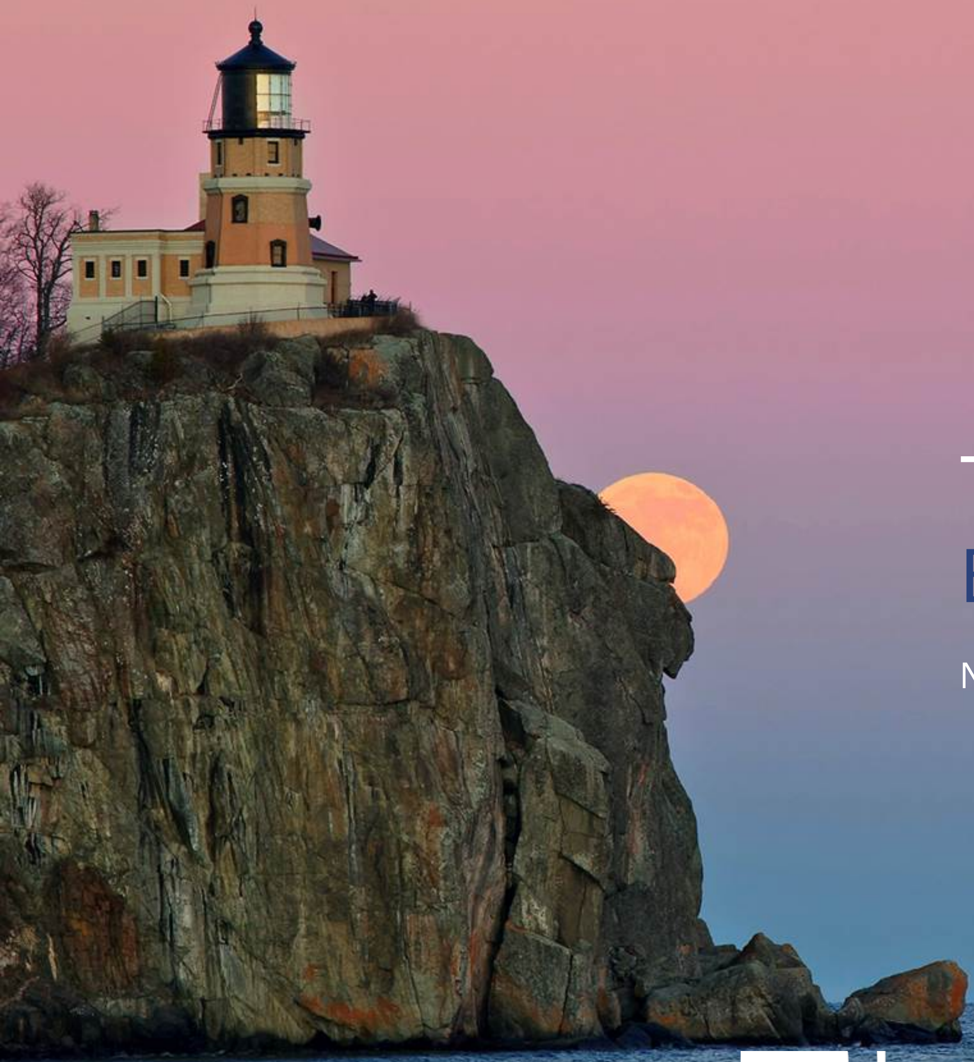


Third Quarter 2019
Earnings Call

NOVEMBER 6, 2019

TWO HARBORS
Investment Corp.
A Pine River Capital Managed Company

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, 2018, 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; the occurrence, extent and timing of credit losses within our portfolio; the concentration of credit risks we are exposed to; 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 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.

Readers are cautioned not to place undue reliance upon any forward-looking statements, which speak only as of the date made. Two Harbors does not undertake or accept any obligation to release publicly any updates or revisions to any forward-looking statement to reflect any change in its expectations or any change in events, conditions or circumstances on which any such statement is based. Additional information concerning these and other risk factors is contained in Two Harbors' most recent filings with the Securities and Exchange Commission (SEC). All subsequent written and oral forward-looking statements concerning Two Harbors or matters attributable to Two Harbors or any person acting on its behalf are expressly qualified in their entirety by the cautionary statements above.

This presentation may include industry and market data obtained through research, surveys, and studies conducted by third parties and industry publications. We have not independently verified any such market and industry data from third-party sources. This presentation is provided for discussion purposes only and may not be relied upon as legal or investment advice, nor is it intended to be inclusive of all the risks and uncertainties that should be considered. This presentation does not constitute an offer to purchase or sell any securities, nor shall it be construed to be indicative of the terms of an offer that the parties or their respective affiliates would accept.

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.

Quarterly Summary

Strong Economic Return of 6.7% in Volatile Environment[1]

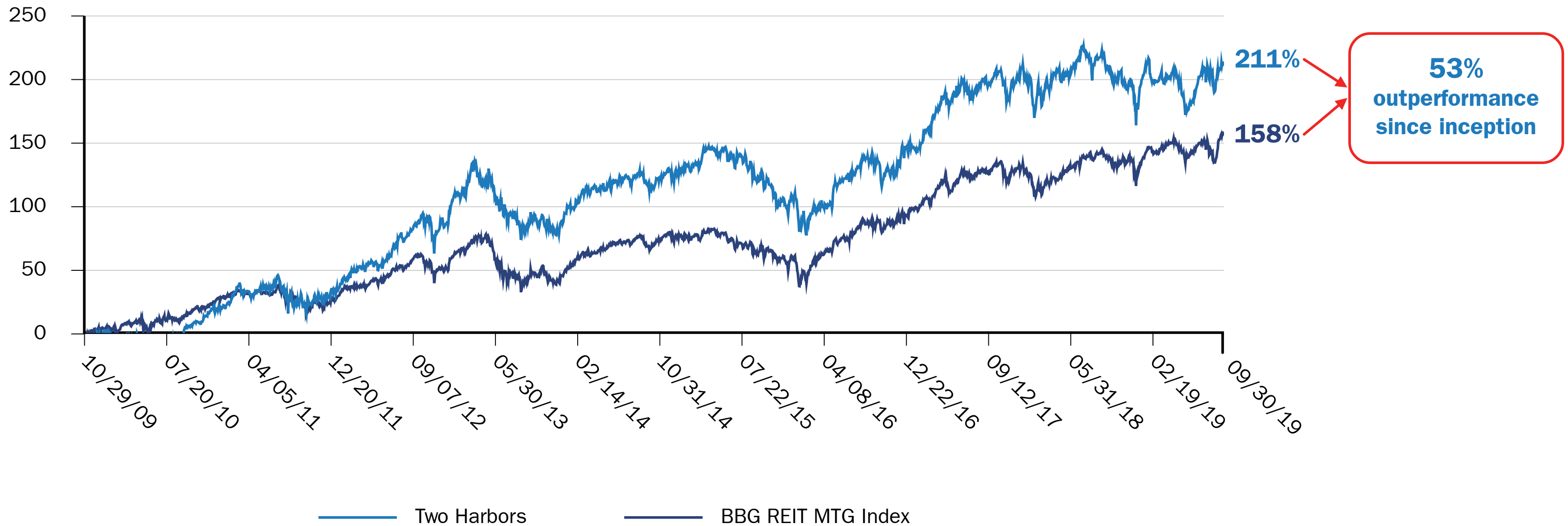
- Grew book value to $14.72 per common share, representing a 6.7% quarterly total return on book value. Total return on book value for the first nine months of 2019 of 22.0%.[1]
- Generated Comprehensive Income of $257.6 million, or $0.94 per weighted average basic common share, representing an annualized return on average common equity of 25.7%.
- Reported Core Earnings, including dollar roll income, of $65.0 million, or $0.24 per weighted average basic common share.[2]
- Added $5.8 billion in unpaid principal balance (UPB) of MSR through flow sale arrangements. Post quarter-end, closed on two bulk MSR acquisitions for a total of $11.1 billion UPB.

