other comprehensive loss (income) attributable to common stockholders:		
Unrealized loss (gain) on available-for-sale securities	156,306	(125,931)
<b>Net income (loss) attributable to common stockholders</b>	<b>\$ 187,784</b>	<b>\$ (189,173)</b>
Adjustments to exclude reported realized and unrealized (gains) losses:		
Realized loss on securities	2,640	31,909
Unrealized gain on securities	(4,834)	(42,565)
Provision (reversal of provision) for credit losses	22	(142)
Realized and unrealized (gain) loss on mortgage servicing rights	(21,679)	28,079
Realized loss on termination or expiration of interest rate swaps and swaptions	—	18,580
Unrealized (gain) loss on interest rate swaps and swaptions	(53,080)	67,184
Realized and unrealized (gain) loss on other derivative instruments	(47,063)	155,836
Gain on repurchase and retirement of preferred stock	(2,454)	—
Other realized and unrealized gains	(2,200)	—
Other adjustments:		
MSR amortization <sup>(1)</sup>	(91,836)	(76,558)
TBA dollar roll (losses) income <sup>(2)</sup>	(3,526)	6,341
U.S. Treasury futures income <sup>(3)</sup>	5,652	403
Change in servicing reserves	(301)	1,564
Non-cash equity compensation expense	1,735	6,052
Other nonrecurring expenses	7,134	5,418
Net provision for (benefit from) income taxes on non-EAD	18,290	(4,655)
<b>Earnings available for distribution to common stockholders</b>	<b>\$ (3,716)</b>	<b>\$ 8,273</b>
Weighted average basic common shares	96,387,877	92,575,840
Earnings available for distribution to common stockholders per weighted average basic common share	\$ (0.04)	\$ 0.09

Note: Earnings Available for Distribution, or EAD, is a non-GAAP measure that we define as comprehensive income (loss) attributable to common stockholders, excluding realized and unrealized gains and losses on the aggregate portfolio, gains and losses on repurchases of preferred stock, provision for (reversal of) credit losses, reserve expense for representation and warranty obligations on MSR, non-cash compensation expense related to restricted common stock, and other nonrecurring expenses. As defined, EAD includes net interest income, accrual and settlement of interest on derivatives, dollar roll income on TBAs, U.S. Treasury futures income, servicing income, net of estimated amortization on MSR and recurring cash related operating expenses. EAD provides supplemental information to assist investors in analyzing the Company's results of operations and helps facilitate comparisons to industry peers. EAD is one of several measures our board of directors considers to determine the amount of dividends to declare on our common stock and should not be considered an indication of our taxable income or as a proxy for the amount of dividends we may declare.

# Agency RMBS Portfolio

	Par Value (\$ millions)	Market Value (\$ millions)	Weighted Average CPR <sup>(1)</sup>	% Prepay Protected <sup>(2)</sup>	Amortized Cost Basis (\$ millions)	Gross Weighted Average Coupon	Weighted Average Age (Months)
<b>30-Year Fixed</b>							
≤ 2.5%	\$ 248	\$ 211	5.6 %	— %	\$ 212	3.3 %	24
3.0%	—	—	— %	— %	—	— %	—
3.5%	80	73	4.8 %	75.0 %	74	4.3 %	17
4.0%	527	498	7.4 %	100.0 %	532	4.6 %	43
4.5%	2,889	2,796	9.1 %	100.0 %	2,949	5.2 %	31
5.0%	2,793	2,754	7.2 %	100.0 %	2,846	5.8 %	14
5.5%	1,405	1,404	5.6 %	99.8 %	1,419	6.4 %	12
6.0%	810	822	9.3 %	99.8 %	831	6.9 %	11
≥ 6.5%	9	10	10.7 %	97.7 %	10	7.8 %	246
	8,761	8,568	7.7 %	97.3 %	8,873	5.6 %	21
<b>Other P&amp;I<sup>(3)</sup></b>	287	278	3.4 %	— %	279	5.1 %	12
<b>IOs and IIOs<sup>(4)</sup></b>	961	42	10.7 %	— %	58	5.8 %	170
<b>Total Agency RMBS</b>	<u>\$ 10,009</u>	<u>\$ 8,888</u>		<u>93.8 %</u>	<u>\$ 9,210</u>		

