

# Overview of the Mortgage-Backed Securities Markets



Presented By  
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Citigroup Global Markets



# Agenda

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**Market Overview**

**Agency and Non-Agency Market Sector**

**Analyzing MBS**

**Role of Mortgage Finance at Citigroup Global Markets**

**Questions**

# Market Overview

# Mortgage-Backed Securities Market

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- Constitutes the largest sector of the bond market with more than \$5.3 trillion outstanding
- Core holding of almost all U.S. institutional fixed-income investors
- Wall Street dealers trade hundreds of billions of dollars of mortgage backed securities every day
- Largest market segment consists of securities backed by residential mortgage loans

*However, the complexity and variety of these securities means that very few people in the financial industry have a detailed understanding of their characteristics*

## Relative Size of US Debt Sectors

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**(Dollars in Trillions)**

All Mortgage Debt	\$9.465
Single Family Mortgage Debt	7.282
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Mortgage-Backed Securities(1)	5.357
Corporate	4.569
U.S. Treasury(2)	3.755
Fed Agencies	2.725
Money Market(3)	2.648
Asset-Backed(4)	1.771
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*Source – Bond Market Association*

- (1) Includes GNMA, FNMA and FHLNC MBS and CMOs and non-agency MBS/CMOs
- (2) Interest bearing marketable public debt
- (3) Includes commercial paper, banker's acceptance and large time deposits
- (4) Includes public and private placements

# What are Mortgage-Backed Securities (“MBS”)?

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Definition: *Securities entitled to the cash flow from a specific pool of mortgage loans.*

## Characteristics

- Payment received on the assets and paid on the securities are made monthly
- Payments include interest and principal (scheduled and unscheduled)
- Cash flows are channeled to investors in two ways:
  - Passed through to investors (a pass-through security)
  - or
  - Allocated according to specific rules (structured securities such as collateralized mortgage obligations)

# Factors Influencing the Development of MBS Market

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## Mortgage Loans

- Unique characteristics of each loan
- Relatively illiquid
- Unrated
- High geographic and economic concentrations in portfolios
- Cumbersome and expensive to sell/buy whole loans

## Economic Drivers

- Financial institutions desire to sell fixed-rate, long-term assets
- Growing market share of mortgage bankers with little interest and limited capability to hold mortgage loans
- Supply/Demand imbalance for mortgage loans

*Securitization is a means of turning illiquid assets into liquid securities, creating an efficient tool for balance sheet management*

# Origination of the MBS Market

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In 1970 the Government National Mortgage Association (“Ginnie Mae”) guaranteed the first mortgage-pass through security

Fannie Mae and Freddie Mac closely followed Ginnie Mae with their own issuance of pass-through MBS



The non-agency market developed several years later, primarily as funding tool for mortgage bankers

# Benefits of Mortgage Securitization

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- Attracts new capital to the market, improves overall liquidity and keeps rates low
- Stabilizes the U.S. housing finance system by shifting interest rate and credit risk from banks and thrifts to broader investors that are often better able to diversify and hedge
- Made homeownership available to more buyers – 69.2% of Americans own their homes

# Benefits of Investing in MBS

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**Higher Returns:** – Significantly higher yields (+100bps) over Treasuries and comparable-quality corporate bonds

**Credit Quality:** – Ginnie Mae MBS are backed by the full faith and credit of the US government, Fannie Mae and Freddie Mac which have close ties to the US Government are perceived as minimal risk investments and private MBS typically are rated AAA

**Variety of Investment Profiles:** – Sector provides the widest range of investment characteristics, including durations, coupons, indices, and prepayment sensitivities

**Liquidity:** – The outstanding MBS supply, trading volume and involvement of major dealers provides an active and liquid market for most MBS

**Analytic Tools:** – Sophisticated analytical models for evaluating MBS provide an in-depth understanding of the mortgage cash flows and characteristics

## Agency and Non-Agency Market Sectors

# Two Primary Sectors of the MBS Market

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## Agency Market

- Underlying loans conform to Agency guidelines
- Securities guaranteed by the issuer
- Securities carry triple-A ratings based upon U.S. government guaranty (Ginnie Mae) or implied support (Fannie Mae and Freddie Mac)
- Largest and most liquid part of the MBS market

## Non-Agency Market

- Underlying loans typically DO NOT conform to Agency guidelines
- No guarantee, bonds independently credit enhanced.
- Covers complete spectrum of borrowing demographics and credit characteristics
- Highly rated bonds, with most of the structure rated triple –A
- Large and diverse sector of the market