(1) Economic return is defined as return on book value. 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) Core Earnings, including dollar roll income, is a non-GAAP measure. Please see Appendix slide 19 of this presentation for a definition of Core Earnings, including dollar roll income, and a reconciliation of GAAP to non-GAAP financial information. A description of the updated MSR amortization method utilized by the company to calculate Core Earnings, including dollar roll income, is also provided.

Focused on Generating Long-Term Stockholder Value

DELIVERED TOTAL STOCKHOLDER RETURN OF 211% SINCE INCEPTION(1)



KEY DIFFERENTIATING FACTORS

1. Strategy of pairing MSR with Agency RMBS
2. Utilize a variety of instruments to hedge interest rate exposure
3. Unique portfolio of legacy non-Agency securities

✓ **Generated 11.4% book value growth since inception in 2009(2)**

(1) Two Harbors' total stockholder return is calculated for the period October 29, 2009 through September 30, 2019. Total stockholder return is defined as stock price appreciation including dividends. Source: Bloomberg. Bloomberg REIT Mortgage Index total stockholder return for the period October 29, 2009 through September 30, 2019. The Bloomberg REIT Mortgage Index tracks publicly traded REITs whose principal business consists of originating, servicing or investing in residential mortgage interests. The index uses a modified market capitalization weighted methodology, and components are reviewed quarterly for eligibility. Source: Bloomberg.
(2) Book value growth since inception is measured from December 31, 2009 through September 30, 2019. Quarterly book values have been adjusted for each quarter from Q1 2013 forward to include $1.88 of stock distributions associated with the special dividend of Silver Bay Realty Trust ("Silver Bay") and, beginning in Q4 2017, $3.67 of stock distributions associated with the special dividend of Granite Point Mortgage Trust Inc. ("Granite Point") common stock.

Book Value

(Dollars in millions, except per share data)	Q3-2019 Book Value	Q3-2019 Book Value per share	YTD-2019 Book Value	YTD-2019 Book Value per share
Beginning common stockholders' equity	**$ 3,867.5**	**$ 14.17**	**$ 3,253.2**	**$ 13.11**
GAAP Net Income:				
Core Earnings, including dollar roll income, net of tax[(1)]	84.0		350.6	
Dividend declaration - preferred	(19.0)		(56.9)	
Core Earnings attributable to common stockholders, including dollar roll income, net of tax[(1)]	65.0		293.7	
Realized and unrealized gains and losses, net of tax	221.7		(161.4)	
Other comprehensive (loss) income, net of tax	(29.1)		637.6	
Dividend declaration - common	(109.2)		(346.6)	
Other	2.2		6.1	
Issuance of common stock, net of offering costs	0.2		335.7	
Ending common stockholders' equity	**$ 4,018.3**	**$ 14.72**	**$ 4,018.3**	**$ 14.72**
Total preferred stock liquidation preference	1,001.3		1,001.3	
Ending total equity	**$ 5,019.6**		**$ 5,019.6**	

Comprehensive Income (GAAP)

Generated Q3-2019 Comprehensive Income of $257.6 million, or $0.94 per basic common share.

(1) Core Earnings, including dollar roll income, is a non-GAAP measure. Please see Appendix slide 19 for a definition of Core Earnings, including dollar roll income, and a reconciliation of GAAP to non-GAAP financial information.

Core Earnings Summary[1]

(Dollars in millions, except per share data)	Q2-2019	Q3-2019	Variance ($)
Interest income	$ 269.1	$ 251.1	$ (18.0)
Interest expense	192.4	191.1	1.3
Net interest income	76.7	60.0	(16.7)
Servicing income, net of amortization on MSR	52.7	52.7	—
Gain on swaps, caps and swaptions	22.9	19.1	(3.8)
Gain on other derivatives	16.7	—	(16.7)
Other	0.5	0.4	(0.1)
Total other income	92.8	72.2	(20.6)
Expenses	42.9	46.2	(3.3)
Provision for income taxes	1.6	2.0	(0.4)
Core Earnings, including dollar roll income[1]	**125.0**	**84.0**	**(41.0)**
Dividends on preferred stock	19.0	19.0	—
Core Earnings, including dollar roll income attributable to common stockholders[1]	**$ 106.0**	**$ 65.0**	**$ (41.0)**
Basic weighted average Core EPS, including dollar roll income	**$ 0.39**	**$ 0.24**	
Core Earnings, including dollar roll income, annualized return on average common equity	**11.1%**	**6.5%**	

- Third quarter Core Earnings, including dollar roll income, was primarily impacted by:
  - ($0.04) - increased premium amortization on Agency RMBS due to higher prepayment speeds
  - ($0.03) - sale of higher yielding non-Agency securities
  - ($0.06) - lower TBA dollar roll income from higher implied financing costs and prepayment speeds
  - In aggregate, the elevated repo/LIBOR spread resulted in $0.05 drag on Core Earnings in Q3-19, compared to $0.02 in Q2-19

(1) Core Earnings, including dollar roll income, is a non-GAAP measure. Please see Appendix slide 19 for a definition of Core Earnings, including dollar roll income, and a reconciliation of GAAP to non-GAAP financial information.

Performance Summary

- Lower portfolio yield driven by rotation from higher yielding non-Agency securities to lower yielding Agency securities
- Lower Agency RMBS also driven by higher amortitzation due to higher prepayment speeds

	Realized Q2-2019	Realized Q3-2019	As of September 30, 2019
Annualized portfolio yield	**3.93%**	**3.67%**	**3.65%**
Rates			
Agency RMBS, Agency Derivatives and MSR	3.67%	3.47%	3.46%
Credit			
Non-Agency securities	6.00%	5.26%	5.18%
Annualized cost of funds(1)	**2.55%**	**2.51%**	**2.40%**
Annualized interest rate spread for aggregate portfolio	**1.38%**	**1.16%**	**1.25%**

(1) Cost of funds includes interest spread income/expense associated with the portfolio's interest rate swaps and caps.