	Notional Amount (\$ millions)	Bond Equivalent Value (\$ millions) <sup>(5)</sup>	Through-the-Box Speeds <sup>(6)</sup>
<b>TBA Positions</b>			
≤ 2.5%	\$ 187	\$ 159	2.3 %
3.0%	—	—	2.4 %
3.5%	670	610	2.4 %
4.0%	353	331	3.1 %
4.5%	189	183	3.1 %
5.0%	1,852	1,815	5.4 %
5.5%	50	50	7.8 %
6.0%	(250)	(253)	12.0 %
≥ 6.5%	—	—	16.5 %
<b>Net TBA Position</b>	<u>\$ 3,051</u>	<u>\$ 2,895</u>	

# Mortgage Servicing Rights Portfolio<sup>(1)</sup>

	Number of Loans	Unpaid Principal Balance (\$ millions)	Gross Coupon Rate	Current Loan Size (\$ thousands)	Loan Age (months)	Original FICO <sup>(2)</sup>	Original LTV	60+ Day Delinquencies	3-Month CPR	Net Servicing Fee (bps)
<b>30-Year Fixed</b>										
≤ 3.25%	305,114	\$ 97,790	2.1%	\$ 378	29	768	71%	0.3%	4.4%	25.8
3.25% - 3.75%	149,620	39,340	3.4%	333	42	753	74%	0.7%	5.7%	26.2
3.75% - 4.25%	109,245	23,049	3.9%	277	64	751	76%	1.0%	6.9%	27.2
4.25% - 4.75%	61,741	11,481	4.4%	264	63	739	77%	1.8%	7.1%	26.3
4.75% - 5.25%	42,450	9,951	4.9%	356	33	745	79%	1.4%	5.6%	26.8
> 5.25%	59,734	16,800	5.9%	383	14	745	80%	0.9%	6.4%	29.5
	727,904	198,411	3.5%	350	36	758	74%	0.7%	5.3%	26.4
<b>15-Year Fixed</b>										
≤ 2.25%	23,033	6,241	2.0%	319	26	777	59%	0.1%	4.3%	25.2
2.25% - 2.75%	39,057	8,495	2.4%	267	30	772	59%	0.2%	5.7%	25.9
2.75% - 3.25%	35,543	4,999	2.9%	196	57	766	61%	0.3%	7.6%	26.2
3.25% - 3.75%	20,556	2,122	3.4%	154	70	756	64%	0.4%	9.3%	26.9
3.75% - 4.25%	9,628	841	3.9%	143	66	742	65%	0.8%	9.4%	28.5
> 4.25%	6,574	793	4.9%	224	29	741	65%	0.7%	11.5%	32.0
	134,391	23,491	2.6%	250	39	769	60%	0.2%	6.4%	26.2
<b>Total ARMs</b>	2,684	720	4.1%	355	52	761	70%	1.0%	16.8%	25.4
<b>Total Portfolio</b>	864,979	\$ 222,622	3.4%	\$ 340	37	759	72%	0.6%	5.5%	26.4

# Mortgage Servicing Rights UPB Roll-Forward



\$ millions	Q2-2023	Q1-2023	Q4-2022	Q3-2022	Q2-2022
UPB at beginning of period	\$ 212,445	\$ 204,877	\$ 206,614	\$ 227,074	\$ 229,416
Bulk purchases of mortgage servicing rights	14,234	10,713	—	—	—
Flow purchases of mortgage servicing rights	539	669	2,678	4,449	5,720
Sales of mortgage servicing rights	—	(143)	—	(19,807)	—
Scheduled payments	(1,595)	(1,527)	(1,538)	(1,565)	(1,697)
Prepaid	(2,993)	(2,120)	(2,440)	(3,709)	(6,027)
Other changes	(8)	(24)	(437)	172	(338)
UPB at end of period	\$ 222,622	\$ 212,445	\$ 204,877	\$ 206,614	\$ 227,074

