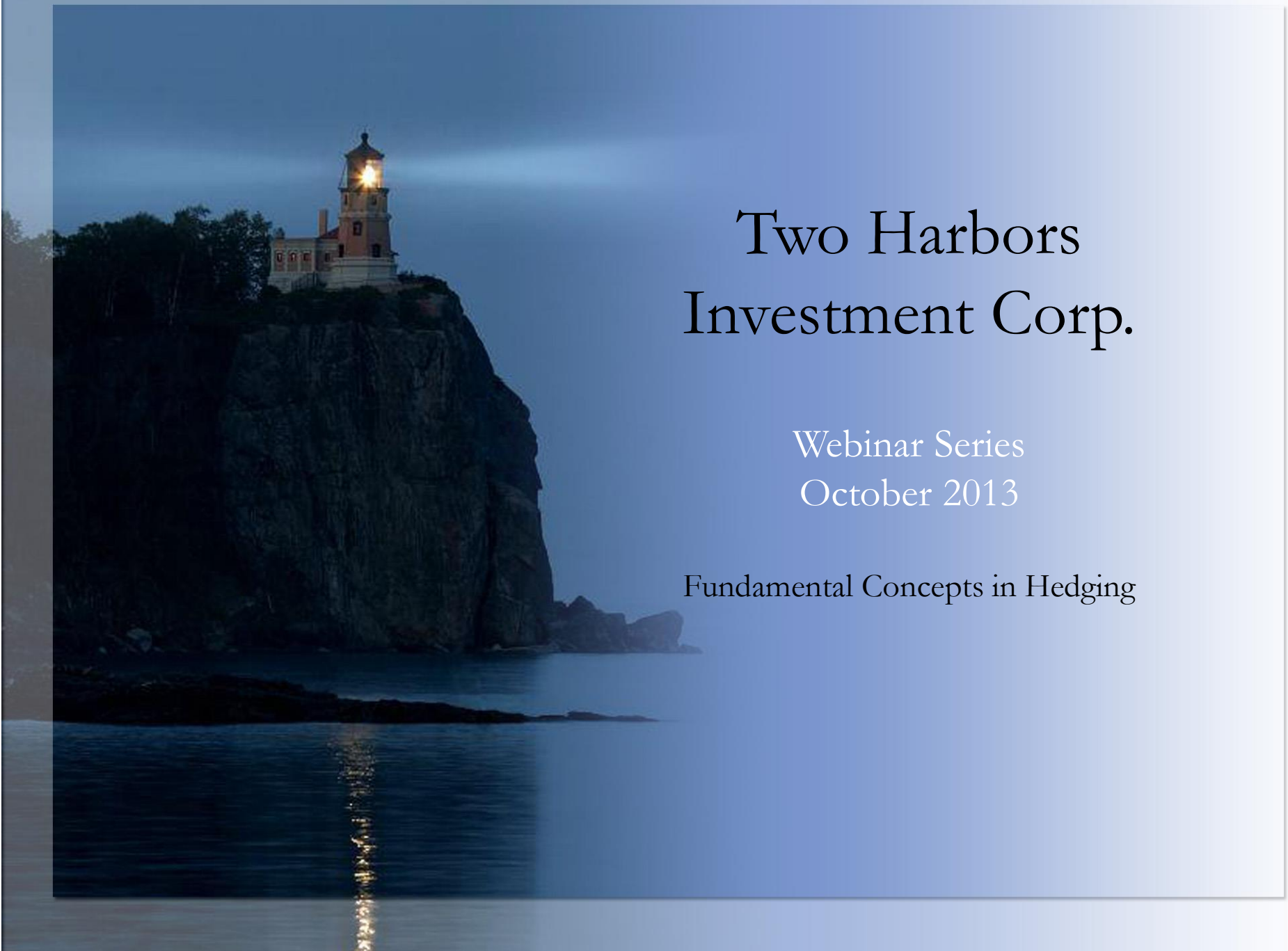

Two Harbors Investment Corp.

