

**FORWARD THINKING**

# Challenging Traditional Bond Analytics

**ANALYTICALLY DRIVEN**

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**ptam**  
PT Asset Management, LLC  
MUTUAL FUNDS

# A Matter of Perspective

THE OPPORTUNITY IS NOT **OBVIOUS** UNTIL THE RIDDLE IS SOLVED...



# Our Background

- › Sister company Performance Trust Capital Partners founded in 1994
- › Leading provider of fixed income expertise to regional banks nationally
- › Over 5,000 buy-side Institutions trained at Performance Trust University®

# PTAM (PT Asset Management, LLC)

- › Managing assets since 2008
- › \$900 million in AUM (as of September 30, 2015)
- › Hedge Funds, SMAs and two core Mutual Funds
- › Eleven person Investment Team
  - › Alternatives DNA
  - › Coverage across all fixed income sectors
  - › Average 15 years investment experience

# U.S. Treasury 10 Yield 1980-2014 (34 years)



Source: Bloomberg

# Traditional Metrics For Security Selection—Which Would You Choose?

- › Yield Curve: October 15, 2003
- › Rates will go up ~200 bps over the next two years.

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**Yield Table**

Templates Edit Views New Template

Currency USD Frequency Conventions Market Conventions spreads Hide

125 US Treasury Actives Curve 10/15/03

Term	Description	Price	Yield
3 Months	B 0 01/15/04	0.9100	0.9273BGN
6 Months	B 0 04/15/04	0.9900	1.0116BGN
2 Years	T 1 5a 09/30/05	99.7188	1.7718BGN
3 Years	T 2 3a 08/15/06	100.3906	2.2313BGN
5 Years	T 3 1a 10/15/08	99.2188	3.2958BGN
10 Years	T 4 1a 08/15/13	98.7969	4.4014BGN
30 Years	T 5 3a 02/15/31	101.2188	5.2896BGN

Australia 61 2 9777 8600 Brazil 5511 3048 4500 Europe 44 20 7330 7500 Germany 49 69 9204 1210 Hong Kong 852 2977 6000  
Japan 81 3 3201 8900 Singapore 65 6212 1000 U.S. 1 212 318 2000 Copyright 2012 Bloomberg Finance L.P.  
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**Yield** **Duration**