Financing Profile and Capital Structure

ECONOMIC DEBT-TO-EQUITY[1]

- 7.2x at September 30, 2019, compared to 7.8x at June 30, 2019
- Average of 7.2x in both the third and second quarters of 2019

RATES – AGENCY RMBS

- Outstanding repurchase agreements of $24.1 billion with 24 counterparties
- Outstanding secured FHLB advances of $50.0 million
- Benefitted from position in longer-dated maturities during the spike in repo rates; continue to focus on managing and laddering repo maturities to minimize exposure to changes in spreads and rates

RATES – MSR

- Outstanding borrowings of $562.9 million under bilateral MSR financing facilities
- Total bilateral facilities financing capacity of $790.0 million
- $400 million of outstanding 5-year MSR term notes[2]

CREDIT – NON-AGENCY SECURITIES

- Outstanding repurchase agreements of $1.2 billion with 8 counterparties
- Haircuts and spreads continue to be favorable

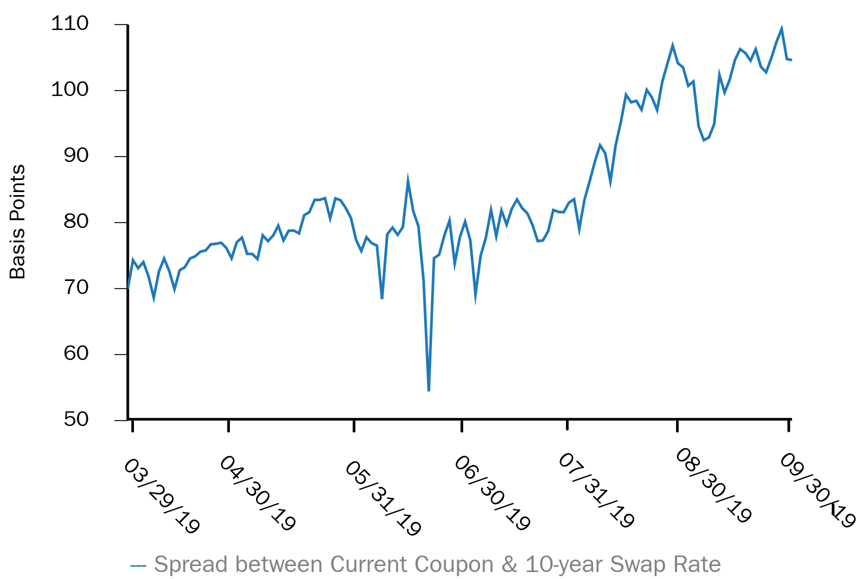
(1) Defined as total borrowings to fund RMBS, MSR and Agency Derivatives, plus the implied debt on net TBA positions, divided by total equity.
(2) Excludes deferred debt issuance costs.

Markets and Performance Overview - Rates

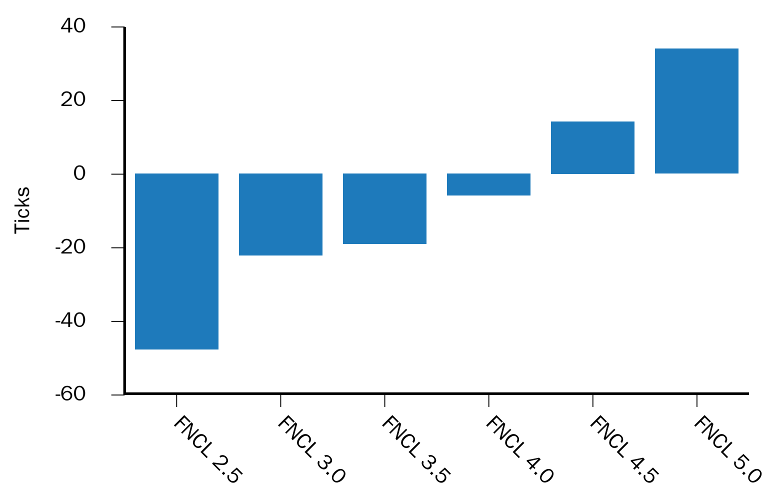
MARKET OVERVIEW

- Current coupon widened 8 basis points in Q2 and 27 basis points in Q3
- MSR prices declined in chorus with the mortgage rate change rather than 5-year and 10-year swap rates
- Position in higher coupon Agencies benefitted performance
- Specified pools increased in value as demand for prepay protected collateral increased

CURRENT COUPON SPREAD[1]



HEDGED MORTGAGE PERFORMANCE[2]



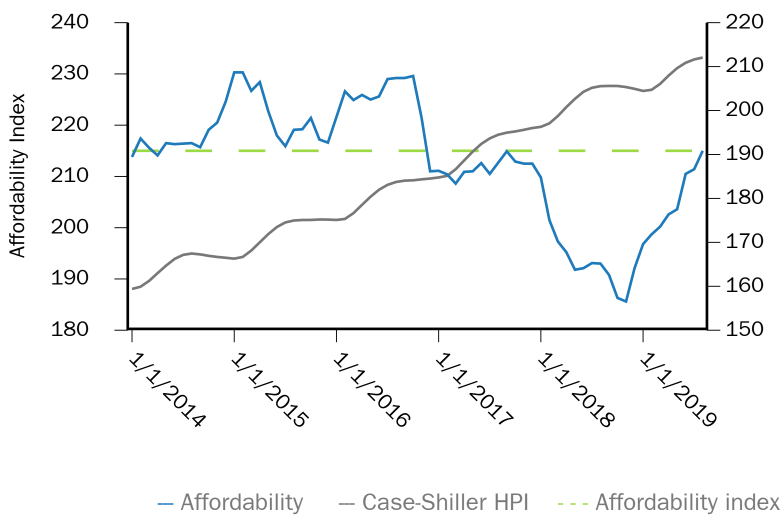
(1) Source: Bloomberg, as of September 30, 2019.
(2) Source: J.P. Morgan Data Query, as of September 30, 2019. Hedged third quarter mortgage total return.

Markets and Performance Overview - Credit

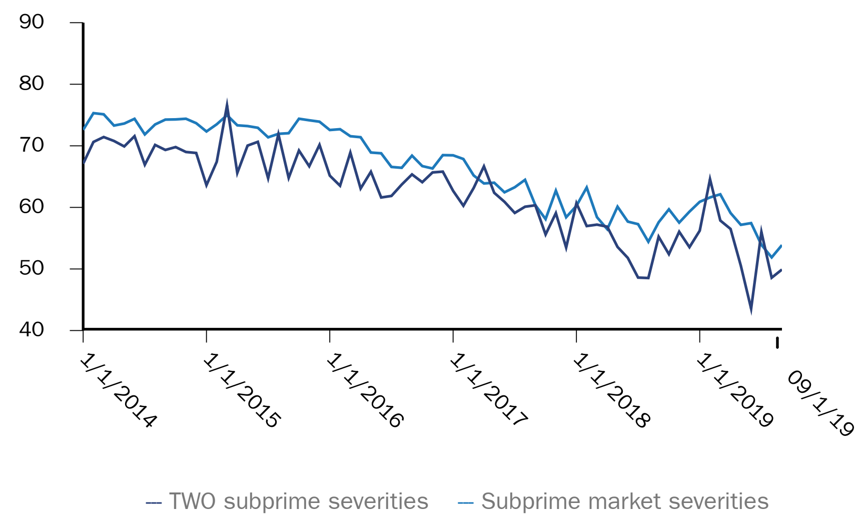
MARKET OVERVIEW

- Low mortgage rates have offset steadily increasing HPA, keeping affordability within recent context
- This should allow for increased mobility, higher prepayments, and better overall expected returns
- Declining losses over time have provided important tailwind to performance of subprime securities
- Portfolio severities are lower than market, indicating superior security selection

AFFORDABILITY[1]



HISTORICAL LOSS SEVERITIES[2]



(1) Source: Nomura Securities International research, CoreLogic, National Association of Realtors, Freddie Mac and Haver as of September 16, 2019.
(2) Source: Two Harbors' portfolio data and CoreLogic, as of September 1, 2019.