Webinar Series
October 2013

Fundamental Concepts in Hedging

Welcoming Remarks

William Roth
Chief Investment Officer

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Director of Investor Relations

Safe Harbor Statement

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Two Harbors' Company Overview

- **Our mission is to be recognized as an industry-leading mortgage REIT. We will accomplish this goal by achieving excellence in four areas:**
  - Superior portfolio construction and fluid capital allocation using rigorous security selection and credit analysis
  - Unparalleled risk management with a strong focus on hedging and book value stability
  - Targeted diversification of our business model
  - Leading governance and disclosure practices
- **We strive to deliver value to our stockholders:**
  - Delivered a total stockholder return of 92%(1) since commencing operations in late 2009
  - During the first half of 2013, we generated $102 million in comprehensive income, representing a return on average equity of 5.2%(2)

(1) Our total stockholder return is calculated for the period October 29, 2009 through September 30, 2013. Total stockholder return is defined as capital gains on stock price including dividends. Source: Bloomberg Finance LP.
(2) As of June 30, 2013

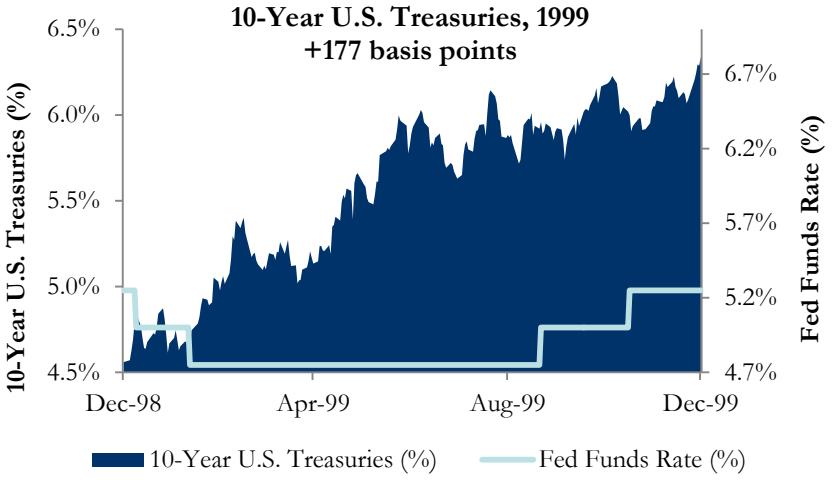
Introduction

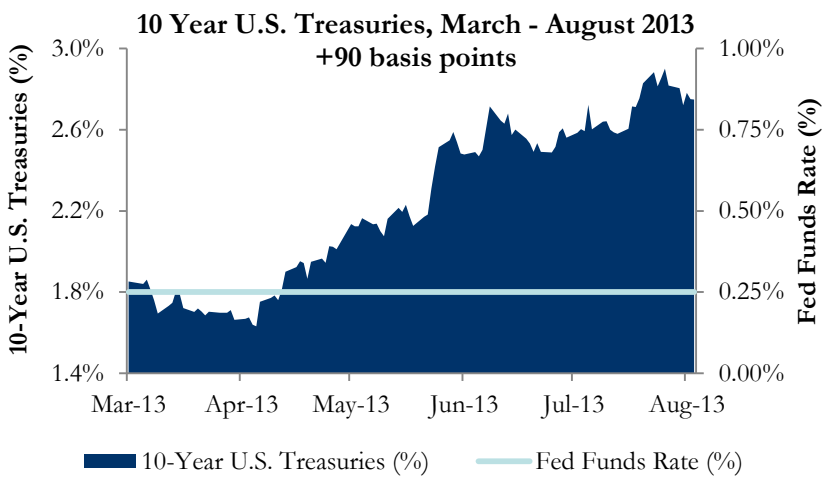
Mortgage REITs invest in Mortgage-Backed Securities (MBS) and other mortgage assets.