1-Year 1.50 0.9 years

2-Year 1.75 1.8 years

3-Year 2.25 2.7 years

5-Year 3.30 4.5 years

Source: Bloomberg

# Shortcomings of Traditional Metrics for Fixed Income Investing

# Yield As A Measure Of Return

## Yield Assumptions

1. Income reinvested will be reinvested at the same yield
2. Yield is equal to total return
3. Yield is static

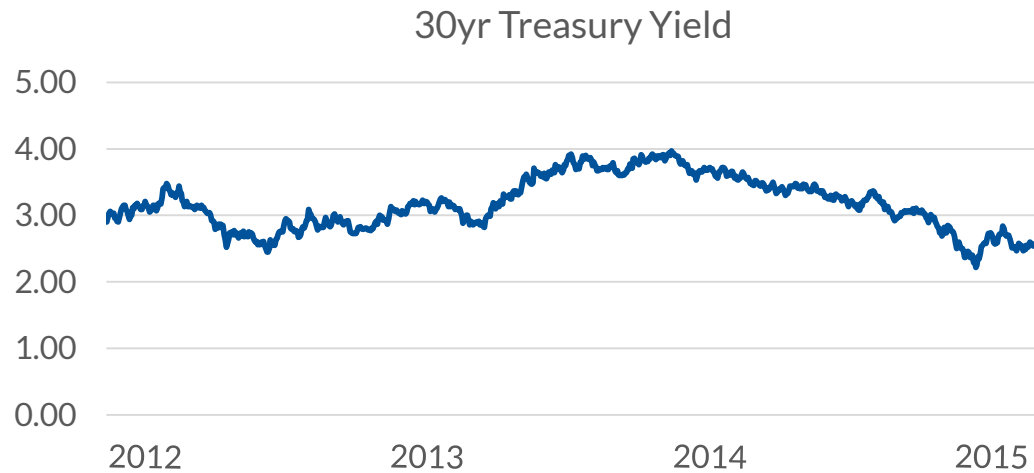
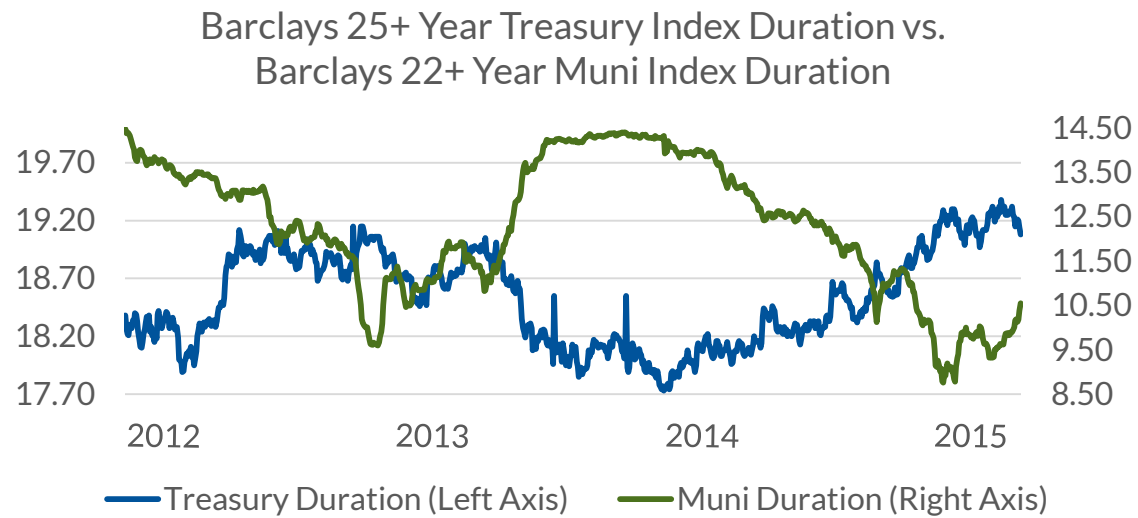


# Duration as a Measure of Risk

## Duration Assumptions

1. Accurate regardless of the magnitude of interest rate changes
2. Bond price movements are linear
3. Duration is static

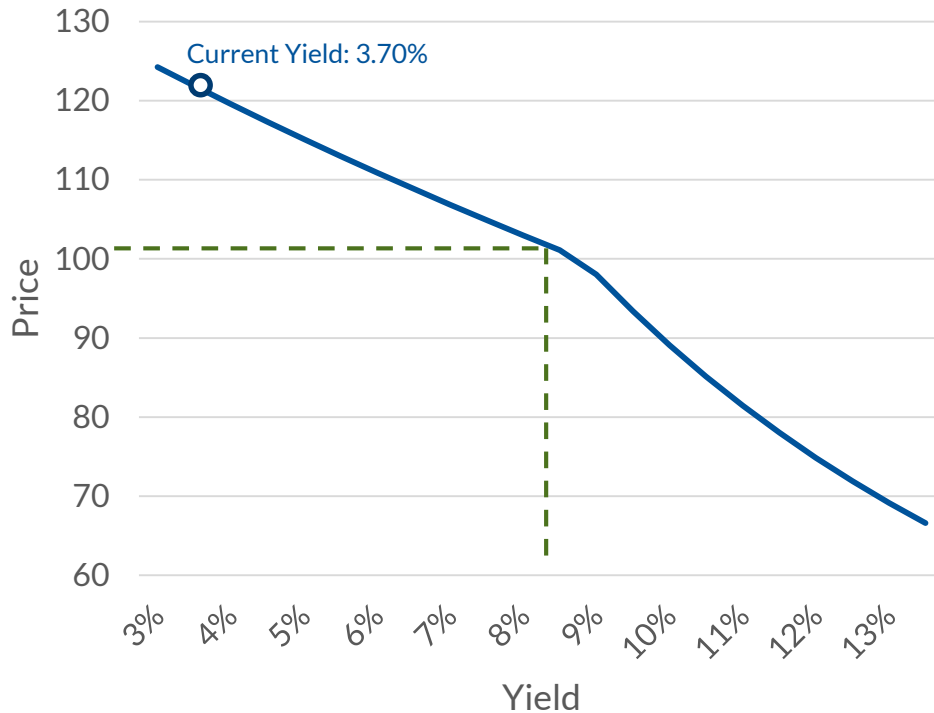
# Duration is Dynamic and can Change Dramatically