# Financing

\$ millions						
Outstanding Borrowings and Maturities <sup>(1)</sup>	Repurchase Agreements	Revolving Credit Facilities	Term Notes Payable	Convertible Notes	Total Outstanding Borrowings	Percent (%)
Within 30 days	\$ 3,160.0	\$ —	\$ —	\$ —	\$ 3,160.0	28.2 %
30 to 59 days	1,833.3	—	—	—	1,833.3	16.4 %
60 to 89 days	1,433.2	—	—	—	1,433.2	12.8 %
90 to 119 days	1,339.3	—	—	—	1,339.3	12.0 %
120 to 364 days	1,302.0	329.0	398.7	—	2,029.7	18.1 %
One to three years	—	1,126.4	—	—	1,126.4	10.1 %
Three to five years	—	—	—	267.8	267.8	2.4 %
	\$ 9,067.8	\$ 1,455.4	\$ 398.7	\$ 267.8	\$ 11,189.7	100.0 %
Collateral Pledged for Borrowings	Repurchase Agreements <sup>(2)</sup>	Revolving Credit Facilities <sup>(2)</sup>	Term Notes Payable	Convertible Notes	Total Collateral Pledged	Percent (%)
Available-for-sale securities, at fair value	\$ 8,900.4	\$ —	\$ —	n/a	\$ 8,900.4	70.1 %
Mortgage servicing rights, at fair value	432.9	2,279.9	500.0	n/a	3,212.8	25.3 %
Restricted cash	277.9	—	0.2	n/a	278.1	2.2 %
Due from counterparties	248.6	—	—	n/a	248.6	1.9 %
Derivative assets, at fair value	12.1	—	—	n/a	12.1	0.1 %
Other assets (includes servicing advances)	—	49.3	—	n/a	49.3	0.4 %
	\$ 9,871.9	\$ 2,329.2	\$ 500.2	n/a	\$ 12,701.3	100.0 %

# Futures

Type & Maturity	Notional Amount (\$M)	Carrying Value (\$M) <sup>(1)</sup>	Weighted Average Days to Expiration
U.S. Treasury futures - 5 year	\$ (2,386)	\$ —	96
U.S. Treasury futures - 10 year	(1,676)	—	91
U.S. Treasury futures - 20 year	30	—	91
SOFR futures			
< 1 year	(1,322)	—	286
> 1 and < 2 years	(1,083)	—	540
> 2 and < 3 years	(188)	—	809
Total futures	\$ (6,625)	\$ —	255

# Interest Rate Swaps and Swaptions

INTEREST RATE SWAPS				
Maturities	Notional Amounts (\$B)	Average Fixed Pay Rate	Average Receive Rate	Average Maturity (Years)
<b>Payers</b>				
2024	\$ —	— %	— %	—
2025	—	— %	— %	—
2026	2.6	4.730 %	5.090 %	1.7
2027	—	— %	— %	—
2028 and Thereafter	3.1	3.508 %	5.090 %	6.5
	<u>\$ 5.7</u>	<u>4.099 %</u>	<u>5.090 %</u>	<u>4.2</u>
Maturities	Notional Amounts (\$B)	Average Pay Rate	Average Fixed Receive Rate	Average Maturity (Years)
<b>Receivers</b>				
2024	\$ —	— %	— %	—
2025	—	— %	— %	—
2026	1.8	5.090 %	3.899 %	1.7
2027	—	— %	— %	—
2028 and Thereafter	1.4	5.090 %	3.328 %	6.3
	<u>\$ 3.2</u>	<u>5.090 %</u>	<u>3.684 %</u>	<u>8.0</u>

INTEREST RATE SWAPTIONS							
Option					Underlying Swap		
Swaption	Expiration	Cost (\$M)	Fair Value (\$M)	Average Months to Expiration	Notional Amount (\$M)	Average Fixed Rate <sup>(1)</sup>	Average Term (Years)
Purchase Contracts:							
Payer	<6 Months	\$ 0.7	\$ 0.5	2.2	\$ 200.0	5.19 %	1.0
Sale Contracts:							
Payer	<6 Months	\$ (0.6)	\$ (0.2)	2.2	\$ (400.0)	5.72 %	1.0

# End Notes

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## PAGE 3 - Financials Overview

1. Includes \$12.3 billion in settled positions and \$2.9 billion net TBA position, which represents the bond equivalent value of the company's TBA position. Bond equivalent value is defined as notional amount multiplied by market price. Accounted for as derivative instruments in accordance with GAAP. For additional detail on the portfolio, see slide 12 and Appendix slides 25 and 26.
2. Economic return on book value is defined as the increase (decrease) in book value per common share from the beginning to the end of the given period, plus dividends declared in the period, divided by book value as of the beginning of the period.
3. Economic debt-to-equity is defined as total borrowings to fund Agency and non-Agency investment securities and MSR, plus the implied debt on net TBA cost basis and net payable (receivable) for unsettled RMBS, divided by total equity.
4. Income Excluding Market-Driven Value Changes, or IXM, is a non-GAAP measure. Please Appendix slide 21 for a definition of IXM and a reconciliation of GAAP to non-GAAP financial information.
5. Earnings Available for Distribution, or EAD, is a non-GAAP measure. Please see Appendix slide 24 for a definition of EAD and a reconciliation of GAAP to non-GAAP financial information.