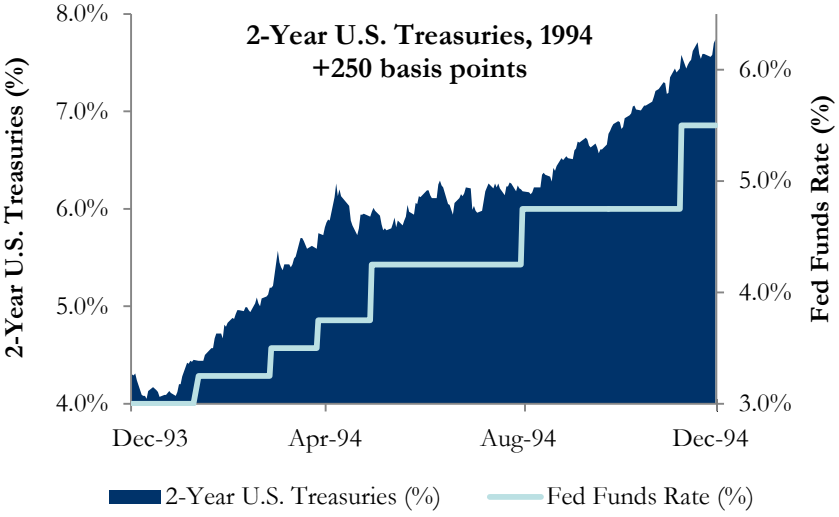
- Types of residential mortgage assets held by mortgage REITs include Agency securities, non-Agency securities, mortgage loans, IO products and mortgage servicing rights (MSRs)
- Hedging risks associated with mortgage investments is critical to protect book value due to market volatility
- Risks include:
  - Interest Rate risk
  - Prepayment risk
  - Volatility risk
  - Mortgage basis and spread risk
  - Credit risk

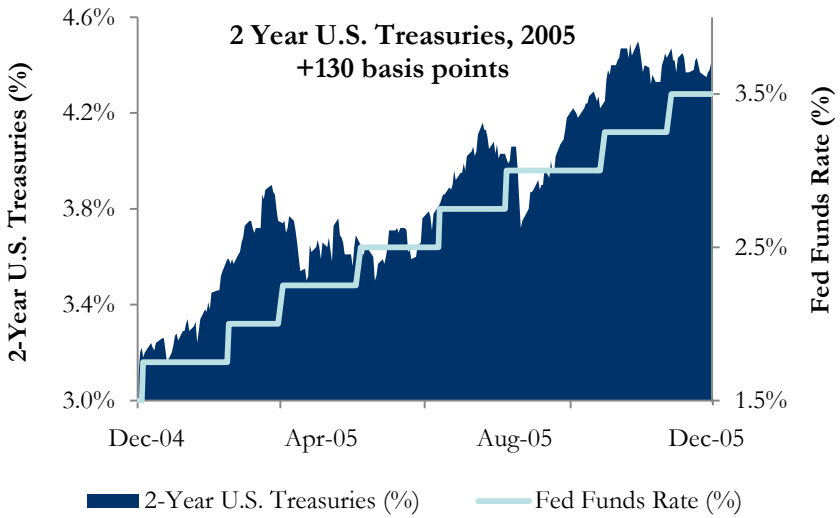
The Importance of Hedging

Interest rates can move quickly, so it is important to hedge against changes.









Source: Bloomberg

Examples of Hedging Tools

A variety of tools are available to hedge portfolios against risks, including:

Instrument	Strengths	Limitations
Interest Rate Swaps	Liquid, unfunded, and high correlation to mortgage rates	Not prepay sensitive and managing swap book is cumbersome, maturity roll down needs to be managed and rebalanced frequently, linear profile
Treasuries/Futures	Liquid; financing is readily available in the repo markets	Lower correlation to mortgage rates, not prepay sensitive and linear profile
Swaptions/Floors/Caps	Liquid; optional profile good for hedging other optional structures, wide variety available	Implied volatility is often higher than realized so buying options can be perceived to be expensive, interest rate volatility, while highly correlated, is different than mortgage volatility., not prepay sensitive
Mortgage Options	Optional profile good for hedging mortgages; prepay sensitive, direct hedge for mortgage convexity risk	Limited liquidity; only short-dated maturities available; could be expensive
TBAs	Very liquid; direct exposure to mortgage rates; unfunded	Shorting TBA can be expensive, gamma must be aggressively hedged to be monetized
IO Products (IO, IOS, MSR)	**IO:** High correlation to mortgage assets, hedges mortgage basis **IOS**: High correlation to mortgage assets, variety of coupons/ vintages available, prepay sensitive and optional profile; long dated option; can go long or short **MSR:** Natural hedge to mortgage basis; usually positive yielding Cash version of IOs, typically cheaper	**IO:** Limited availability and liquidity **IOS**: Limited liquidity; counterparty risk **MSR**: Illiquid; not easily leveraged **All:** Increases curve, volatility and convexity risks
POs	Natural hedge for IO products providing long-term prepayment, rate, volatility and curve protection; trade at discount	Balance sheet intensive; illiquid, rare; typically expensive
CMM/CMS Swaps	Directly hedges mortgage spread risk., monetizes convexity costs, swap has almost zero convexity	Limited liquidity; counterparty risk; only short-dated maturities available
ABX	Unfunded, long-dated, transparent	Counterparty risk, limited liquidity
CDX	Unfunded, long-dated, transparent, index and/or single name, reasonably liquid	Counterparty risk; uncertain hedge ratio and correlation