Source: Bloomberg

# A Practical Example Of Durations Limitations

## PRICE vs. YIELD



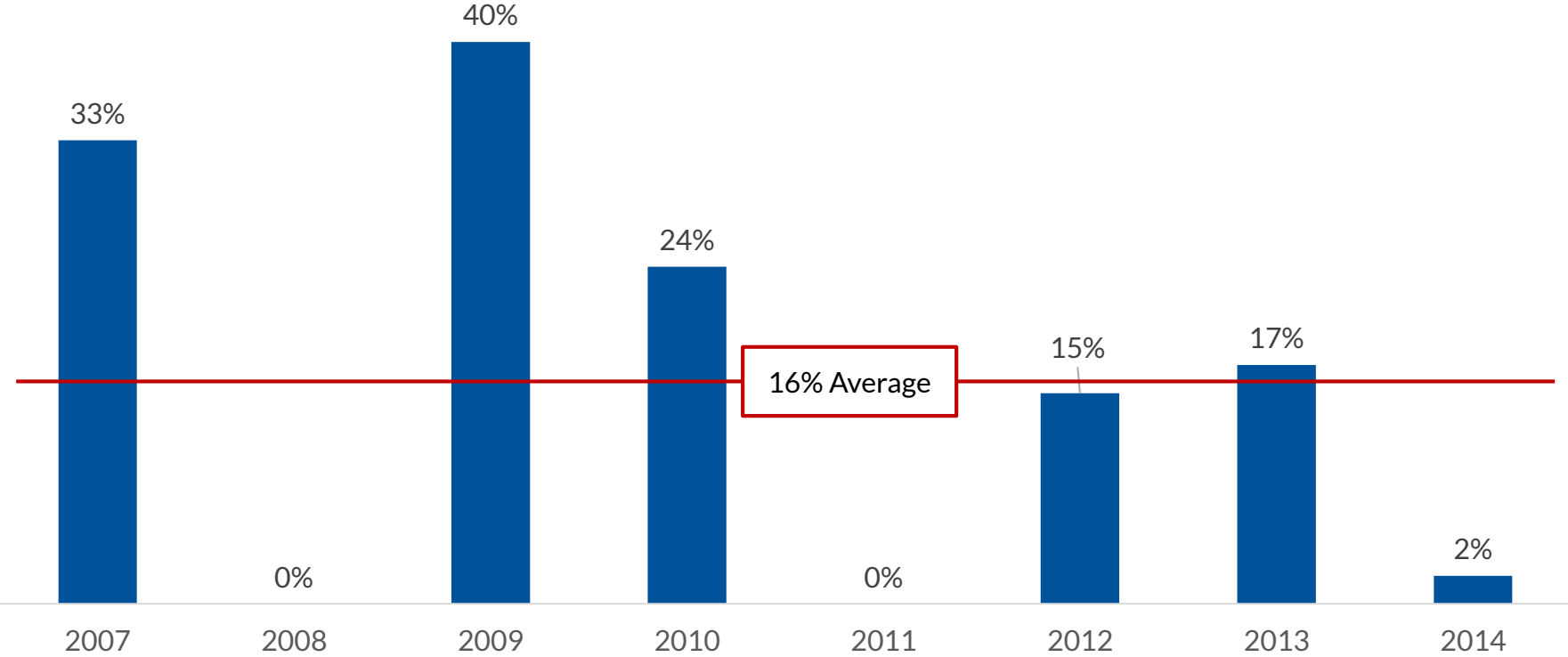
## KEY ATTRIBUTES

- › 8.8% Coupon
- › AA S&P Rating with BAM AA Insurance Backing
- › 3.7% Yield
- › 3.7 Duration
- › Callable in December 2019