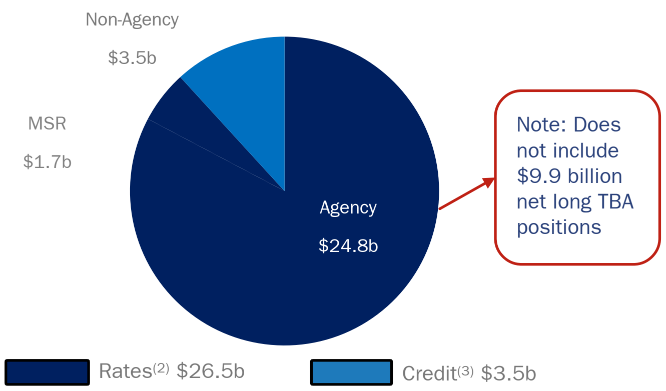
Portfolio Composition and Quarterly Activity

PORTFOLIO ACTIVITY

- Moved roughly $7 billion in mortgage risk from higher coupons to lower coupons as mortgages cheapened in August
- Increasing interest in flow-sale MSR partnerships; added $5.8 billion UPB of MSR
- Entered into agreements to sell all newly delinquent MSR on a flow basis
- Post quarter-end, closed two bulk MSR acquisitions for a total of $11.1 billion UPB
- Sold approximately $500 million of legacy non-Agencies at average price of $96; added approximately $190 million at average price of $64

PORTFOLIO COMPOSITIONG(1)

$30.0 BILLION PORTFOLIO AS OF SEPTEMBER 30, 2019



CAPITAL ALLOCATION(4)

	June 30, 2019	September 30, 2019
Rates(2)	**76%**	**79%**
Credit(3)	**24%**	**21%**

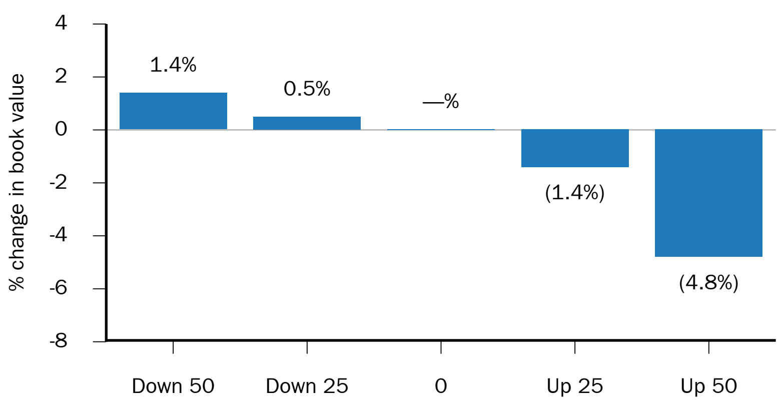
(1) For additional detail on the portfolio, see Appendix slides 20-24.
(2) Assets in "Rates" include Agency RMBS, MSR and other interest rate sensitive assets.
(3) Assets in "Credit" include non-Agency securities and other credit sensitive assets.
(4) Capital allocation percentages reflect management's assessment regarding the extent to which each asset class contributes to total portfolio risk. Does not represent funding allocation or balance sheet financing of such assets. Please refer to Appendix slide 25 for more information on financing.

Risk Profile

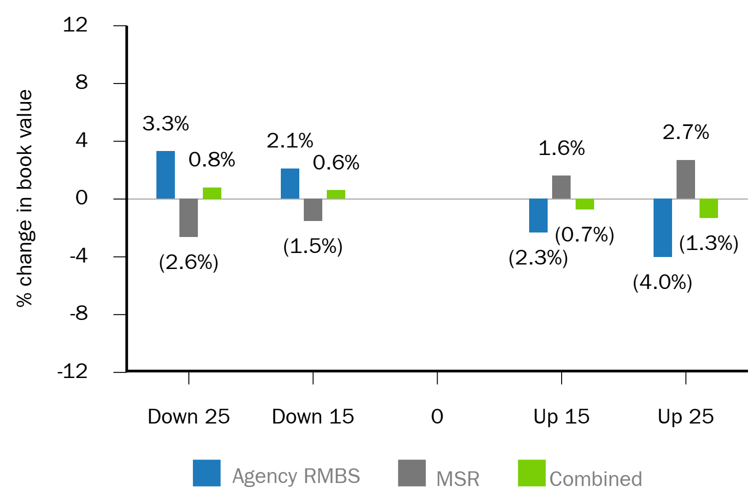
LOW RISK EXPOSURES

- Exposure to changes in interest rates and mortgage spreads remain small
- Maintain a slightly long duration bias, increasing 1.4% in a down 50 basis point shock and losing 4.8% in an up 50 shock
- Mortgage spread sensitivity mitigated by the presence of MSR in the portfolio
- Largely flat the current coupon, with residual mortgage exposure spread uniformly across the rest of the stack

COMMON BOOK VALUE EXPOSURE TO CHANGES IN RATES(1)



COMMON BOOK VALUE EXPOSURE TO CHANGES IN SPREADS(2)



Note: The above spread scenario is provided for illustration purposes only and is not necessarily indicative of Two Harbors' financial condition and operating results, nor is it necessarily indicative of the financial condition or results of operations that may be expected for any future period or date.
(1) Represents estimated change in common book value for theoretical parallel shift in interest rates.
(2) The information presented in this chart projects the potential impact on common book value of instantaneous changes in current coupon mortgage spreads. Spread sensitivity is based on results from third party models in conjunction with inputs from our internal investment professionals. Actual results could differ materially from these estimates.

Strategic Opportunities

GENERATING STRONG ECONOMIC RETURNS WITH LOWER VOLATILITY

RATES STRATEGY - Combination of Agency RMBS and MSR

- Expect capital allocation to this strategy to continue to increase
- Current expected returns in low double digits for Agency RMBS paired with MSR
- Believe the combination of these two assets results in an attractive return with a lower risk quotient

CREDIT STRATEGY - Legacy non-Agency securities

- Baseline returns for discounted legacy non-Agencies in single digits but upside price appreciation can drive much higher total returns
- Low rate environment beneficial to residential credit assets, driving better affordability, faster prepayments and continued borrower recovery

Appendix


TWO HARBORS
Investment Corp.
A Pine River Capital Managed Company

Return on Book Value[(1)]