Note: This is a brief overview and there may be other strengths and limitations not listed on this slide. For definitions of hedging tools, please see the Appendix, slide 23

Interest Rate Risk

Duration is a measure of the price change of an asset for a given change in interest rates.

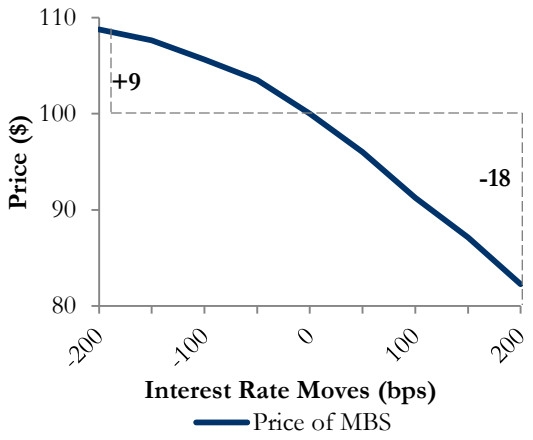
- **Effective Duration** is model-based and utilizes option-adjusted spread (OAS) technology
  - Models incorporate a number of assumptions, including how mortgage rates change relative to swap rates, and assumes OAS is unchanged as interest rates change
  - Methodology presumes OAS is independent of interest rates
  - Usually refers to parallel interest rate shifts
- **Partial or Key Rate Duration** calculates the price sensitivity for non-parallel interest rate shifts, in particular, to changing one point on the yield curve at a time
- **Empirical Duration** is obtained by comparing actual historical price movements relative to swap rate movements
  - Methodology assumes past relationships between changes in swap yields and other risk factors (OAS and volatilities) will hold going forward
- **Coupon Swap Duration** refers only to MBS and is obtained by taking the price differences of neighboring coupons
  - Implication is if rates move +/- 50 basis points, the price of MBS with a given coupon will trade, at that time, with the price that the MBS with coupon of -/+ 50 basis points has today
- Neither effective nor empirical durations hedge against price moves that are uncorrelated with yield moves

Interest Rate Risk

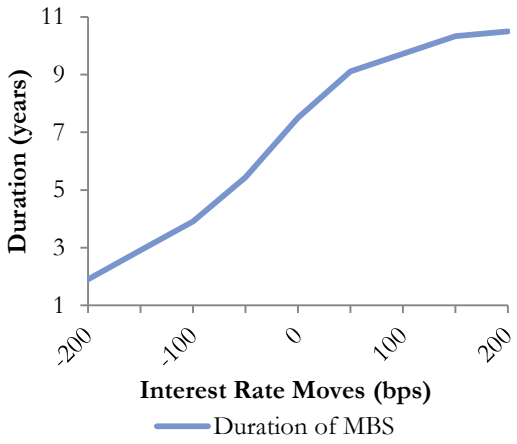
Convexity is related to the rate of change of the duration with interest rates.