## PAGE 4 - Markets Overview

1. Bloomberg data as of the dates noted.
2. Source: J.P. Morgan DataQuery. Data as of July 19, 2023.

## PAGE 6 - Book Value Summary

1. Earnings Available for Distribution, or EAD, is a non-GAAP measure. Please see Appendix slide 24 for a definition of EAD and a reconciliation of GAAP to non-GAAP financial information.
2. Economic return on book value is defined as the increase (decrease) in book value per common share from the beginning to the end of the given period, plus dividends declared in the period, divided by book value as of the beginning of the period.
3. Includes 225,886 Series A, 215,072 Series B and 72,860 Series C preferred shares.

## PAGE 7 - Results and Return Contributions

1. Income Excluding Market-Driven Value Changes, or IXM, is a non-GAAP measure. Please Appendix slide 21 for a definition of IXM and a reconciliation of GAAP to non-GAAP financial information.
2. RMBS and other Agency securities includes inverse interest-only Agency RMBS which are accounted for as derivative instruments in accordance with GAAP.

# End Notes (continued)

## PAGE 8 - Earnings Available for Distribution

1. MSR 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.
2. TBA dollar roll income is the economic equivalent to holding and financing Agency RMBS using short-term repurchase agreements.
3. U.S. Treasury futures income is the economic equivalent to holding and financing a relevant cheapest-to-deliver U.S. Treasury note or bond using short-term repurchase agreements.
4. Earnings Available for Distribution, or EAD, is a non-GAAP measure. Please see Appendix slide 24 for a definition of EAD and a reconciliation of GAAP to non-GAAP financial information.
5. Agency fixed-rate RMBS use the GAAP concept of amortized cost and yield-to-maturity determined at time of purchase. Net servicing income and MSR amortization is based on original pricing yield and does not include the benefit of increased float income and lower compensating interest. Financing costs are largely variable and short-term, responding more quickly to rising rates than our longer term assets. U.S. Treasury futures income represents the sum of the implied net cash and expected change in price of a financed U.S. Treasury security, but excludes unexpected price change.

## PAGE 9 - Portfolio Yields and Financing Costs

1. Includes interest income, net of premium amortization/discount accretion, on Agency and non-Agency investment securities, servicing income, net of estimated amortization and servicing expenses, on MSR, and the implied asset yield portion of dollar roll income on TBAs. Amortization on MSR 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. Amortized cost on MSR for a given period equals the net present value of the remaining future cash flows (obtained by applying original prepayment assumptions to the actual unpaid principal balance at the start of the period) using a discount rate equal to the original pricing yield. Original pricing yield is the discount rate which makes the net present value of the cash flows projected at purchase equal to the purchase price. MSR amortized cost is deemed a non-GAAP measure due to the company's decision to account for MSR at fair value.
3. Represents inverse interest-only Agency RMBS which are accounted for as derivative instruments in accordance with GAAP.
4. Both the implied asset yield and implied financing benefit/cost of dollar roll income on TBAs are calculated using the average cost basis of TBAs as the denominator. TBA dollar roll income is the non-GAAP economic equivalent to holding and financing Agency RMBS using short-term repurchase agreements. TBAs are accounted for as derivative instruments in accordance with GAAP.
5. 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, interest spread income/expense and amortization of upfront payments made or received upon entering into interest rate swap agreements, and 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.
6. Unsecured convertible senior notes.
7. The cost of financing on interest rate swaps held to mitigate interest rate risk associated with the company's outstanding borrowings is calculated using average borrowings balance as the denominator.
8. The cost of financing on U.S. Treasury futures held to mitigate interest rate risk associated with the company's outstanding borrowings is calculated using average borrowings balance as the denominator. U.S. Treasury futures income is the economic equivalent to holding and financing a relevant cheapest-to-deliver U.S. Treasury note or bond using short-term repurchase agreements.