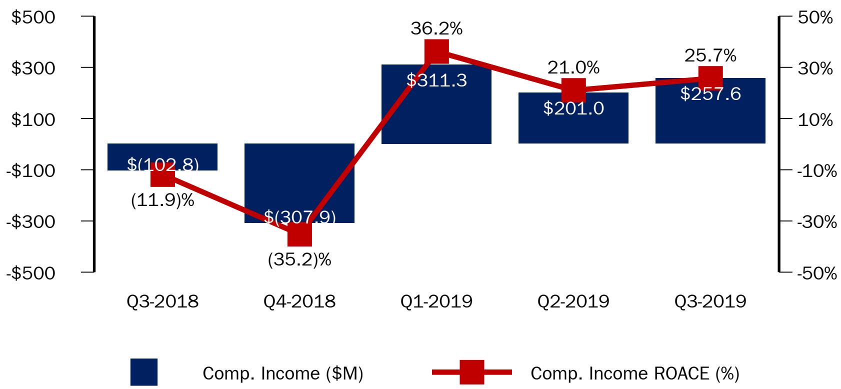
Return on common book value Q3-2019 (Per common share amounts, except for percentage)	
Book value at June 30, 2019	$ 14.17
Book value at September 30, 2019	14.72
Increase in book value	0.55
Dividend declared in Q3-2019	0.40
Return on book value Q3-2019	$ 0.95
Percent return on book value Q3-2019	6.7%

Return on common book value YTD-2019 (Per common share amounts, except for percentage)	
Book value at December 31, 2018	$ 13.11
Book value at September 30, 2019	14.72
Increase in book value	1.61
Dividends declared YTD-2019	1.27
Return on book value YTD-2019	$ 2.88
Percent return on book value YTD-2019	22.0%

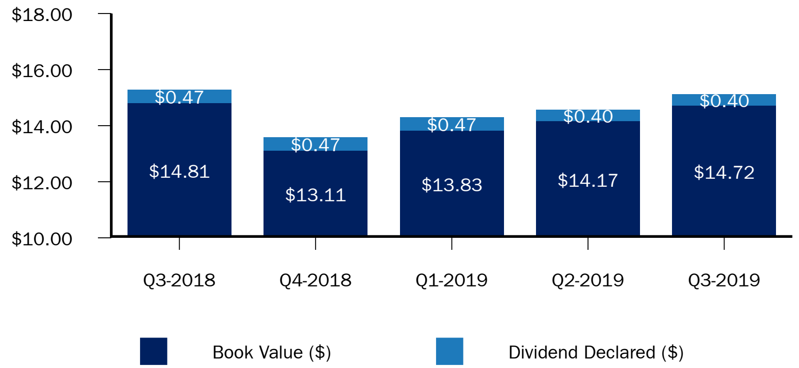
(1) Return on book value is defined as the increase (decrease) in book value per common share from the beginning to the end of the given period, plus dividends declared in the period, divided by the book value as of the beginning of the period.

Financial Performance

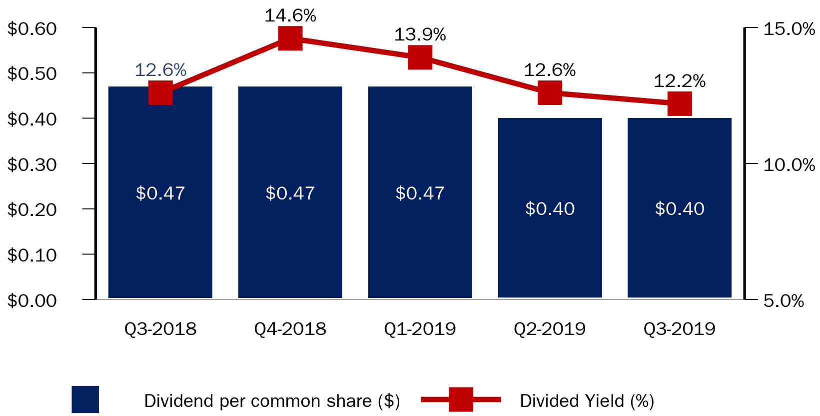
COMPREHENSIVE (LOSS) INCOME



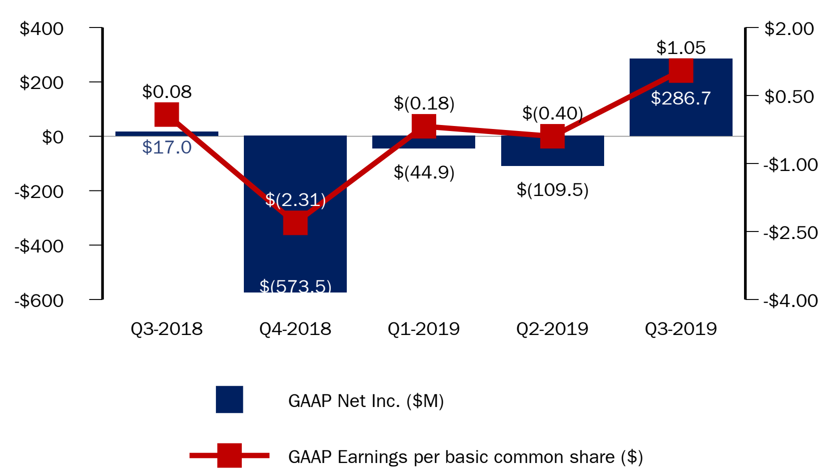
BOOK VALUE AND DIVIDEND PER COMMON SHARE[1]



DIVIDENDS[1]



GAAP NET INCOME (LOSS)



(1) 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.

Q3-2019 Operating Performance

	Q3-2019			
(In millions, except for per common share data)	Core Earnings, including dollar roll income[1]	Realized Gains (Losses)	Unrealized MTM	Total
Interest income	$ 251.1	$ —	$ (1.3)	$ 249.8
Interest expense	191.1	—	—	191.1
Net interest income	60.0	—	(1.3)	58.7
Total other-than-temporary impairments and loss recovery adjustments	—	—	(6.0)	(6.0)
Gain (loss) on investment securities	—	250.2	(1.4)	248.8
Servicing income	126.0	—	—	126.0
Loss on servicing asset	(73.3)	(2.0)	(159.2)	(234.5)
Gain (loss) on interest rate swaps, caps and swaptions	19.1	75.4	(23.9)	70.6
Gain (loss) on other derivative instruments	—	120.5	(34.6)	85.9
Other income	0.4	0.1	—	0.5
Total other income (loss)	72.2	444.2	(219.1)	297.3
Management fees & other expenses	46.2	1.7	—	47.9
Net income (loss) before income taxes	86.0	442.5	(226.4)	302.1
Income tax expense (benefit)	2.0	(0.1)	(5.5)	(3.6)
Net income (loss)	**84.0**	**442.6**	**(220.9)**	**305.7**
Dividends on preferred stock	19.0	—	—	19.0
Net income (loss) attributable to common stockholders	**$ 65.0**	**$ 442.6**	**$ (220.9)**	**$ 286.7**
Weighted average earnings (loss) per basic common share	$ 0.24	$ 1.62	$ (0.81)	$ 1.05

(1) Core Earnings, including dollar roll income, is a non-GAAP measure. Please see Appendix slide 20 of this presentation for a definition of Core Earnings, including dollar roll income, and a reconciliation of GAAP to non-GAAP financial information.