- Mortgages are negatively convex, as the price goes up less in a rally than it will decline in a sell-off
- Duration variability creates **extension risk**, which is the risk that the life of a mortgage will increase in a rising rate environment
- Conversely, when rates decline, the life of the mortgage shortens, which is known as **call risk**

Price of MBS (1)



Duration of MBS (1)



Convexity of MBS (1)

Note: These graphs are for illustrative purposes only

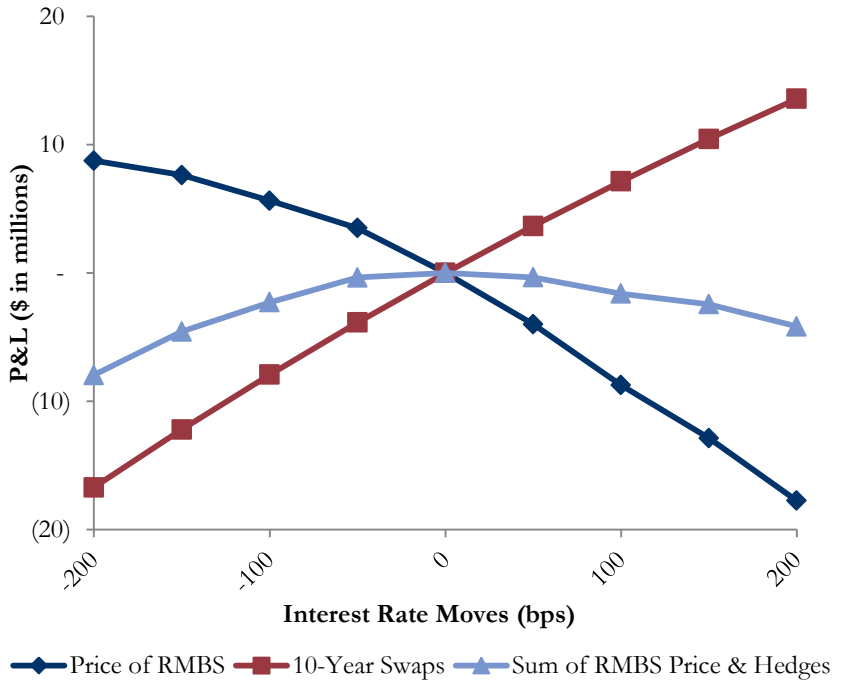
(1) Model estimates assume par coupon

Interest Rate Risk

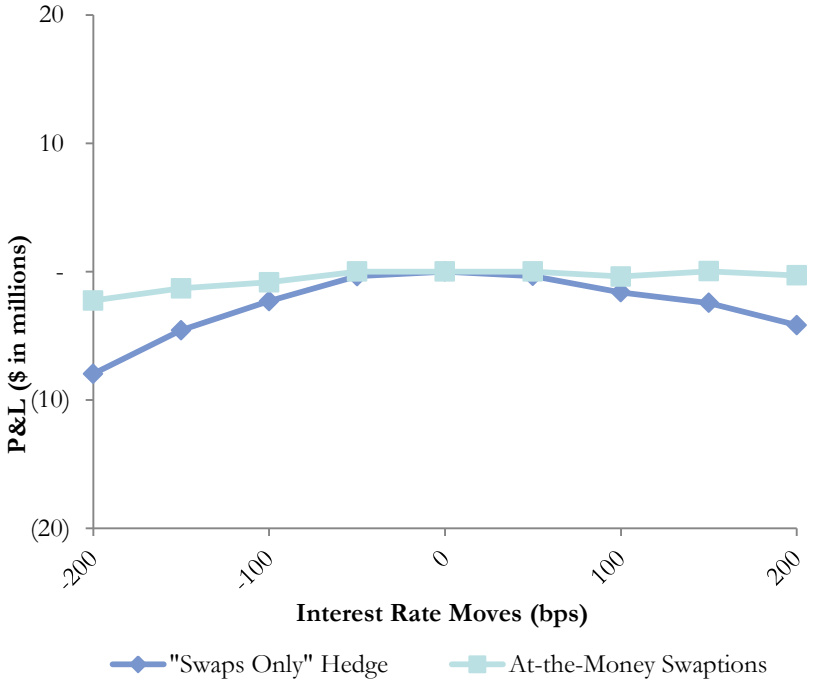
Instruments to hedge interest rate risk:

- Common hedging tools are swaps, swaptions, treasuries and mortgage options
- A combination of tools is most effective in large rate moves

Hedging with Swaps Only(1)



Hedging with Swaps and Swaptions(1)



(1) Graphs illustrate a theoretical instantaneous and parallel shift in interest rates

Prepayment Risk

Prepayment risk is the risk that principal will be repaid at a different rate than anticipated.