Source: Bloomberg

# Inaccuracy Of Economist Interest Rate Predictions

% OF INTEREST RATE PREDICTIONS WITHIN 50 BPS OF ACTUAL RATES



Source: Wall Street Journal

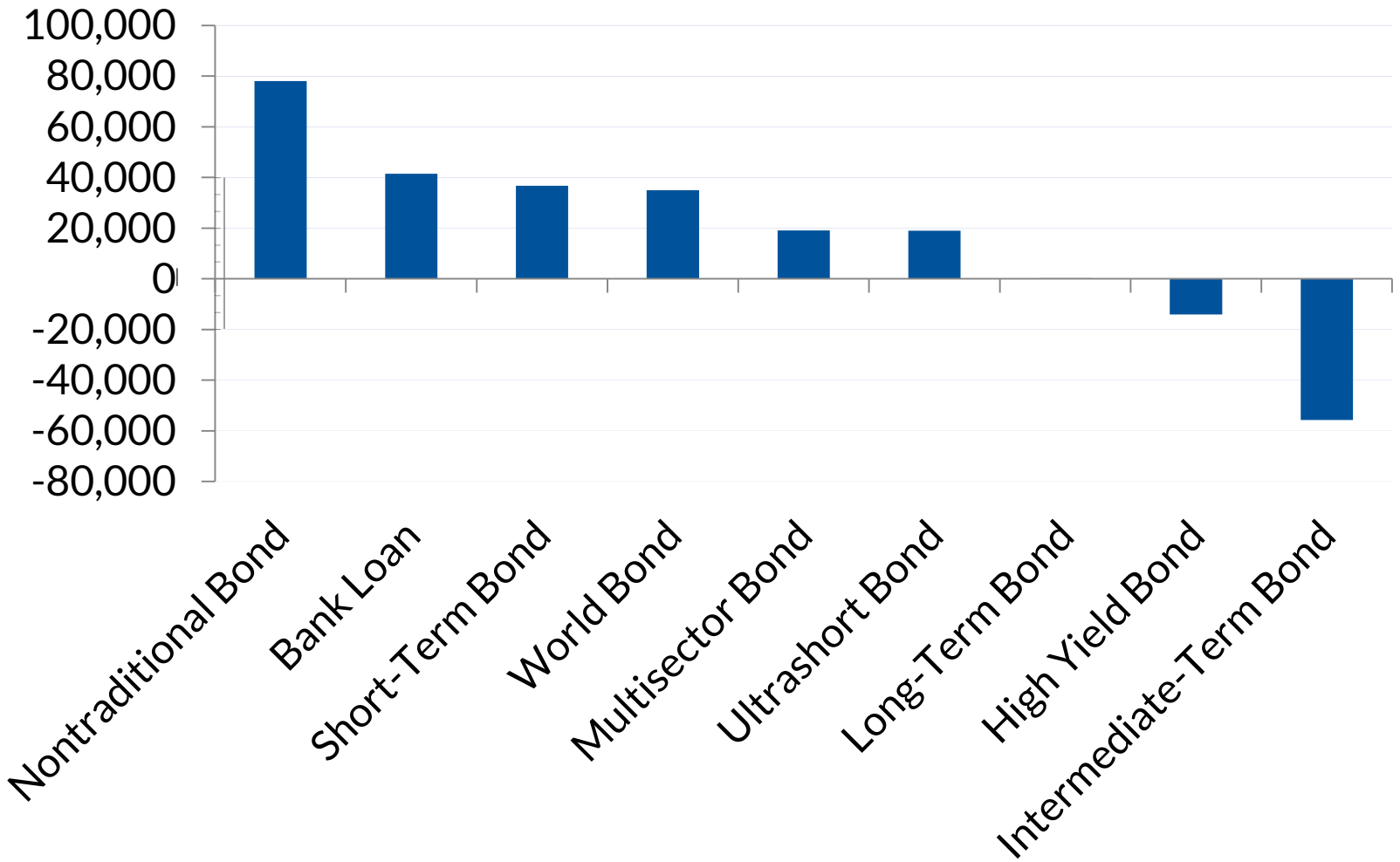
# Top-Down Investing

In a recent survey, Jim Bianco studied 20 years of *Wall Street Journal* interest rate surveys and found that as a group, they successfully predicted the future **direction** of interest rates only 30% of the time.