# End Notes (continued)

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## PAGE 10 - Strong Balance Sheet and Liquidity Position

1. Source: Bloomberg. Represents the average spread between repurchase rates and the Secured Overnight Financing Rate (SOFR) over trailing 3-month and 6-month periods between Q2 2019 and Q2 2023 (as of June 30, 2023).
2. Balance of 5-year MSR term notes excludes deferred debt issuance costs.

## PAGE 11 - RMBS Market Conditions

1. Source: J.P. Morgan DataQuery. Data is model-based and represents universal mortgage-backed securities (UMBS) TBA spreads as of the dates noted. In 2023, J.P. Morgan updated their model affecting only 2023 data.
2. Source: Internally-generated data. Data as of June 30, 2023.

## PAGE 12 - Quarterly Activity and Portfolio Composition

1. For additional detail on the portfolio, see Appendix slides 25 and 26.
2. Economic debt-to-equity is defined as total borrowings to fund Agency and non-Agency investment securities and MSR, plus the implied debt on net TBA cost basis and net payable (receivable) for unsettled RMBS, divided by total equity.
3. Net TBA position represents the bond equivalent value of the company's TBA position. Bond equivalent value is defined as notional amount multiplied by market price. Accounted for as derivative instruments in accordance with GAAP.
4. Specified pools include securities with implicit or explicit prepayment protection including lower loan balances (securities collateralized by loans less than or equal to \$300K of initial principal balance), higher LTVs (securities collateralized by loans with greater than or equal to 80% LTV), certain geographic concentrations, loans secured by investor-owned properties, and lower FICO scores, as well as securities without such protection, including large bank-serviced and others.

## PAGE 13 - Specified Pools

1. Specified pools include securities with implicit or explicit prepayment protection including lower loan balances (securities collateralized by loans less than or equal to \$300K of initial principal balance), higher LTVs (securities collateralized by loans with greater than or equal to 80% LTV), certain geographic concentrations, loans secured by investor-owned properties, and lower FICO scores, as well as securities without such protection, including large bank-serviced and others.
2. Represents UMBS generic TBA performance during the quarter.
3. Specified pool performance excludes certain coupons in which we were not invested for the full duration of the quarter.
4. Specified pool market value by coupon as of June 30, 2023.
5. Three month prepayment speeds of delivered TBA contracts; average of J.P. Morgan, Credit Suisse, and Citi data.

# End Notes (continued)

## PAGE 14 - Mortgage Servicing Rights

1. MSR portfolio based on the loans underlying the MSR reported by subservicers on a month lag, adjusted for current month purchases. Portfolio metrics, other than fair value and UPB, represent averages weighted by UPB.
2. FICO represents a mortgage industry accepted credit score of a borrower.
3. MSR portfolio based on the loans underlying the MSR reported by subservicers on a month lag, adjusted for current month purchases and excluding unsettled MSR on loans for which the company is the named servicer.
4. MSR portfolio based on the loans underlying the MSR reported by subservicers on a month lag, adjusted for current month purchases and excluding unsettled MSR on loans for which the company is the named servicer as well as MSR on loans recently settled for which transfer to the company is not yet complete.
5. Three month prepayment speeds of delivered TBA contracts; average of J.P. Morgan, Credit Suisse, and Citi data.

## PAGE 15 - Return Potential and Outlook

1. Capital allocated represents management's internal allocation. Certain financing balances and associated interest expenses are allocated between investments based on management's assessment of leverage ratios and required capital or liquidity to support the investment.
2. Market return estimates reflect static assumptions using quarter-end spreads and market data.
3. Net TBA position represents the bond equivalent value of the company's TBA position. Bond equivalent value is defined as notional amount multiplied by market price. Accounted for as derivative instruments in accordance with GAAP.
4. Estimated return on invested capital reflects static return assumptions using quarter end portfolio valuations.
5. Total expenses includes operating expenses and tax expense within the company's taxable REIT subsidiaries.
6. Prospective quarterly static return estimate per basic common share reflects portfolio performance expectations given current market conditions and represents the comprehensive income attributable to common stockholders (net of dividends on preferred stock).