- Bonds purchased at a premium tend to benefit from slower than assumed prepayments as the underlying investor wants to receive cash flows as long as possible
- Bonds purchased at a discount tend to benefit from faster than assumed prepayments because the investor receives par when the MBS prepays
- Drivers of prepayments include: changing interest rates, economic growth, home price appreciation (HPA), housing turnover, unemployment, regulatory changes, demographic trends and curtailments

Hedging prepayment risk is difficult, but not impossible.

- The best way to minimize prepayment risk is through security selection
- Tools to hedge prepayment risk include IOs, POs and TBA coupon swaps
- Discount priced residential mortgage-backed securities (RMBS) can be used to offset prepayment risk on premium priced RMBS

Volatility Risk

A RMBS can be thought of as a non-callable bond with a series of prepayment options. Each of those options has implied volatility of various maturities.

- Volatility of interest rate movements impacts prepayments, valuation and the timing of cash flows
- Mortgages are typically short volatility, though in certain circumstances they can be long volatility
- As volatility increases, the uncertainty of cash flows increase, therefore extra yield is required to compensate the investor for uncertainty, which drives mortgage prices lower

Hedging

- Mortgage assets have exposure to the entire volatility surface so it is important to use both short-dated options and long-dated options to hedge exposure
- Uncertain cash flows can be hedged by buying back volatility through options
- Swaptions or mortgage options are commonly used

Spread and Mortgage Basis Risk

Spread risk is the risk that the spread between mortgage and swap rates will change over time.

- The spread can be thought of as the excess of mortgage yield over the swap rate
- A measure of this risk is commonly called spread duration, and it measures the sensitivity to changes in discount rates
- All mortgage assets have spread duration

Mortgage basis risk refers to the sensitivity of a RMBS price to changes in the mortgage rate, with all other rates unchanged.

- As the current coupon mortgage rate rises (falls), mortgage prices fall (rise)
- This movement impacts projections of prepayments, but discounting function is unchanged
- A measure of this risk is commonly called mortgage basis duration
- Unlike spread duration, not all assets have positive mortgage basis duration
- MSRs and IOs have negative mortgage basis duration, which provides effective hedging of mortgage basis

Spread and Mortgage Basis Risk

IOs and MSRs are a natural hedge for a RMBS portfolio as they hedge mortgage basis risk.

- IOs and MSRs work together symbiotically with mortgages to protect against basis risk
- IOs and MSRs typically exhibit positive yield and negative duration

IO

- Typically generated from CMO(1) deals
- Limited availability and liquidity

IOS

- Contractual form of IO
- Benchmark for IO products
- No balance sheet needed
- Generally more expensive

MSR

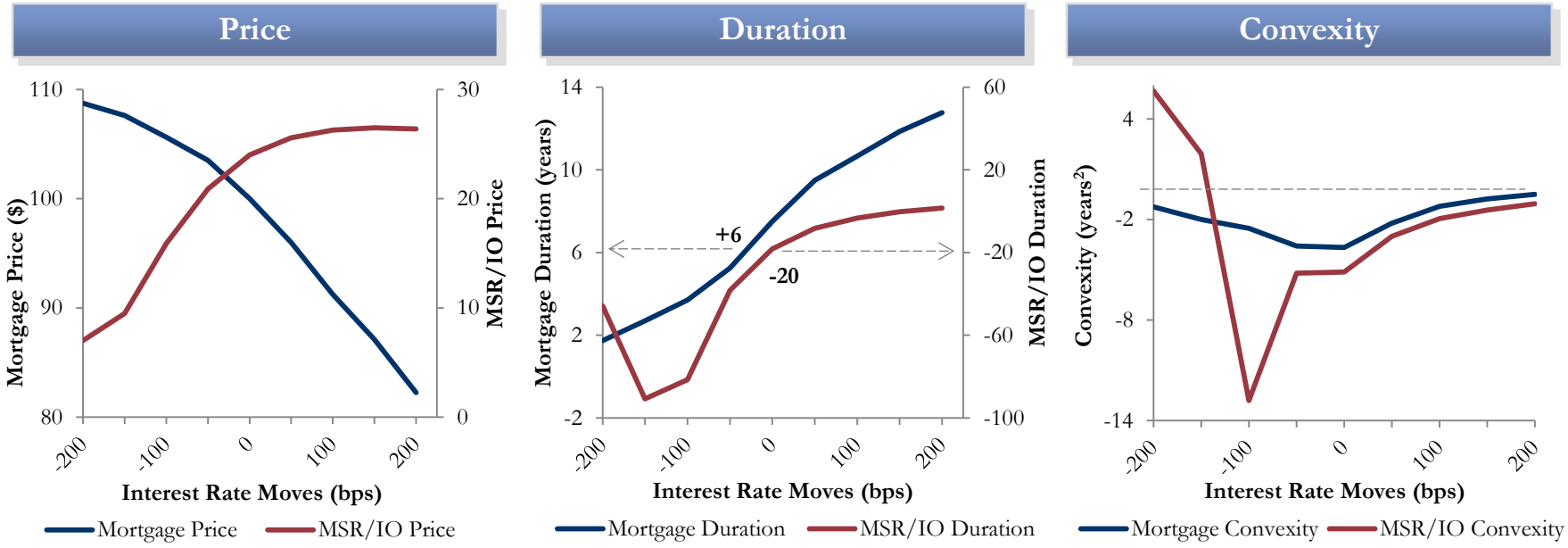
- Available in large size
- Operationally intensive
- Illiquid