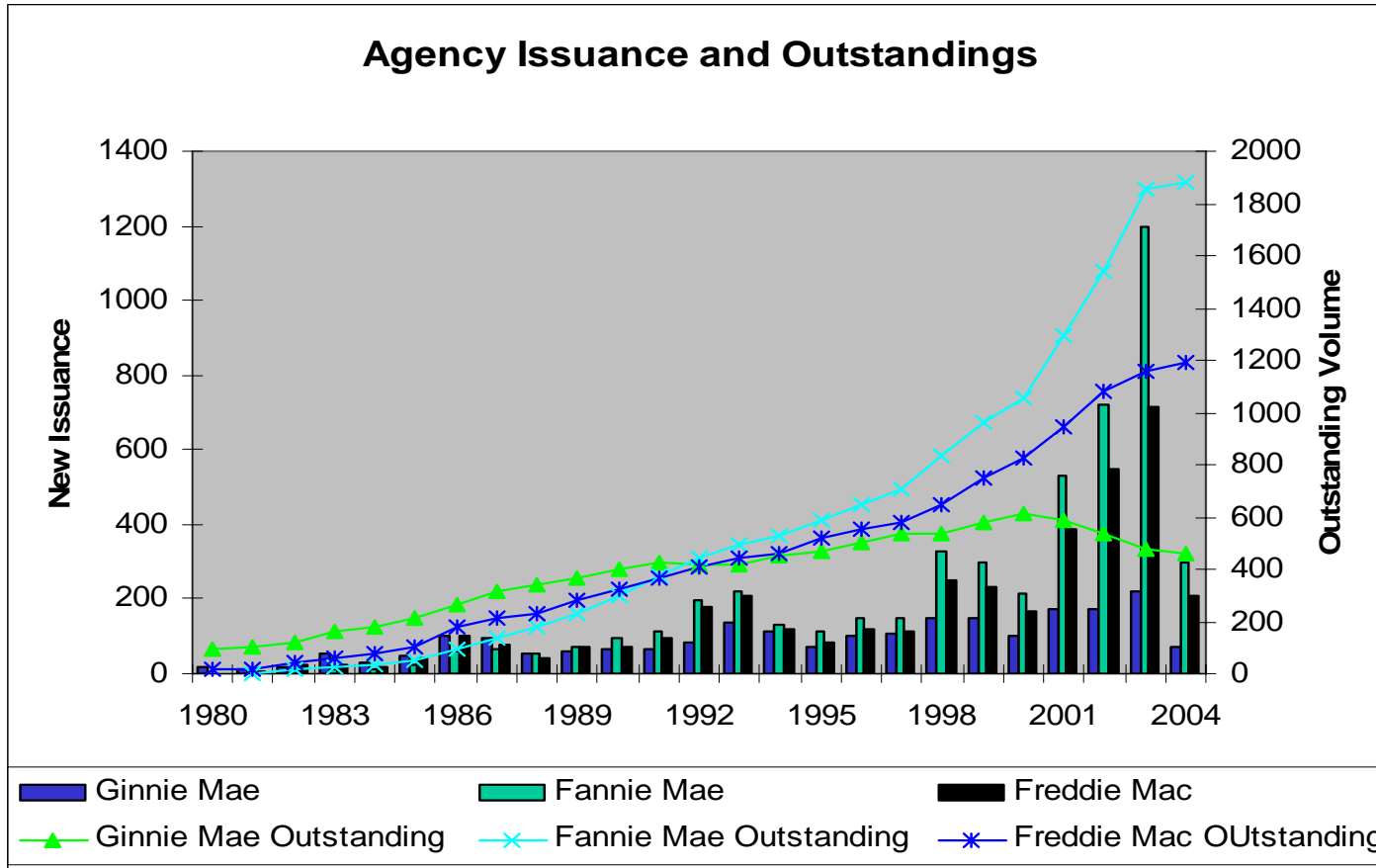
# Agency Sector

# Agency Market

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	Ginnie Mae	Fannie Mae	Freddie Mac
Types of Mortgages	FHA/VA	Conventional (Some FHA/VA)	Conventional (Some FHA/VA)
Guarantee	Timely payment of interest and principal	Timely payment of interest and principal	Timely payment of interest and principal
Guarantor	U.S. Government	Fannie Mae	Freddie Mac
Currently Outstanding (in Billions)	\$457.3	\$1,879.0	\$1,189.7
Main Collateral Types	<ul style="list-style-type: none"> <li>• 30 Yr Fixed Ginnie I</li> <li>• Ginnie II</li> <li>• 15 Yr Fixed Ginnie I</li> <li>• Ginnie II</li> <li>• ARMs</li> <li>• Projects</li> </ul>	<ul style="list-style-type: none"> <li>• 30 Year Fixed</li> <li>• 15 Year Fixed</li> <li>• Balloons</li> <li>• ARMs</li> <li>• Multifamily</li> </ul>	<ul style="list-style-type: none"> <li>• 30 Year Fixed</li> <li>• 15 Year Fixed</li> <li>• Balloons</li> <li>• ARMs</li> <li>• Multifamily</li> </ul>

# Agency Market



# Agency Trading

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## **To-Be-Announced (TBA) Pools**

- Most common agency trade
- Buyer and seller decide on trade parameters, but exact pools are unknown to the buyer until two days before settlement
- TBA market facilitates liquidity in pass-through trading, as most individual pools are small

## **Specified Pools**

- Buyers know exactly which pools they are buying and its relevant characteristics
- Specified pools typically trade at a premium to TBAs due to the certainty

## **Pass-Through Vintages**

- Investors specify a particular loan origination year. Buyer may specify 2003 30-year Fannie 5's.
- Extra certainty of prepayment characteristics results in pools trading at a premium to TBAs

# Agency TBA Pricing

9/28 19:44 GMT [ TELERATE - US MBS ] 09/28 15:44 7105

30-YEAR FIXED RATE MBS INDICATIONS ]

GN 6.0  OCT 103.23-25 -.01	FN 6.0  OCT 103.17-19 -.01	GOLD  OCT 103.13-15 -.01	
NOV 103.14-16 -.01	NOV 103.03-05 -.01	6.0  NOV 103.03-05 -.01	
DEC 103.04-06 -.01	DEC 102.22-24 -.01	DEC 102.23-25 -.01	
JAN 102.26-28 -.01	JAN 102.09-11 -.01	JAN 102.11-13 -.01	

OCT GNMA	OCT FNMA	OCT PC GOLD	TREASURY (BID)
4.5 97.15-17 -.04	4.5 96.28-30 -.04	4.5 96.27-29 -.04	5Y 100.15 +.01
5 99.29-31 -.03	5 99.14-16 -.03	5 99.16-18 -.03	10Y 101.30+ -.03+
5.5 101.31-01 -.03	5.5 101.20-22 -.03	5.5 101.22-24 -.03	30Y 108.19+ -.13
6 103.23-25 -.01	6 103.17-19 -.01	6 103.13-15 -.01	DJIA
6.5 105.13-15 -.02	6.5 104.30-00 -.02	6.5 104.30-00 -.02	10084.25 + 95.71
7 106.18-20 -.01	7 106.00-02 -.01	7 106.01-03 -.01	CURRENCIES
7.5 107.20-22 +	7.5 107.02-04 +	7.5 107.10-12 +	JPY 111.36-41
8 109.04-06 +	8 108.04-06 +	8 108.04-06 +	EUR 1.2314-19
8.5 109.20-22 +	8.5 108.12-14 +	8.5 108.12-14 +	GBP 1.8121-25
9 108.27-29 +	[FED FUNDS BID 1 11/16 ASK 1 3/4 LAST 1 3/4 ]		
9.5 109.07-09 +	[<NEW> TELERATE DATA ON BLACKBERRY PG 11		

## Non-Agency Sector

# Non-Agency Market

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Securities backed by mortgage loans that do not “conform” to agency guidelines.

- Loan balance in excess of agency limitations (currently \$333,700)
- Loan documentation that does not meet agency requirements
- Non-prime credit borrowers

*A large and diverse market sector covering the complete spectrum of borrower demographics, credit characteristics, loan types and loan sizes*