The problem with “top-down investing”...

- › If the forecast is wrong, the investment will be wrong
- › And would you know which security to buy even if your forecast was correct?

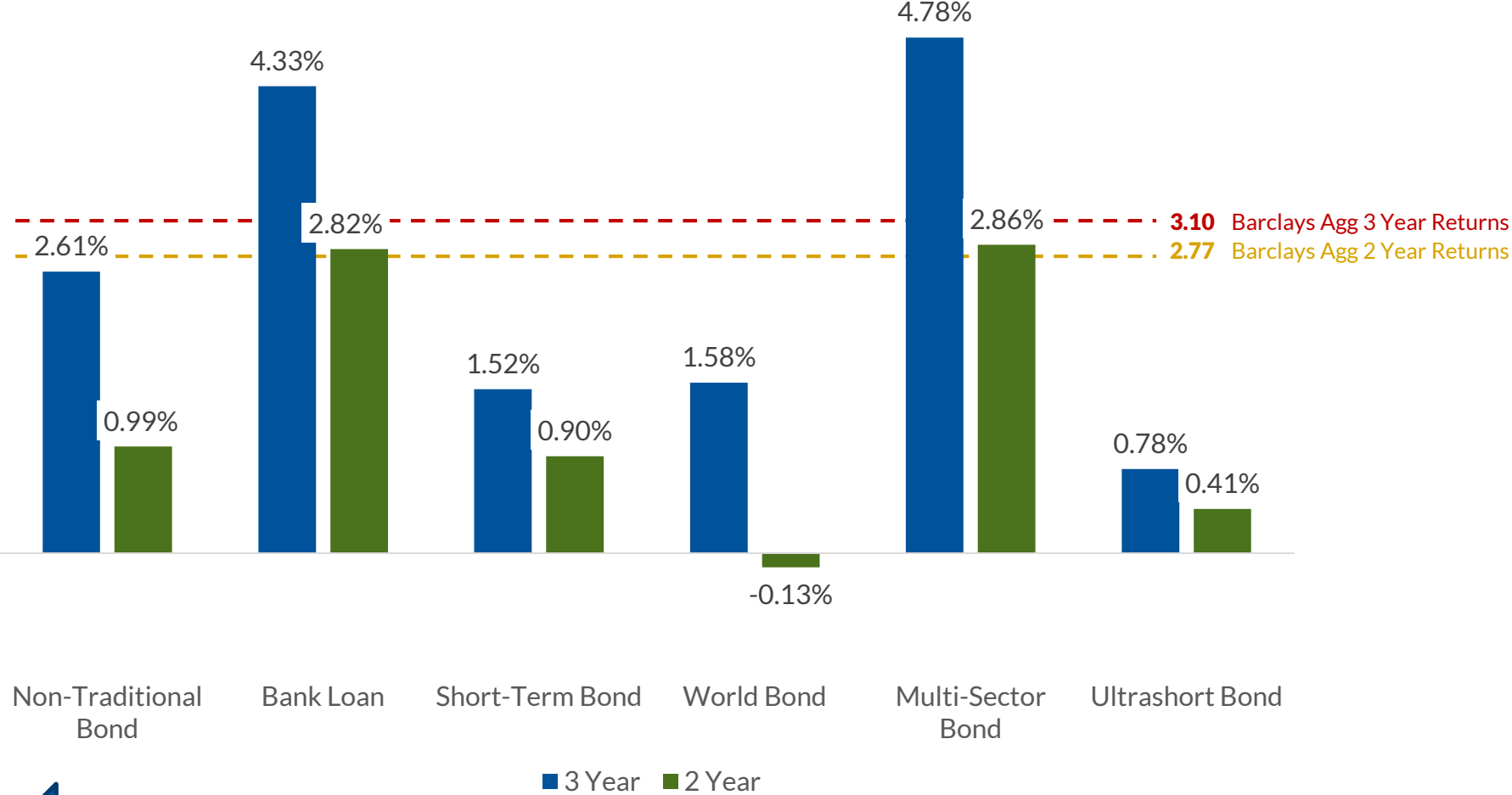
# Recent Fixed Income Flows Are Concentrated In Sectors Believed To Perform Well In Rising Rate Environments