(1) CMO is defined as a collateralized mortgage offering

Mortgage Basis and Spread Risk

As mortgage rates rise and the current coupon mortgage price falls, future expectations of prepayments decline and the MSR/IO cash flow is more valuable.

- MSR/IO can be an effective hedge for RMBS because as servicing goes down mortgage prices go up



Note: These graphs are for illustrative purposes only

Credit Risk

Credit risk is the risk that borrower defaults cause losses (above expectations)

- Agency securities have minimal credit risk because they are backed by the Federal National Mortgage Association (Fannie Mae), the Federal Home Loan Mortgage Corporation (Freddie Mac) or the Government National Mortgage Association (Ginnie Mae)
  - Loan defaults in Agency pools are bought out at par, which generates a prepayment

- Non-Agency mortgages and mortgage loans carry credit risk as they are generally not insured
  - Non-Agency credit risk is the risk that borrower defaults are above expectations
  - Factors that impact borrower defaults include recessions, housing market declines and high unemployment rates

- Both Agency and non-Agency mortgages are underwritten with information from borrower income and assets as well as other credit characteristics such as ability to pay and credit history

Credit Risk

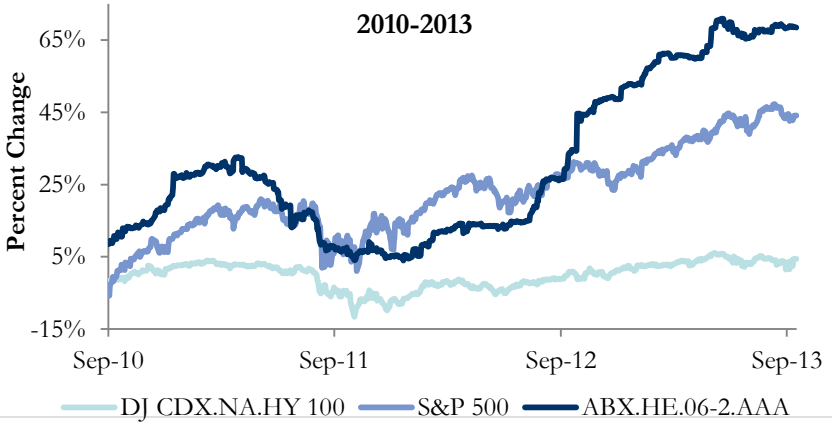
Hedging non-Agency credit risk is to hedge against higher than expected default rates.

- The most effective way to hedge non-Agency credit risk is by performing thorough underwriting
  - Non-Agency securities and loans are typically underwritten with assumed losses from defaults
- Hedging tools for non-Agency mortgages include the PrimeX index, ABX Index, and CDX Investment Grade (IG) and CDX High Yield (HY) Indices
  - ABX hedges against adverse loss expectations but also exposes investor to large basis risk
  - Higher defaults generally mean the macro economy is under stress, therefore non-mortgage specific credit hedges can also be effective when hedging non-Agencies

Index Correlations 2010-2013(1)

Index Correlations in 2010-2013

	CDX HY	SPX	ABX AAA
CDX HY	100%	56%	73%
SPX	56%	100%	87%
ABX AAA	73%	89%	100%



Source: JP Mortgage Data Query

(1) Data as of September 1, 2010 through September 16, 2013

Two Harbors' Hedging Strategy

Our objective in hedging is to protect book value.