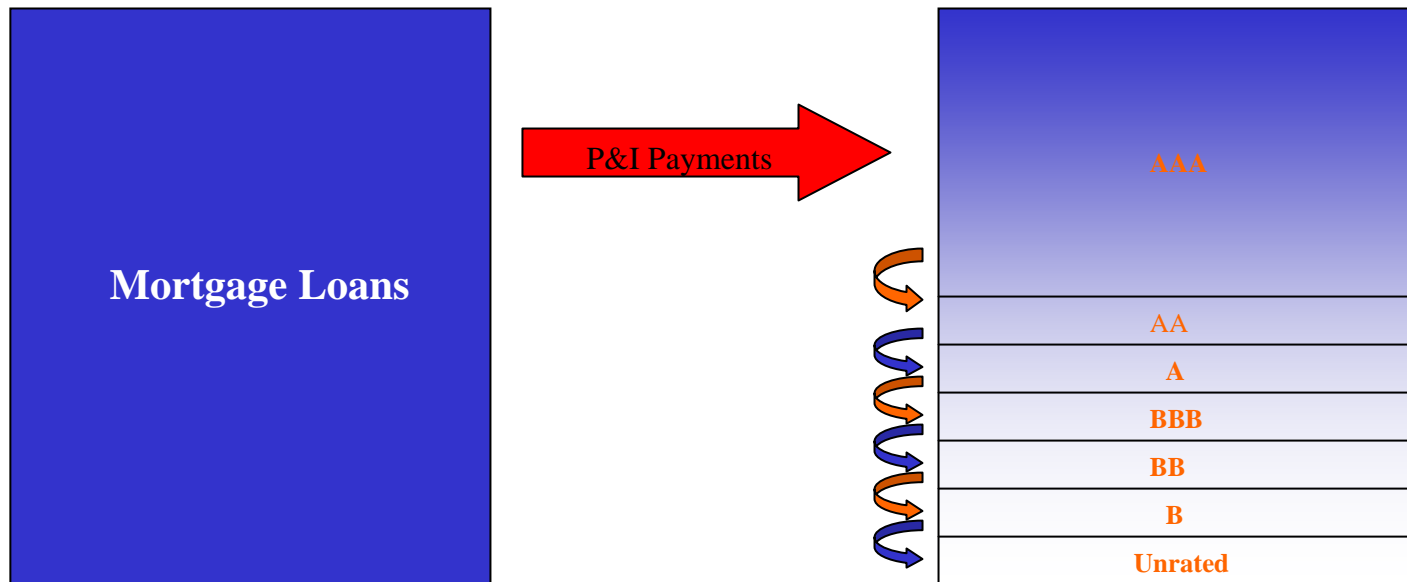
# Non-Agency Residential Mortgages

Credit	Prime/A Credit	Alternative A	Sub-Prime
Description	High credit quality borrowers generally with loan amounts in excess of agency limits (currently \$333,700)	High credit quality borrowers with loan documentation that does not conform to agency requirement i.e. no-income verification	Borrowers with lower credit quality that do not meet agency credit standards
Characteristics	<ul style="list-style-type: none"> <li>• Low interest rate</li> <li>• Avg loan balance \$600k</li> <li>• High California and NE concentrations</li> <li>• Affluent borrowers</li> <li>• Very efficient refinancers when rates drop</li> </ul>	<ul style="list-style-type: none"> <li>• Interest rates generally 25-50 bps higher than Prime</li> <li>• Avg loan balance \$250k</li> <li>• Limited loan documentation</li> <li>• Good credit</li> <li>• High debt load</li> </ul>	<ul style="list-style-type: none"> <li>• Higher interest rates commensurate with risk</li> <li>• Avg loan balance \$150k</li> <li>• Limited loan documentation</li> <li>• Poor credit</li> <li>• Heavy debt load</li> <li>• High California concentrations</li> <li>• Some second liens</li> </ul>
Current Interest Rate (30yr Fixed)	6.0%	6.35%	7.5%
Major Issuers	<ul style="list-style-type: none"> <li>• Countrywide</li> <li>• Wells Fargo</li> <li>• Washington Mutual</li> </ul>	<ul style="list-style-type: none"> <li>• GMAC – Residential Funding</li> <li>• Impac Mortgage</li> </ul>	<ul style="list-style-type: none"> <li>• Ameriquest</li> <li>• New Century</li> <li>• Option One</li> </ul>

# Non-Agency Market

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Since non-agency MBS have no Agency guarantees that assure investors they will receive timely payment of interest and principal, regardless of delinquency or default rates on the underlying loans, credit enhancement is needed to protect investors from borrower delinquencies.



# Asset-Backed Pass-Through Certificates Series 2004-WCW2

Park Place Securities, Inc



August 9, 2004

Class	Approximate Size (\$)	Type <sup>(1), (2)</sup>	WAL <sup>(3), (4)</sup>	Principal Payment	Pmt Delay	Interest Accrual	Discount Margin	Expected Ratings	Initial Credit Enhancement (%)
			(yrs)	Window <sup>(3), (4)</sup>	(days)	Basis		S&P / M / F	
			Call / Mat	Call / Mat					
Offered Certificates									
A-2	250,000,000	FLT / PT	2.51/2.72	1-95/1-214	0	Act/360	38	AAA / Aaa / AAA	23.75
A-3	100,000,000	FLT / SEQ	1.00/1.00	1-24/1-24	0	Act/360	17	AAA / Aaa / AAA	23.75
A-4	39,300,000	FLT / SEQ	2.70/2.70	24- 49/24-49	0	Act/360	34	AAA / Aaa / AAA	23.75
A-5	36,427,000	FLT / SEQ	6.46/7.48	49- 95/49-214	0	Act/360	53	AAA / Aaa / AAA	23.75
A-6	94,960,000	FLT / SEQ	0.70/0.70	1-15/1-15	0	Act/360	15	AAA / Aaa / AAA	23.75
A-7	145,204,000	FLT / SEQ	3.70/4.05	15- 95/15-214	0	Act/360	43	AAA / Aaa / AAA	23.75
M-1	147,000,000	FLT / MEZ	5.39/5.98	42- 95/42-187	0	Act/360	62	AA+ / Aa1 / AA+	18.85
M-2	120,000,000	FLT / MEZ	5.34/5.91	40- 95/40-177	0	Act/360	65	AA / Aa2 / AA	14.85
M-3	54,000,000	FLT / MEZ	5.32/5.87	40- 95/40-167	0	Act/360	70	AA- / Aa3 / AA-	13.05
M-4	52,500,000	FLT / MEZ	5.30/5.83	39- 95/39-162	0	Act/360	118	A+/A1/A+	11.3
M-5	51,000,000	FLT / MEZ	5.30/5.81	38- 95/38-156	0	Act/360	125	A / A2 / A	9.6
M-6	37,500,000	FLT / MEZ	5.28/5.77	38- 95/38-150	0	Act/360	145	A- / A3 / A-	8.35
M-7	36,000,000	FLT / MEZ	5.28/5.74	38- 95/38-144	0	Act/360	195	BBB+ / Baa1/ BBB+	7.15
M-8	33,000,000	FLT / MEZ	5.28/5.70	38- 95/38-138	0	Act/360	205	BBB / Baa2 / BBB	6.05
M-9	39,000,000	FLT / MEZ	5.27/5.63	37- 95/37-131	0	Act/360	410	BBB- / Baa3 / BBB-	4.75
Certificates									
A-1 <sup>(5)</sup>	1,621,609,000	FLT / PT		Not Offered				AAA / Aaa / AAA	
M 10	36,000,000	FLT / MEZ		Not Offered				BB+/ Ba1 / BB+	
CE		N/A		Not Offered				NR	N/A
P		N/A		Not Offered				NR	N/A
R		N/A		Not Offered				NR	N/A

# Analyzing MBS

# Prepayments

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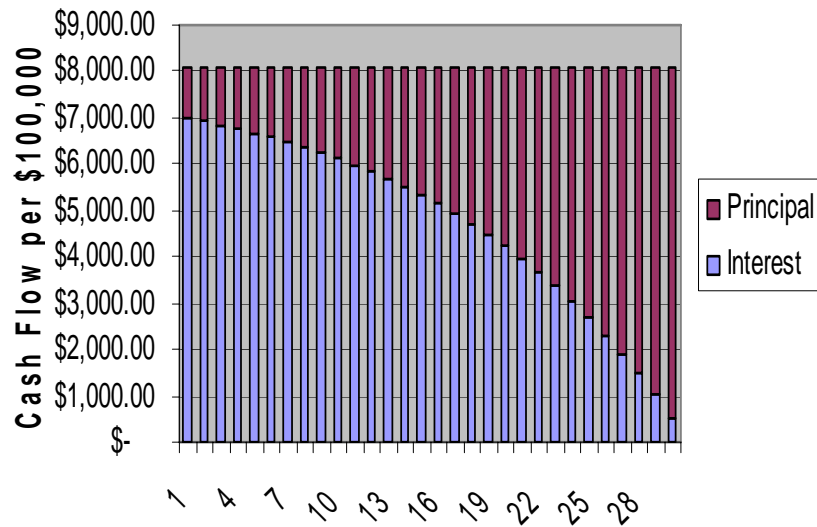
*Prepayments have a dramatic impact on the performance and valuations of MBS*

Why do prepayments occur:

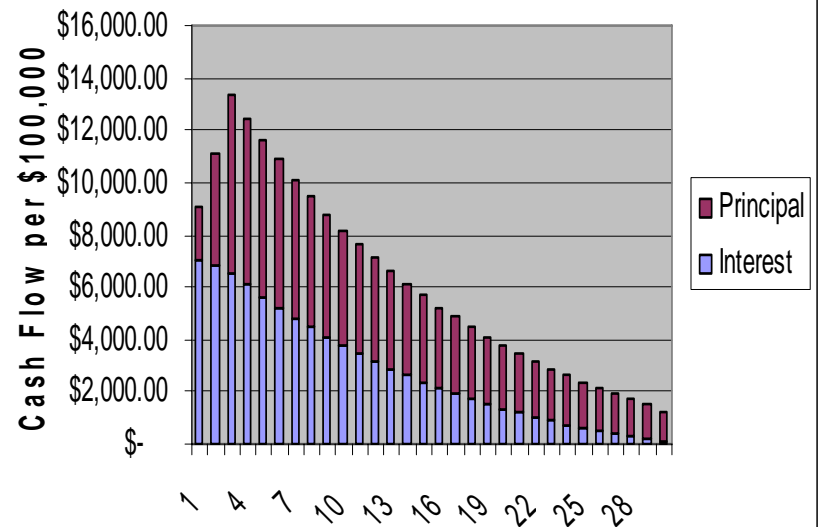
- Home Sales – Generally leads to the payoff of the sellers mortgage
- Refinancings – Borrower pays off old mortgage with proceeds from new loan, generally to take advantage of lower rates
- Defaults – Prepayments caused by foreclosure and subsequent liquidation of the mortgage
- Curtailments and Full Payoffs – Borrowers make extra payments or pay additional principal, up to the full amount of the mortgage, to speed up payoff of the loan

# Impact of Prepayments

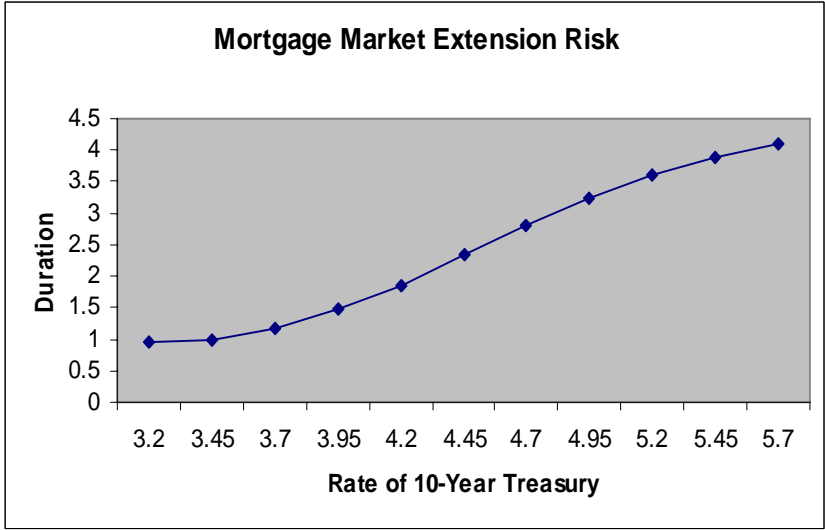
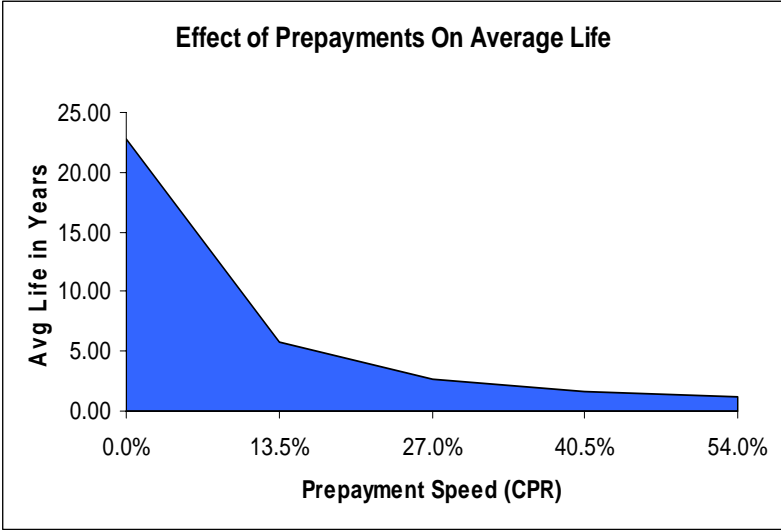
### 7% Cash Flows with no Prepayments