Source: Morningstar Direct, categories represented by Morningstar Categories between 2013 and 2014

# Sacrificing Returns On Rate Predictions

## TOTAL RETURN OF MORNINGSTAR CATEGORY AVERAGES



Source: Morningstar

# Open vs. Closed System



# Casino vs. Insurance Company

## RISK MANAGEMENT



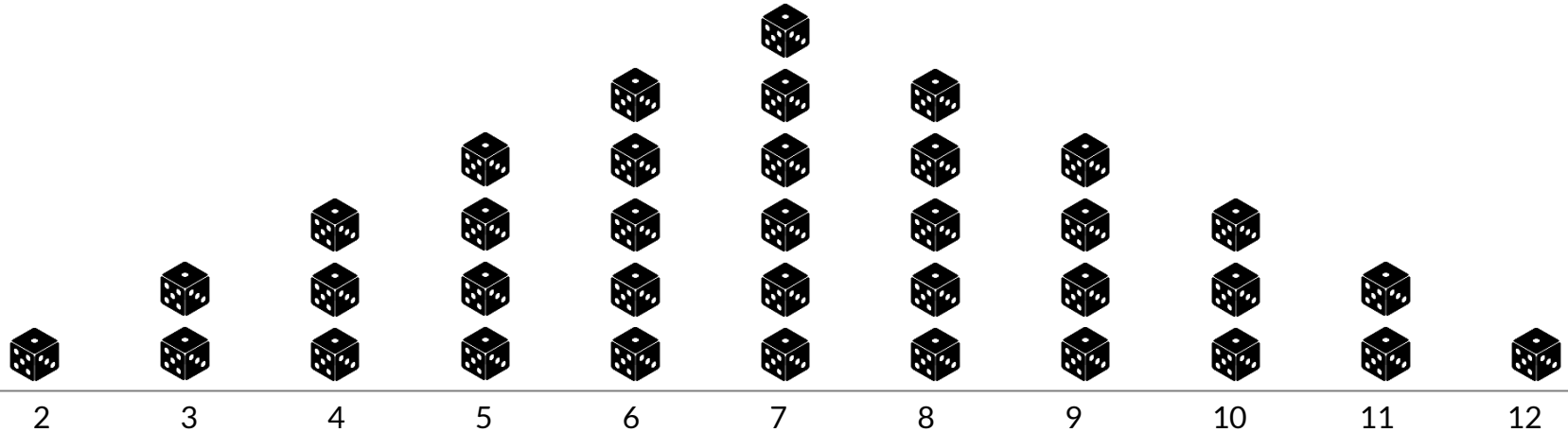
# Casino

## HOW DOES THE CASINO DETERMINE THE ODDS AT THE CRAPS TABLE?

- › The Probability of a particular roll must be calculated
- › There are two ways to do this:
  - › Roll the dice and figure it out
  - › Do the math

# Casino

A SYSTEM WHERE WE **KNOW** ALL POSSIBLE OUTCOMES = A CLOSED SYSTEM



**What are the odds of rolling a 13?**

# Past Performance...

## HOW DOES THE INSURANCE COMPANY DETERMINE THE COST OF INSURING THEIR POLICY HOLDERS?

- › They must first determine the **probability of a claim**
- › Based on data collected from the past
  - › “We can assume”:
    - › What happened in the past will likely continue into the future
    - › What has not happened in the past will not happen in the future