Q2-2019 Operating Performance

	Q2-2019			
(In millions, except for per common share data)	Core Earnings, including dollar roll income[1]	Realized Gains (Losses)	Unrealized MTM	Total
Interest income	$ 269.1	$ —	$ (8.1)	$ 261.0
Interest expense	192.4	—	—	192.4
Net interest income	76.7	—	(8.1)	68.6
Total other-than-temporary impairments and loss recovery adjustments	—	—	(4.8)	(4.8)
Gain (loss) on investment securities	—	23.6	(1.1)	22.5
Servicing income	130.9	—	—	130.9
Loss on servicing asset	(78.2)	—	(174.2)	(252.4)
Gain (loss) on interest rate swaps, caps and swaptions	22.9	55.5	(167.2)	(88.8)
Gain (loss) on other derivative instruments	16.7	97.3	(33.3)	80.7
Other income (loss)	0.5	(2.1)	1.2	(0.4)
Total other income (loss)	92.8	174.3	(374.6)	(107.5)
Management fees & other expenses	42.9	1.5	—	44.4
Net income (loss) before income taxes	126.6	172.8	(387.5)	(88.1)
Income tax expense (benefit)	1.6	(0.2)	1.0	2.4
Net income (loss)	**125.0**	**173.0**	**(388.5)**	**(90.5)**
Dividends on preferred stock	19.0	—	—	19.0
Net income (loss) attributable to common stockholders	**$ 106.0**	**$ 173.0**	**$ (388.5)**	**$ (109.5)**
Weighted average earnings (loss) per basic common share	$ 0.39	$ 0.63	$ (1.42)	$ (0.40)

(1) Core Earnings, including dollar roll income, is a non-GAAP measure. Please see Appendix slide 20 of this presentation for a definition of Core Earnings, including dollar roll income, and a reconciliation of GAAP to non-GAAP financial information.

GAAP to Core Earnings Reconciliation[1][2]

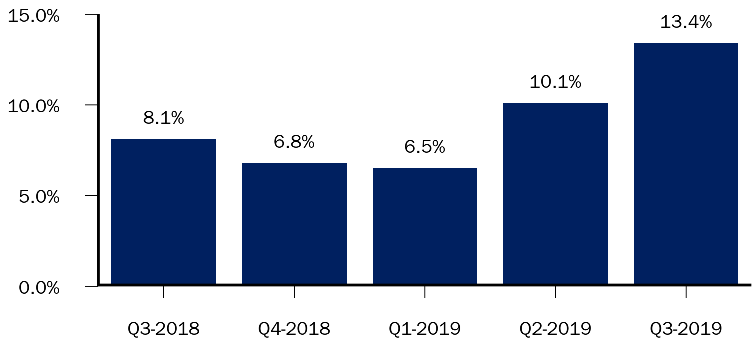
Reconciliation of GAAP to non-GAAP Information (In thousands, except for per common share data)	Three Months Ended June 30, 2019	Three Months Ended September 30, 2019
Reconciliation of Comprehensive income to Core Earnings:		
Comprehensive income attributable to common stockholders	**$ 201,042**	**$ 257,585**
Adjustment for other comprehensive (income) loss attributable to common stockholders:		
Unrealized (gain) loss on available-for-sale securities attributable to common stockholders	(310,549)	29,164
Net (loss) income attributable to common stockholders	**$ (109,507)**	**$ 286,749**
Adjustments for non-core earnings:		
Other-than-temporary impairments and loss recovery adjustments	12,895	7,275
Realized gains on securities	(23,589)	(250,267)
Unrealized losses on securities	1,148	1,439
Realized and unrealized losses on mortgage servicing rights	174,212	161,214
Realized gains on termination or expiration of swaps, caps and swaptions	(55,513)	(75,409)
Unrealized losses on interest rate swaps, caps and swaptions	167,174	23,940
Gains on other derivative instruments	(63,953)	(85,916)
Other loss (income)	899	(114)
Change in servicing reserves	(910)	(300)
Non-cash equity compensation expense	2,396	1,980
Net provision for (benefit from) income taxes on non-Core Earnings	782	(5,612)
Core Earnings attributable to common stockholders, including dollar roll income[1][2]	**$ 106,034**	**$ 64,979**
Weighted average basic common shares	272,863,153	272,897,575
Core Earnings, including dollar roll income, per weighted average basic common share	$ 0.39	$ 0.24

(1) Core Earnings, including dollar roll income, is a non-U.S. GAAP measure that we define as comprehensive income (loss) attributable to common stockholders, excluding "realized and unrealized gains and losses" (impairment losses, realized and unrealized gains and losses on the aggregate portfolio, reserve expense for representation and warranty obligations on MSR, non-cash compensation expense related to restricted common stock and restructuring charges) and transaction costs and purchase premium associated with the acquisition of CYS. As defined, Core Earnings includes interest income or expense and premium income or loss on derivative instruments and servicing income, net of estimated amortization on MSR. Dollar roll income is the economic equivalent to holding and financing Agency RMBS using short-term repurchase agreements. We believe the presentation of Core Earnings, including dollar roll income, provides investors greater transparency into our period-over-period financial performance and facilitates comparisons to peer REITs.

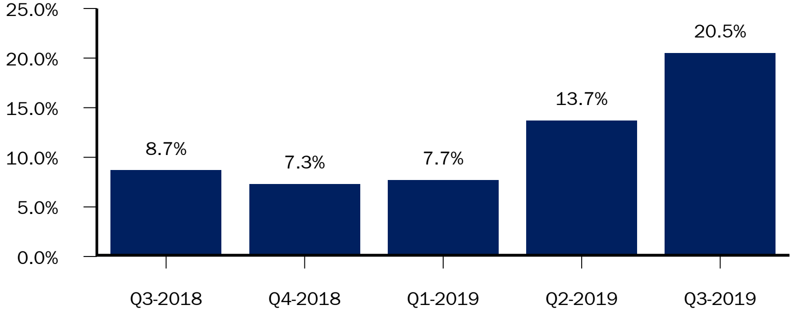
(2) Beginning with the June 30, 2019 reporting period, the company refined the MSR amortization method utilized in the calculation of Core Earnings, including dollar roll income. The new method includes an adjustment for any gain or loss on the capital used to purchase the MSR and allows Core Earnings to better reflect how the carry earned on MSR varies as a function of prepayment rates.