### 7% cash Flow at Prepayment Rate of 100% PSA

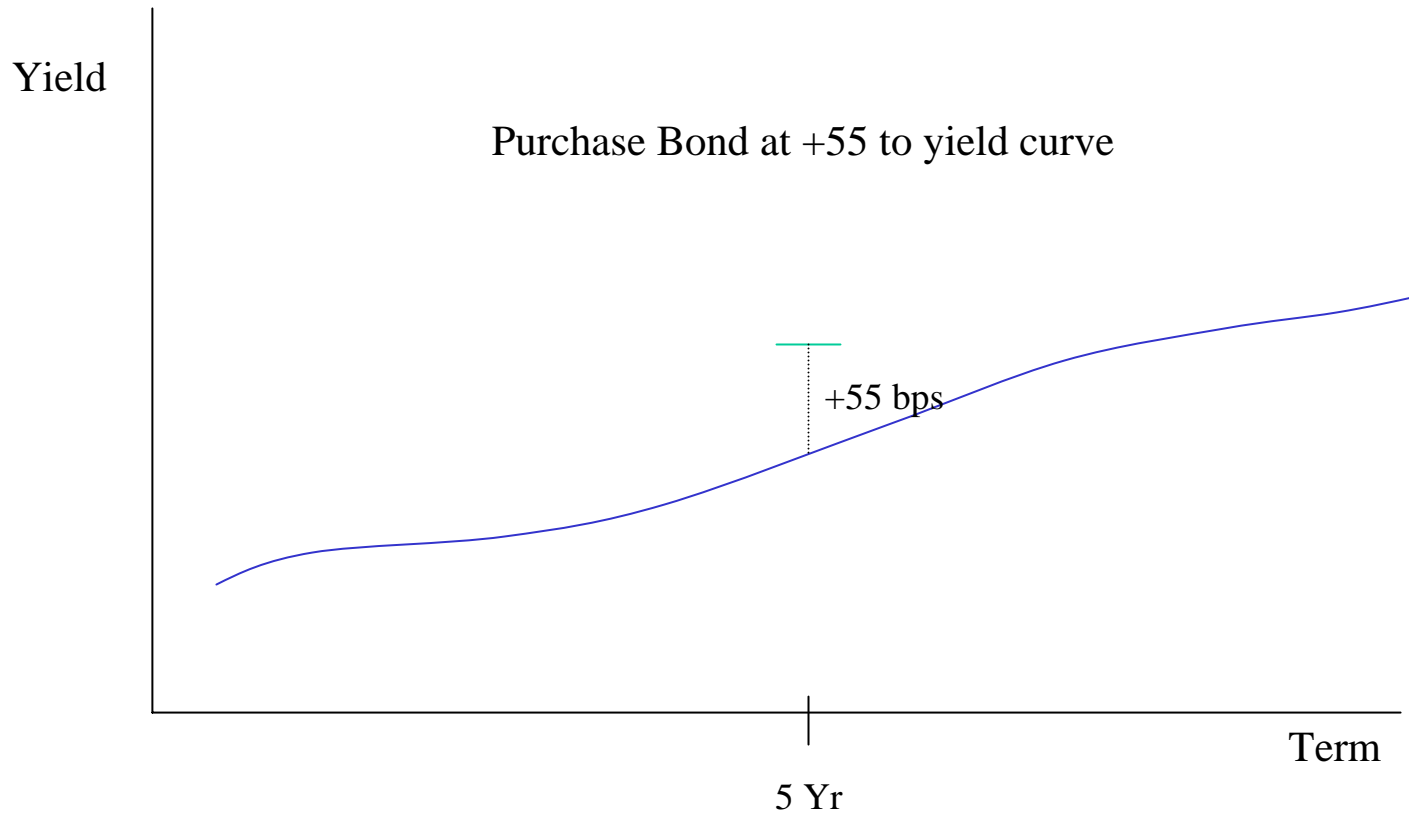


# Impact of Prepayments

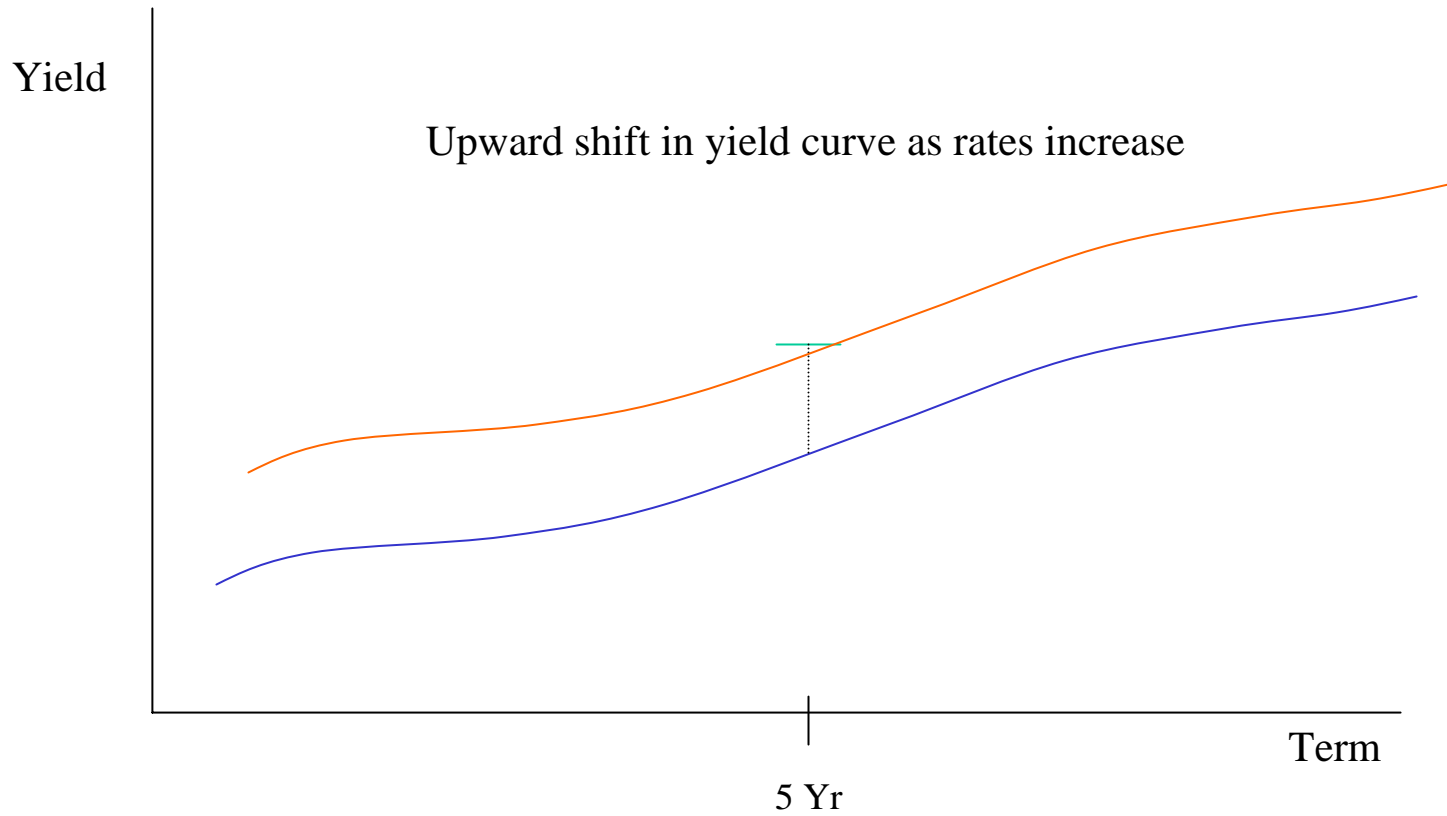


# Extension Risk

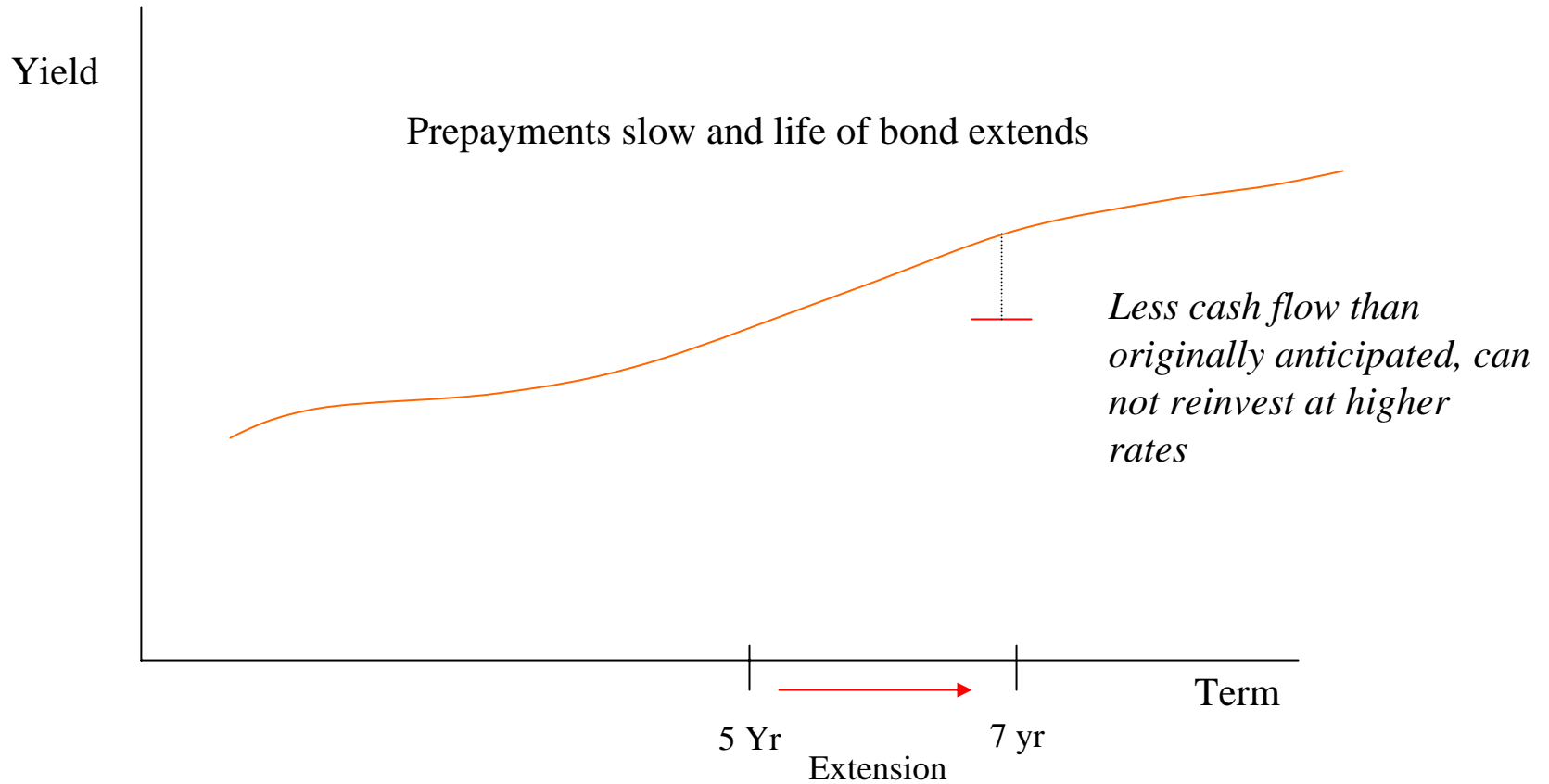
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# Extension Risk