# Past Performance...

## 100 YEARS OF FLORIDA WEATHER ON RECORD...

- › Average seven hurricanes per year which caused damage
- › Experienced 12 hurricanes in one year which caused damage (worst season on record)
- › Averaged \$300 million in claims per hurricane
- › Single worst hurricane caused \$1.6 billion in claims
- › What is the chance of 13 hurricanes in one year?
- › I **HOPE** NONE
- › Open System: I **Hope** I Know the Odds
- › Closed System: I **Know** the Odds

# Closed System Riddle

THE OPPORTUNITY IS NOT **OBVIOUS** UNTIL THE RIDDLE IS SOLVED...

How many socks to be guaranteed a matching pair?



# An Alternative: Scenario Based Total Return Analysis

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Source: Bloomberg



# Break-Even Analysis

5-Year	2-Year
3.30	1.75
3.30	1.75
3.30	X
3.30	X
3.30	X
16.50	16.50

$$1.75 + 1.75 = 3.50$$

$$16.50 - 3.50 = 13.00$$

$$13.00 / 3 = 4.33$$

**When we solve for X we find that the 3-yr yield MUST = 4.33%**

# Break-Even Analysis

› Yield Curve: October 15, 2003

1-Year	1.50
2-Year	1.75
3-Year	2.25
5-Year	3.30

The 3-Year Treasury must be 4.33 or up 208 bps for the 5-Year Treasury to break-even with the 2-Year Treasury.

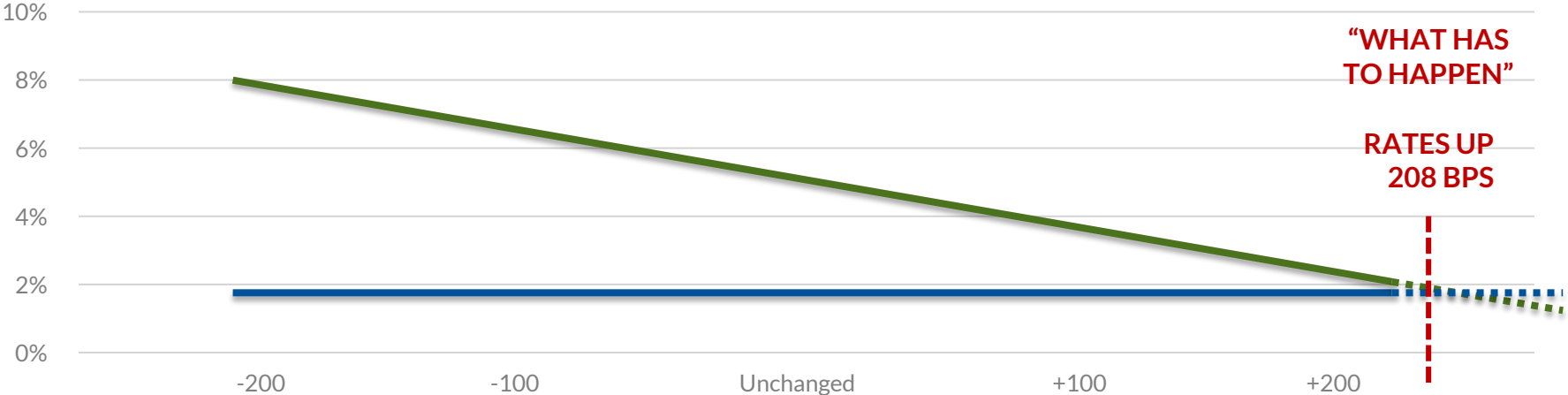
**Which Treasury will win if rates are up 200 bps?**

# Bonds: A Closed System

5-Year Treasury: 3.30%

Interest Rate Scenario	Purchase	Year 1 Payment	Year 2 Payment	Income in Years 3-5	Year 2 End Price	Total Return
-200	100	3.3%	3.3%	9.15%	109.15	8.0%
-100	100	3.3%	3.3%	6.15%	106.15	6.5%
Unchanged	100	3.3%	3.3%	3.15%	103.15	5.0%
+100	100	3.3%	3.3%	0.15%	100.15	3.5%
+200	100	3.3%	3.3%	-2.85%	97.15	2.0%