Rates Metrics

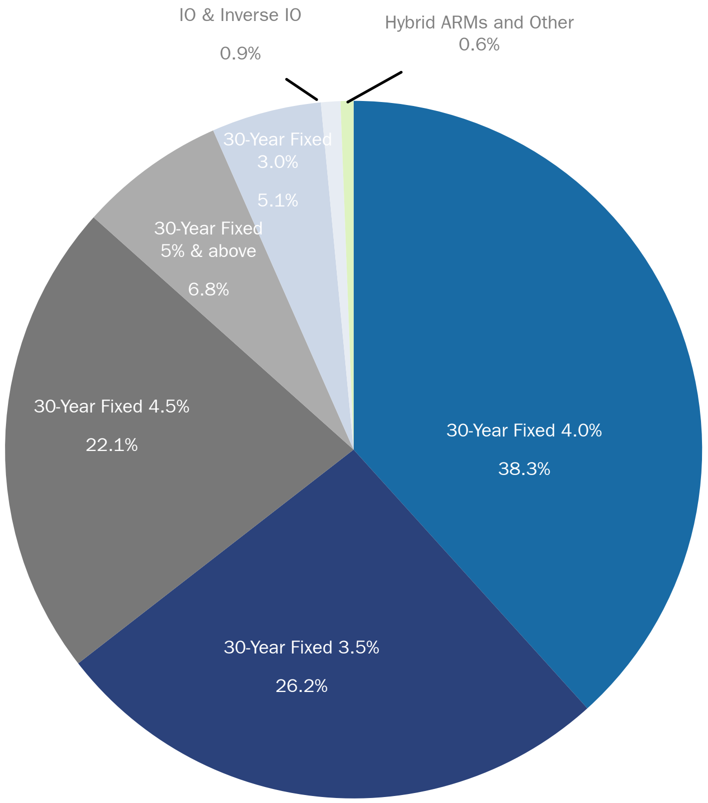
AGENCY RMBS CPR(1)



MSR CPR



AGENCY PORTFOLIO COMPOSITION



(1) Agency weighted average 3-month Constant Prepayment Rate (CPR) includes IIOs (or Agency Derivatives).

Rates: Agency RMBS

As of September 30, 2019	Par Value ($M)	Market Value ($M)	% Prepay Protected(1)	Amortized Cost Basis ($M)	Gross Weighted Average Coupon	Weighted Average Age (Months)
30-Year fixed						
3.0%	$ 1,235	$ 1,265	100.0%	$ 1,266	3.9%	3
3.5%	6,266	6,512	100.0%	6,444	4.4%	4
4.0%	8,963	9,510	100.0%	9,339	4.6%	22
4.5%	5,102	5,491	100.0%	5,348	5.0%	17
≥ 5.0%	1,558	1,691	78.9%	1,648	5.8%	28
	23,124	24,469	98.5%	24,045	4.7%	16
Other P&I(2)	132	148	4.1%	146	6.7%	207
IOs and IIOs	3,174	225 (3)	—%	240	5.2%	128
Total Agency RMBS	**$ 26,430**	**$ 24,842**	**97.1%**	**$ 24,431**		
Net TBA notional	9,863					
Total	**$ 36,293**					

(1) Includes securities with implicit or explicit protection including lower loan balances (securities collateralized by loans less than or equal to $175K of initial principal balance), higher LTVs (securities collateralized by loans with greater than or equal to 80% LTV), certain geographic concentrations and lower FICO scores.
(2) Includes 15-year fixed, Hybrid ARMs, CMO and DUS pools.
(3) Represents market value of $148.8 million of IOs and $75.9 million of Agency Derivatives.

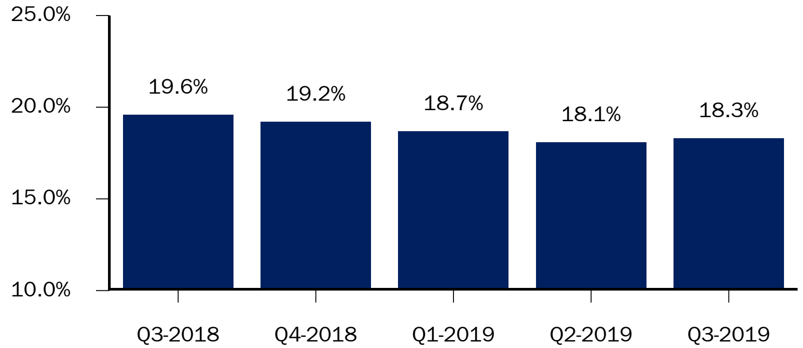
Rates: Mortgage Servicing Rights[1]

(dollars in millions)	Number of Loans	Unpaid Principal Balance	Fair Value	% Fannie Mae	Gross Weighted Average Coupon Rate	Weighted Average Loan Age (months)	Weighted Average Original FICO[2]	Weighted Average Original LTV	60+ Day Delinquencies	3-Month CPR	Net Servicing Fee (bps)
30-Year Fixed											
≤ 3.75%	91,609	$ 23,623	$ 248	75%	3.52%	49	770	70%	0.1%	11.3%	25.3
3.75% - 4.25%	212,196	51,894	534	68%	3.94%	39	760	76%	0.2%	15.5%	26.0
4.25% - 4.75%	191,980	43,960	434	66%	4.41%	30	745	79%	0.4%	24.5%	26.1
4.75% - 5.25%	100,078	21,393	216	66%	4.88%	22	733	80%	0.6%	31.7%	28.0
> 5.25%	35,406	6,341	62	70%	5.46%	20	709	80%	0.9%	29.3%	30.8
	631,269	147,211	1,494	69%	4.22%	35	751	77%	0.3%	21.0%	26.4
15-Year Fixed											
≤ 2.75%	2,202	456	4	82%	2.58%	43	777	59%	0.1%	9.0%	26.1
2.75% - 3.25%	35,460	6,051	51	86%	2.94%	49	771	62%	—%	11.2%	25.5
3.25% - 3.75%	35,603	5,582	50	79%	3.41%	40	758	65%	0.1%	14.3%	26.9
3.75% - 4.25%	20,021	2,882	27	67%	3.89%	29	746	66%	0.2%	20.4%	29.0
> 4.25%	11,848	1,508	14	62%	4.49%	19	734	67%	0.3%	24.5%	31.4
	105,134	16,479	146	78%	3.40%	39	759	64%	0.1%	15.2%	27.1
Total ARMs	6,320	1,643	12	72%	3.67%	41	762	65%	0.4%	29.5%	25.1
Total Portfolio	742,723	$ 165,333	$ 1,652	70%	4.13%	35	752	75%	0.3%	20.5%	26.5

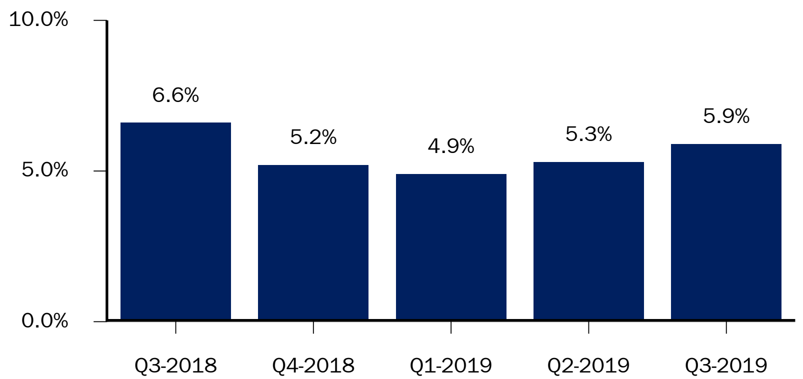
(1) Excludes residential mortgage loans for which the company is the named servicing administrator.
(2) FICO represents a mortgage industry accepted credit score of a borrower.