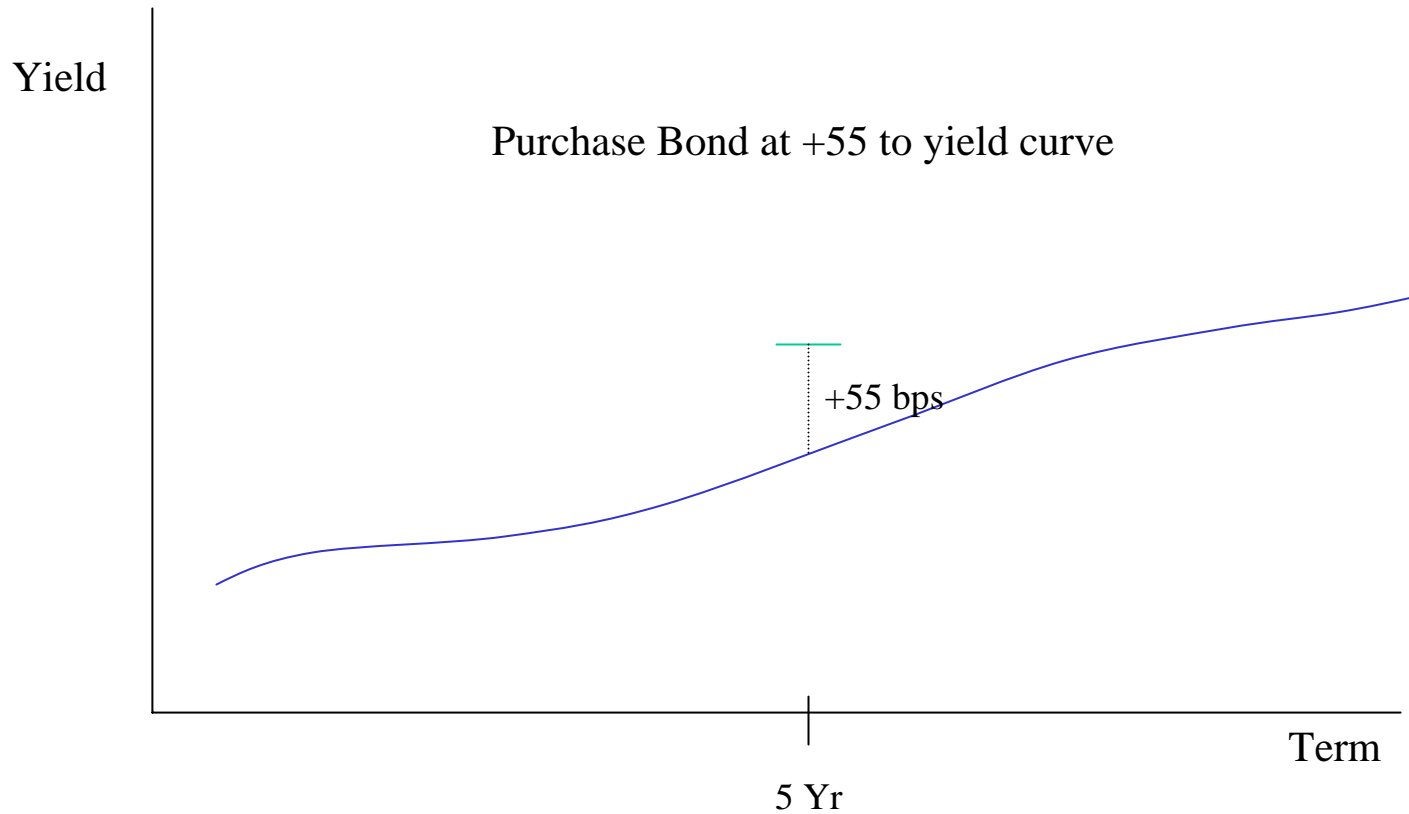


# Extension Risk



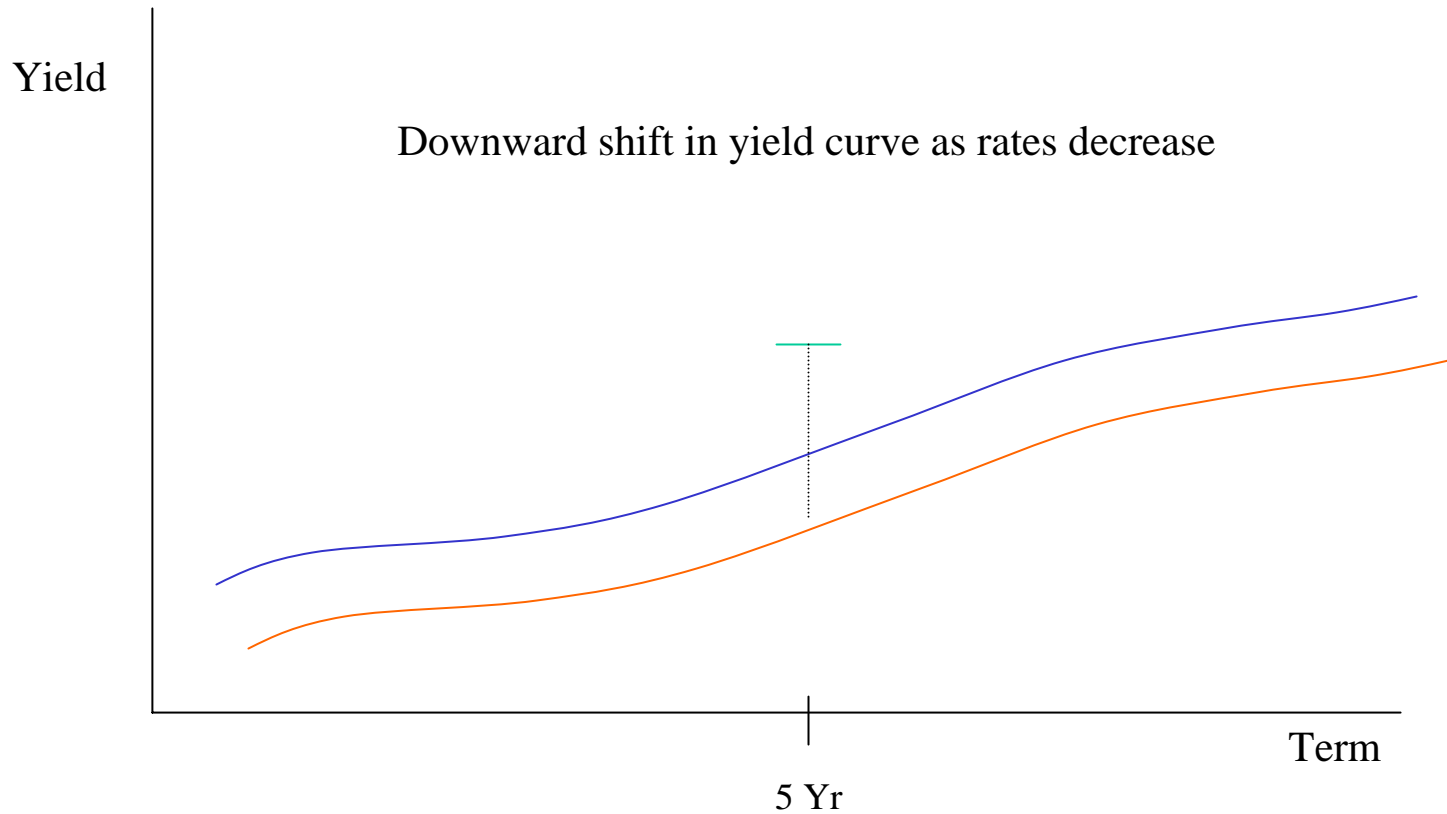
# Shortening Risk

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