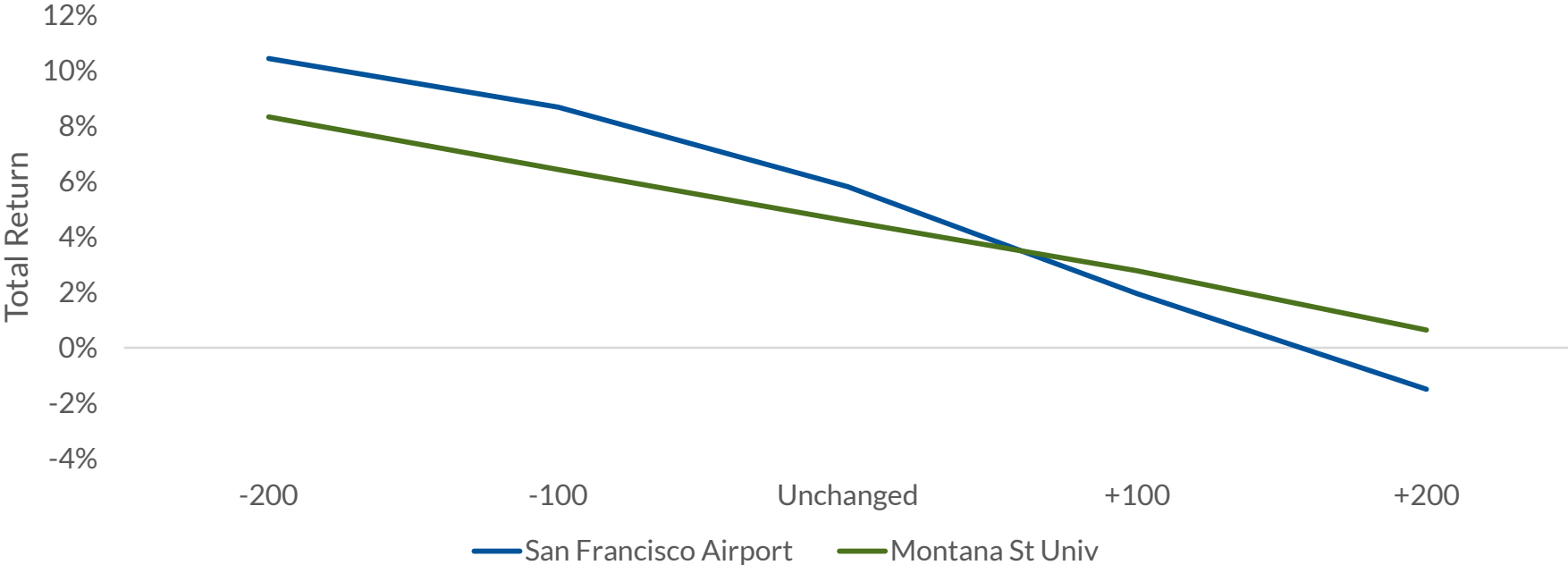
# Scenario-Based Total Return Analysis



	-200	-100	Unchanged	+100	+200
2-Year UST	1.75%	1.75%	1.75%	1.75%	1.75%
5-Year UST	8.00%	6.50%	5.00%	3.50%	2.00%

# A Practical Example

## 3-Year Horizon Total Return Analysis



	-200	-100	Unchanged	+100	+200
<b>San Francisco Airport 3.5% 5/1/2029 (Callable 5/1/2023)</b>	10.44%	8.68%	5.81%	1.95%	(1.50%)
<b>Montana St Univ 4% 11/15/2023 (Non-Callable)</b>	8.33%	6.43%	4.57%	2.77%	0.64%

# Why Shape Management<sup>®</sup>

- › Bonds are a closed system
- › Rooted in math, not predictions
- › Future value over time horizons, not net present value
- › Scenarios tell a different story than snapshots
- › A common denominator

# Important Information

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