- Multifaceted hedging approach, including swaps, swaptions, interest-only bonds and MSRs
- Daily portfolio monitoring
- The Spring and Summer of 2013 demonstrated the importance of a sophisticated approach to hedging, as we were able to protect book value in a challenging environment

Mortgage REIT Risks

	1 Interest Rate Risk	2 Prepayment Risk	3 Volatility Risk	4 Mortgage Spread and Basis Risk	5 Mortgage Credit Risk
Definition	Exposure to change in rates	Uncertain cash flows	Prepayment option creates exposure to volatility	Widening spreads means lower mortgage valuation	Borrower defaults cause losses
Two Harbors' Objective	Low interest rate exposure	Portfolio focused on prepayment stability and upside	Manage volatility exposures	Strategic portfolio positioning to take advantage of spreads	Attractive loss-adjusted yields
Two Harbors' Result	**Low Interest Rate Risk**	**Balanced Prepayment Risk**	**Minimal Volatility Risk**	**Mortgage Spread and Basis Risk Stability**	**Conservative Stance on Mortgage Credit**

Note: The risks identified on this slide represent only some of the risks that are relevant our business. Additional information concerning these and other risks applicable to our company is contained in our most recent filings with the SEC.

Conclusion

Managing interest rate exposure, prepayment risk, volatility risk, mortgage spread and basis risk and credit risk is critical to the protection of book value over time.

- Using a combination of hedges is the best way to effectively hedge a portfolio
- Two Harbors has a sophisticated approach to hedging and we utilize a variety of hedging tools
  - For interest rate sensitive products, especially RMBS, we use swaps, swaptions, IOs, TBAs and MSRs
  - IO products and MSRs are natural hedges as they exhibit positive yield, negative effective duration, and, most importantly, negative mortgage basis duration
  - To protect against credit risk, we conduct thorough underwriting of loans to determine potential defaults
  - Use of other credit hedging products can include ABX, CDX HY and CDX IG to mitigate risk exposure

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Appendix

Definitions of Hedging Tools

Instrument	Definition
Interest Rate Swaps	A contract agreement between two parties to exchange a fixed rate for a floating rate for a set period of time
Treasuries	A direct obligation of the U.S. government with specified maturity and coupon that is non-callable
Swaptions	A contract agreement that gives the buyer the right, but not the obligation to enter into an Interest Rate Swap with a predetermined fixed rate at a specified date in the future
Mortgage Options	A contract agreement that gives a buyer the right, but not the obligation, to buy or sell TBAs of a certain coupon at a specified date in the future
To-Be-Announced Pools (TBAs)	Futures contracts referring to an unspecified pool of mortgage loans (subject to certain constraints) to be delivered at a predetermined date in the future
Interest-Only Bonds (IOs)	A certain kind of RMBS, the cash flows of which are made up exclusively of the interest portions of a set of borrowers monthly mortgage payments. IOS and Inverse-IO are another form of IO
Mortgage Servicing Rights (MSR)	A contract agreement giving the holder the rights and obligations associated with servicing a pool of mortgages
Principal-Only Bonds (POs)	A certain kind of RMBS, the cash flows of which are made up exclusively of the principal portions of a set of borrowers monthly mortgage payments
CMM/CMS Swaps	A forward rate agreement based on the spread of the current coupon mortgage yield to swap rates
ABX Index	A set of synthetic tradable indices each referencing a basket of 20 specified sub-prime mortgage-backed securities of a certain vintage
CDX High Yield (HY) Index	A set of synthetic tradable indices, each referencing 100 corporate credits designated as "high yield"
CDX Investment Grade (IG) Index	A set of synthetic tradable indices, each referencing 125 corporate credits designated as "investment grade"
PrimeX Index	A set of synthetic tradable indices, each referencing a basket of 20 specified fixed and floating rate mortgage-backed securities of a certain vintage