## PAGE 17 - Effective Coupon Positioning

1. Represents UMBS TBA market prices as of June 30, 2023.
2. Specified pools include securities with implicit or explicit prepayment protection including lower loan balances (securities collateralized by loans less than or equal to \$300K of initial principal balance), higher LTVs (securities collateralized by loans with greater than or equal to 80% LTV), certain geographic concentrations, loans secured by investor-owned properties, and lower FICO scores, as well as securities without such protection, including large bank-serviced and others.
3. MSR/Agency IO represents an internally calculated exposure of a synthetic TBA position and the current coupon equivalents of our MSR, including the effect of unsettled MSR, and Agency IO RMBS.

# End Notes (continued)

## PAGE 18 - Risk Positioning

1. MSR/Agency IO RMBS includes the effect of unsettled MSR.
2. Other includes all other derivative assets and liabilities and borrowings. Other excludes TBAs, which are included in the Agency P&I RMBS/TBA category.
3. Bull Steepener/Bear Flatteners is a shift in short-term rates that represents estimated change in common book value for theoretical non-parallel shifts in the yield curve. Analysis uses a +/- 25 basis point shift in 2-year rates while holding long-term rates constant.
4. Bull Flatteners/Bear Steepener is a shift in long-term rates that represents estimated change in common book value for theoretical non-parallel shifts in the yield curve. Analysis uses a +/- 25 basis point shift in 10-year rates while holding short-term rates constant.
5. Parallel shift represents estimated change in common book value for theoretical parallel shift in interest rates.
6. Book value exposure to current coupon represents estimated change in common book value for theoretical parallel shifts in spreads.

## PAGE 19 - Financial Performance

1. Economic return on book value is defined as the increase (decrease) in book value per common share from the beginning to the end of the given period, plus dividends declared in the period, divided by the book value as of the beginning of the period.
2. Historical dividends may not be indicative of future dividend distributions. The company ultimately distributes dividends based on its taxable income per common share, not GAAP earnings. The annualized dividend yield on the company's common stock is calculated based on the closing price of the last trading day of the relevant quarter.

## PAGE 20 - Comparison of GAAP and non-GAAP Measures

1. Earnings Available for Distribution, or EAD, is a non-GAAP measure. Please see Appendix slide 24 for a definition of EAD and a reconciliation of GAAP to non-GAAP financial information.
2. Income Excluding Market-Driven Value Changes, or IXM, is a non-GAAP measure. Please Appendix slide 21 for a definition of IXM and a reconciliation of GAAP to non-GAAP financial information.
3. RMBS and other Agency securities includes inverse interest-only Agency RMBS which are accounted for as derivative instruments in accordance with GAAP.
4. RMBS and other Agency securities daily price change based on Realized Forwards for IXM is equal to the previous day ending fair value multiplied by the sum of the risk-free rate and zero-volatility OAS, less coupon income. RMBS and other Agency securities daily price change for IXM is reflected as the sum of amortization and realized and unrealized, and provision for credit losses.
5. Servicing expenses for IXM excludes debonding fees associated with one-time transfers of MSR.
6. MSR daily price change based on Realized Forwards for IXM is equal to the previous day ending fair value multiplied by the the sum of the risk-free rate and zero-volatility OAS, less service fee income and recurring servicing expenses. MSR daily price change for IXM is reflected as the sum of amortization and realized and unrealized, including change in servicing reserves.
7. Swaps daily IXM is equal to the previous day ending fair value multiplied by the overnight SOFR, which is reflected as the sum of swap net interest spread and swap realized and unrealized. Swaptions daily IXM is equal to the previous day ending fair value multiplied by the realized forward rate.
8. TBAs daily income for IXM is equal to the zero-volatility OAS less the implied repo spread, multiplied by the previous day ending fair value.
9. Other income for IXM excludes gains on repurchases of convertible senior notes.
10. Operating expenses for IXM excludes other nonrecurring expenses.
11. Tax benefit (expense) for each GAAP and non-GAAP metric includes the estimated tax expense associated with each pre-tax GAAP and non-GAAP metric earned or incurred in the company's taxable REIT subsidiaries, or TRSs.