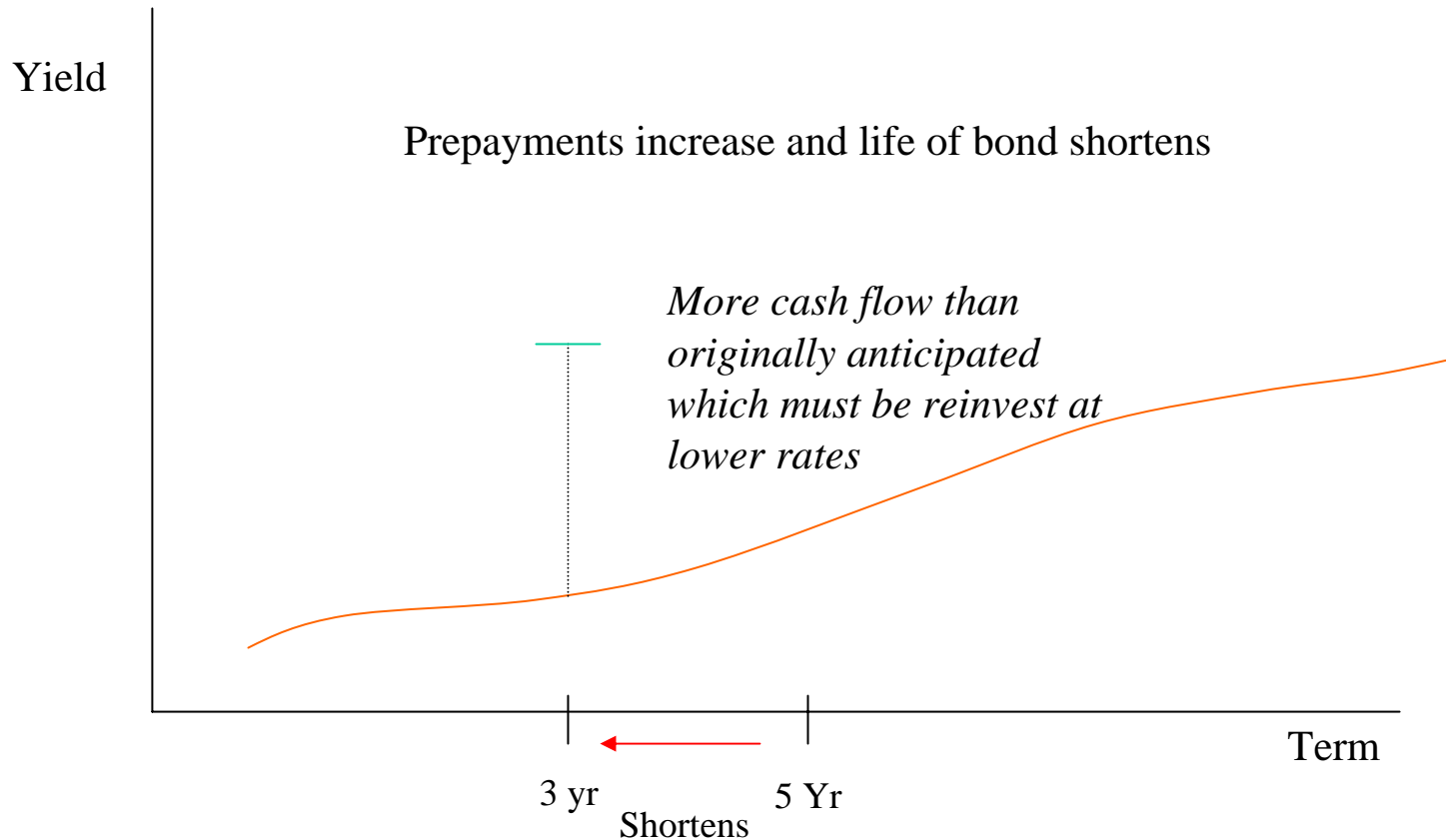


# Shortening Risk

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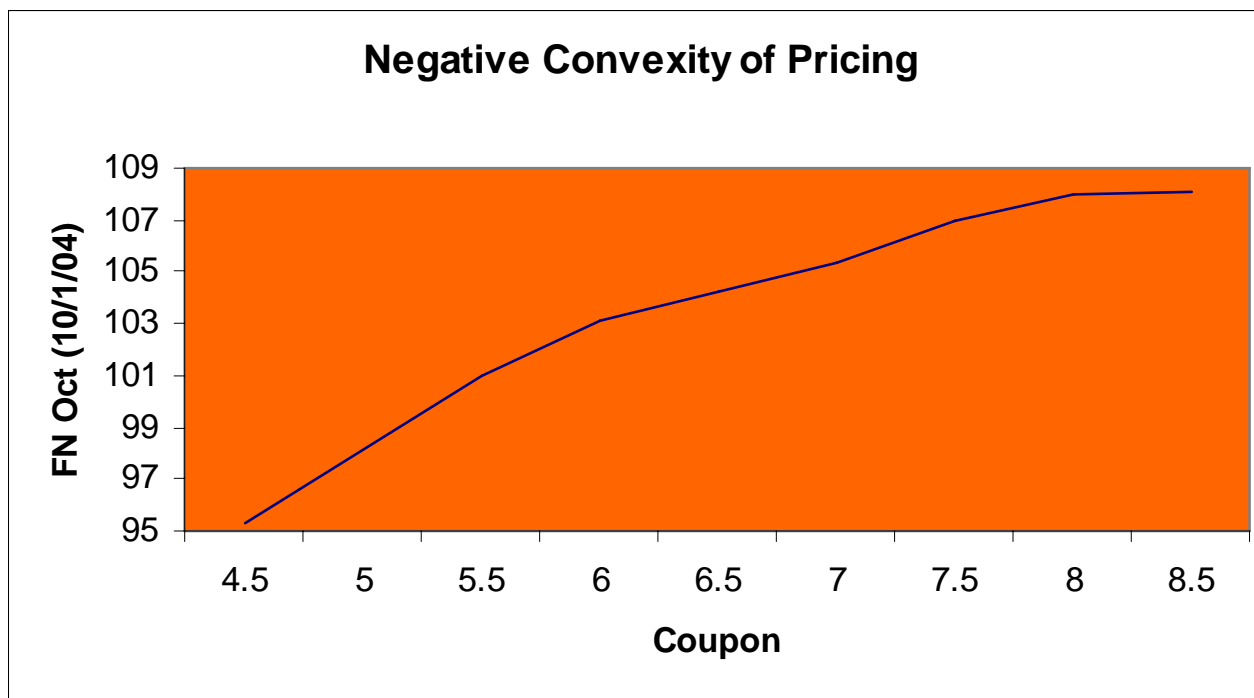