Credit Metrics

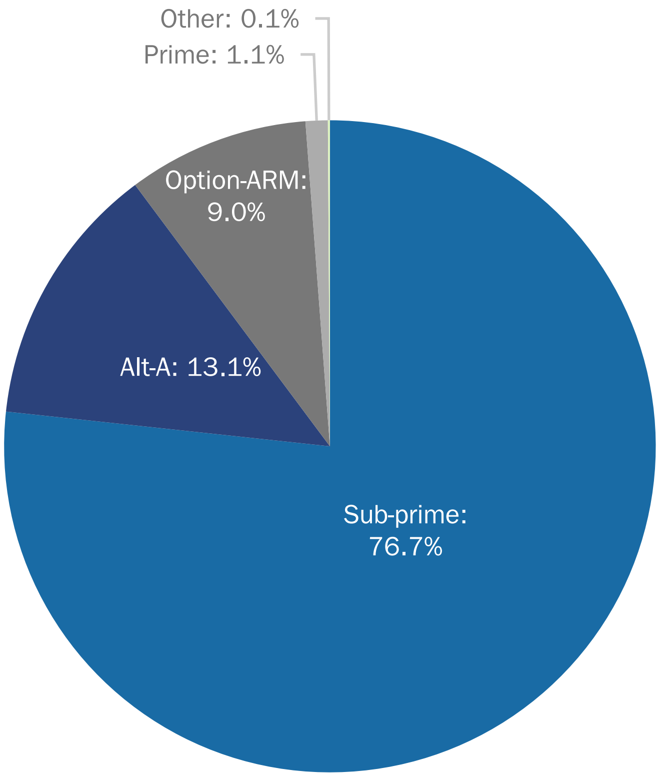
NON-AGENCY 60+ DAY DELINQUENCIES



NON-AGENCY CPR



NON-AGENCY PORTFOLIO COMPOSITION



Credit: Non-Agency Securities

As of September 30, 2019	Senior Bonds	Mezzanine Bonds	Total P&I
Portfolio characteristics:			
Carrying value ($M)	$ 2,990.3	$ 483.0	$ 3,473.3
% of non-Agency portfolio	86.1%	13.9%	100.0%
Weighted average purchase price[(1)]	$ 63.32	$ 65.52	$ 63.63
Weighted average coupon	3.0%	2.8%	3.0%
Weighted average market price[(2)]	$ 64.25	$ 75.99	$ 65.66
Collateral attributes:			
Weighted average loan age (months)	157	164	158
Weighted average current loan size ($K)	$ 208	$ 262	$ 216
Weighted average current loan-to-value	61.0%	58.9%	60.7%
Current performance:			
60+ day delinquencies	18.6%	16.7%	18.3%
Average credit enhancement[(3)]	1.9%	7.8%	2.8%
3-Month CPR[(4)]	5.6%	7.8%	5.9%
3-Month CDR	4.2%	5.5%	4.4%
3-Month severity	48.8%	33.3%	46.7%
Cumulative loss	36.3%	21.3%	34.2%

(1) Weighted average purchase price utilized carrying value for weighting purposes. If current face were utilized for weighting purposes, the weighted average purchase price for senior, mezzanine and total non-Agency securities, excluding our non-Agency interest-only portfolio, would have been $59.31, $60.11 and $59.41, respectively.
(2) Weighted average market price utilized current face for weighting purposes.
(3) Average credit enhancement remaining on our non-Agency portfolio, which is the average amount of protection available to absorb future credit losses due to defaults on the underlying collateral.
(4) 3-Month CPR is reflective of the prepayment speed on the underlying securitization; however, it does not necessarily indicate the proceeds received on our investment tranche. Proceeds received for each security are dependent on the position of the individual security within the structure of each deal.

Financing

$ in millions							
Outstanding Borrowings and Maturities[1]	Repurchase Agreements	FHLB Advances	Revolving Credit Facilities	Term Notes Payable	Convertible Notes	Total Outstanding Borrowings	Percent (%)
Within 30 days	$ 7,154.3	$ —	$ —	$ —	$ —	$ 7,154.3	26.9%
30 to 59 days	6,779.4	—	—	—	—	6,779.4	25.5%
60 to 89 days	93.4	—	—	—	—	93.4	0.3%
90 to 119 days	3,791.7	—	—	—	—	3,791.7	14.3%
120 to 364 days	7,485.5	—	—	—	—	7,485.5	28.1%
One to three years	262.9	—	300.0	—	284.6	847.5	3.2%
Three to five years	—	—	—	394.2	—	394.2	1.5%
Five to ten years	—	—	—	—	—	—	—%
Ten years and over[2]	—	50.0	—	—	—	50.0	0.2%
	$ 25,567.2	$ 50.0	$ 300.0	$ 394.2	$ 284.6	$ 26,596.0	100.0%
Collateral Pledged for Borrowings[3]	Repurchase Agreements[4]	FHLB Advances	Revolving Credit Facilities[4]	Term Notes Payable	Convertible Notes	Total Collateral Pledged	Percent (%)
Available-for-sale securities, at fair value	$ 26,351.3	$ 54.8	$ —	$ —	n/a	$ 26,406.1	94.1%
Derivative assets, at fair value	75.8	—	—	—	n/a	75.8	0.3%
Mortgage servicing rights, at fair value	530.7	—	460.2	591.1	n/a	1,582.0	5.6%
	$ 26,957.8	$ 54.8	$ 460.2	$ 591.1	n/a	$ 28,063.9	100.0%

(1) Weighted average of 4.2 months to maturity.
(2) Includes FHLB advances of $50 million with original maturities of 20 years.
(3) Excludes FHLB membership and activity stock totaling $6.1 million.
(4) Repurchase agreements and/or revolving credit facilities secured by MSR may be over-collateralized due to operational considerations.

Interest Rate Swaps

INTEREST RATE SWAPS

Maturities	Notional Amounts ($B)	Average Fixed Pay Rate	Average Receive Rate	Average Maturity Years
Payers				
2019	$ 3.6	1.834%	2.204%	0.1
2020	3.6	1.806%	2.186%	1.1
2021	15.7	1.681%	2.177%	1.7
2022	2.6	1.911%	2.185%	3.0
2023 and after	7.5	2.344%	2.212%	7.0
	$ 33.0	1.880%	2.189%	2.8

Maturities	Notional Amounts ($B)	Average Pay Rate	Average Fixed Receive Rate	Average Maturity (Years)
Receivers				
2020	$ 0.3	2.278%	2.258%	0.3
2021	0.9	2.209%	2.516%	1.4
2022	—	—%	—%	—
2023 and after	7.6	2.186%	2.232%	8.9
	$ 8.8	2.191%	2.262%	7.9

Interest Rate Swaptions

Option					Underlying Swap			
Swaption	**Expiration**	**Cost ($M)**	**Fair Value ($M)**	**Average Months to Expiration**	**Notional Amount ($M)**	**Average Pay Rate**	**Average Receive Rate**	**Average Term (Years)**
Purchase Contracts:								
Payer	<6 Months	$ 5.4	$ 1.4	4.0	$ 1,250	2.05%	3M LIBOR	5.2
Total Payer		$ 5.4	$ 1.4	4.0	$ 1,250	2.05%	3M LIBOR	5.2
Receiver	<6 Months	$ 4.1	$ 7.9	4.1	$ 500	3M LIBOR	1.55%	10.0
Total Receiver		$ 4.1	$ 7.9	4.1	$ 500	3M LIBOR	1.55%	10.0


TWO HARBORS
Investment Corp.
A Pine River Capital Managed Company