# End Notes (continued)

## PAGE 21 - GAAP to IXM Reconciliation

1. RMBS and other Agency securities market-driven value changes refers to the sum of interest income, realized and unrealized gains and losses on RMBS and other Agency securities, less the sum of the realization of RMBS and other Agency securities cash flows which incorporates actual prepayments, changes in RMBS and other Agency securities accrued interest, and modeled price changes. Modeled price changes are measured daily based on a “Realized Forwards” methodology, which includes the assumption that spreads, forward interest rates and volatility factored into the previous day ending fair value are unchanged. RMBS and other Agency securities includes inverse interest-only Agency RMBS which are accounted for as derivative instruments in accordance with GAAP.
2. MSR market-driven value changes refers to the sum of servicing income, servicing expenses, realized and unrealized gains and losses on MSR, less the sum of the realization of MSR cash flows which incorporates actual prepayments, recurring servicing income and servicing expenses, and modeled price changes. Modeled price changes are measured daily based on a “Realized Forwards” methodology, which includes the assumption that spreads, forward interest rates and volatility factored into the previous day ending fair value are unchanged.
3. Swap and swaption market-driven value changes refers to the net interest spread and realized and unrealized gains and losses on interest rate swap and swaption agreements, less the swaps daily IXM that is equal to the previous day ending fair value multiplied by the overnight SOFR and swaptions daily IXM that is equal to the previous day ending fair value multiplied by the realized forward rate.
4. TBA market-driven value changes refers to the total realized and unrealized gains and losses, less the daily zero-volatility OAS less the implied repo spread, multiplied by the previous day ending fair value.
5. Nonrecurring deboarding fees are associated with one-time transfers of MSR.

## PAGE 22 - Q2-2023 Operating Performance

1. Earnings Available for Distribution, or EAD, is a non-GAAP measure. Please see Appendix slide 24 for a definition of Earnings Available for Distribution and a reconciliation of GAAP to non-GAAP financial information.

## PAGE 23 - Q1-2023 Operating Performance

1. Earnings Available for Distribution, or EAD, is a non-GAAP measure. Please see Appendix slide 24 for a definition of Earnings Available for Distribution and a reconciliation of GAAP to non-GAAP financial information.

## PAGE 24 - GAAP to EAD Reconciliation

1. MSR 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.
2. TBA dollar roll income is the economic equivalent to holding and financing Agency RMBS using short-term repurchase agreements.
3. U.S. Treasury futures income is the economic equivalent to holding and financing a relevant cheapest-to-deliver U.S. Treasury note or bond using short-term repurchase agreements.

# End Notes (continued)

## PAGE 25 - Agency RMBS Portfolio

1. Weighted average actual 1 month CPR released at the beginning of the following month based on RMBS held as of the preceding month-end.
2. Determination of the percentage of prepay protected 30-year fixed Agency RMBS includes securities with implicit or explicit prepayment protection including lower loan balances (securities collateralized by loans less than or equal to \$300K of initial principal balance), higher LTVs (securities collateralized by loans with greater than or equal to 80% LTV), certain geographic concentrations, loans secured by investor-owned properties, and lower FICO scores.
3. Other P&I includes 15-year fixed, Hybrid ARMs, CMO and DUS pools.
4. IOs and IIOs represent market value of \$12.4 million of Agency derivatives and \$29.9 million of interest-only Agency RMBS. Agency derivatives are inverse interest-only Agency RMBS which are accounted for as derivative instruments in accordance with GAAP.
5. Bond equivalent value is defined as the notional amount multiplied by market price. Accounted for as derivative instruments in accordance with GAAP.
6. Three month prepayment speeds of delivered TBA contracts; average of J.P. Morgan, Credit Suisse, and Citi data.

## PAGE 26 - Mortgage Servicing Rights Portfolio

1. MSR portfolio excludes residential mortgage loans for which the company is the named servicing administrator. Portfolio metrics, other than fair value and UPB, represent averages weighted by UPB.
2. FICO represents a mortgage industry accepted credit score of a borrower.

## PAGE 28 - Financing

1. Outstanding borrowings have a weighted average of 5.5 months to maturity.
2. Repurchase agreements and revolving credit facilities secured by MSR and/or other assets may be over-collateralized due to operational considerations.

## PAGE 29 - Futures

1. Exchange-traded derivative instruments (futures and options on futures) require the posting of 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 receipt or payment of variation margin is accounted for as a direct reduction to the carrying value of the exchange-traded derivative asset or liability.

## PAGE 30 - Interest Rate Swaps and Swaptions

1. As of June 30, 2023, 100% of the underlying swap floating rates were tied to SOFR.



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