# Shortening Risk



# Impact of Prepayments on MBS Pricing

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# Factors Influencing Prepayments and Defaults

Factor	Turnover	Rate-Driven	Other*	Defaults
<i>Collateral and Borrower Related</i>				
Larger Loan Sizes	—	↑	↑	—
Higher Credit Score, Lower Debt	↑	—	↓	↓
More Second Liens	—	↓	↑	—
Higher LTV	↓	↓	↓	↑
<i>Macro Economics</i>				
Lower Rates	↑	↑	—	↓
Healthier Economy	↑	↑	↑	↓
Higher Home Prices	↑	↑	↑	↓

\* Refinancings on lower credits that are insensitive to rate moves, driven by debt consolidation and credit improvement

## Role of Mortgage Finance Group at CGM

# Mortgage Finance Organizational Structure

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Citigroup Global  
Corporate and Investment Bank

Global Fixed Income

Global Securitized Markets

ABS

Syndicate  
Trading  
ABS Finance

MBS

Trading  
Mortgage Finance  
Mortgage Analytics

CMBS

Trading  
CMBS Finance

Conduits

Multi Seller CP Facilities  
Proprietary Trading

# Mortgage Finance Department

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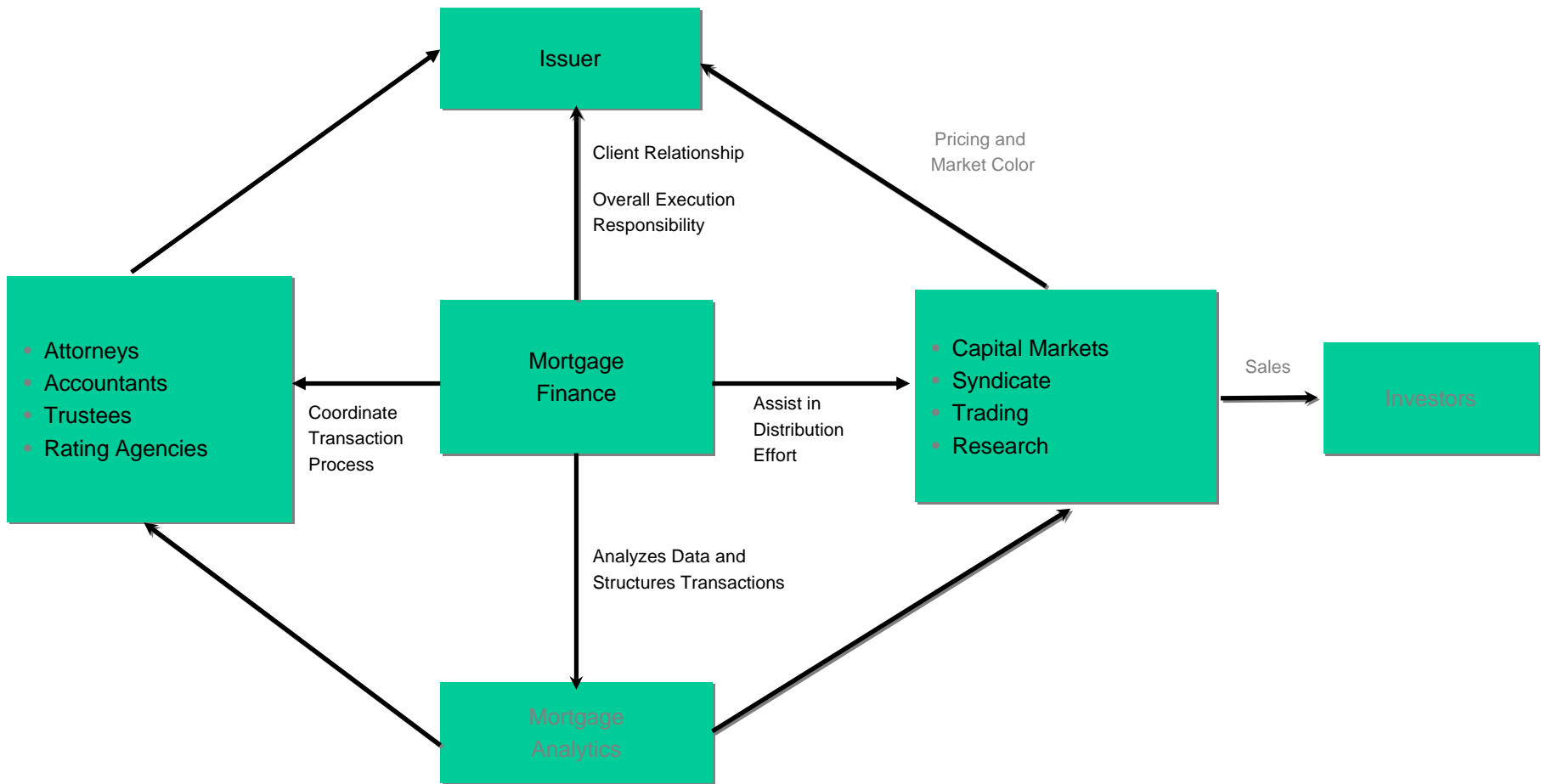
- **Product specialist**
  - Touch all aspects of the organization when mortgage expertise is required (M&A assignments, valuations, balance sheet restructuring)
- **Account coverage**
  - Cover accounts from Washington Mutual and Countrywide to small mortgage originators
- **Represent products and services offered by Citigroup**
  - Securitization, whole loan trades, financing
- **Transaction origination**
  - Generate new business
- **Transaction execution**
  - Responsible for all aspects of transaction execution

# Mortgage Finance Products

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- **Mortgage-Backed Securities**
  - Agency MBSs
  - Non-Agency “Jumbo” MBSs
- **Mortgage Related Asset-Backed Securities**
  - Home Equity ABS
  - Timeshare Transactions
  - Small Balance Commercial
- **Whole Loan Mortgage Transactions**
- **Financing / Warehouse Lines**
- **Internal Securitizations**
- **Credit Default Swaps**
- **Synthetic Securitizations**

# Transaction Execution



# My Contact Information

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