



Presentation to:

Florida Public Pension Trustees Association

Ryon H. Acey, CFA—Director

Agenda

- Introduction
- 1st: Fundamentals of Fixed Income Investing
- 2nd: Introducing Credit Risk & Interest Rate Risk
- 3rd: Discussion about Credit Risk
- 4th: Discussion about Interest Rate Risk
- Summary

Fundamentals of FI Investing

- A **Bond** is a loan of a fixed amount w/ a fixed maturity, and regular coupon (interest) payments
- Borrowers are corporations (AAPL), governments (UST), agencies (FNMA) etc.; Lenders are pension funds, insurance companies, endowments, hedge funds etc.
- Prices move inversely w/ interest rates
- **Coupon Yield \neq Yield to Maturity (YTM)**

Fundamentals of FI Investing

Issuer	Apple	Apple
Coupon Yield	4.30%	4.30%
Maturity	5/10/2033	5/10/2033
Price	\$103.22	\$96.13
Rating	Aaa/AA+	Aaa/AA+
Yield to Maturity (YTM)	3.85%	4.85%

Credit Risk & Interest Rate Risk

- **Credit Risk** is the potential for loss due to a counterparty failing to repay amount owed
 - Prices/yields reflect credit risk well before default
- **Interest Rate Risk** is the potential for loss due to changes in interest rates
 - Prices move inversely w/ interest rates

Credit Risk & Interest Rate Risk

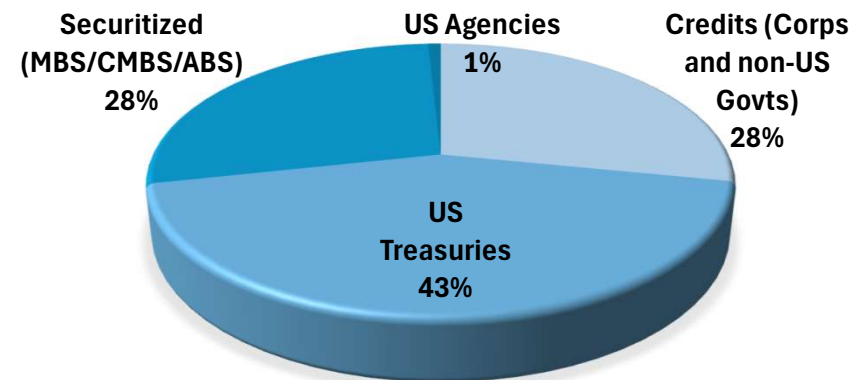
- Think about active versus passive management
- Strategies that active managers employ:
 - Credit Risk: Over/underweight Sector / Security
 - “Sector Management” / “Security Selection”
 - Interest Rate Risk: Adjust sensitivity to interest rates
 - “Duration Management” / “Yield Curve Management”

Credit Risk

- Sector Management – **Yield**
 - Treasuries are (credit) risk-free, so yields are lower than other sectors
 - US Treasuries represent 40%+ of the Aggregate Index and 60%+ of the Government/Credit Index
 - Opportunity to outperform using **Sector Management** is material
 - Difference in yield between Treasuries (4.19%) and Credits (5.09%) is .9%, or 90bps!

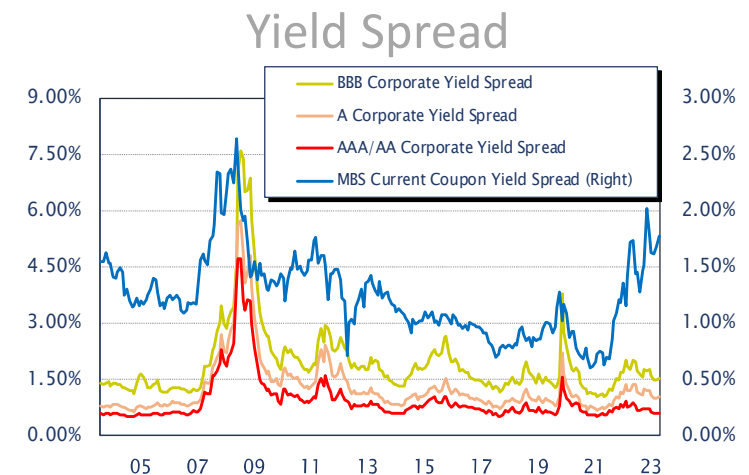
Yields @ 7/31/24

US Agg Index	4.64%
Treasuries	4.19%
Agencies	4.59%
Securitized	4.89%
Credits	5.09%



Credit Risk

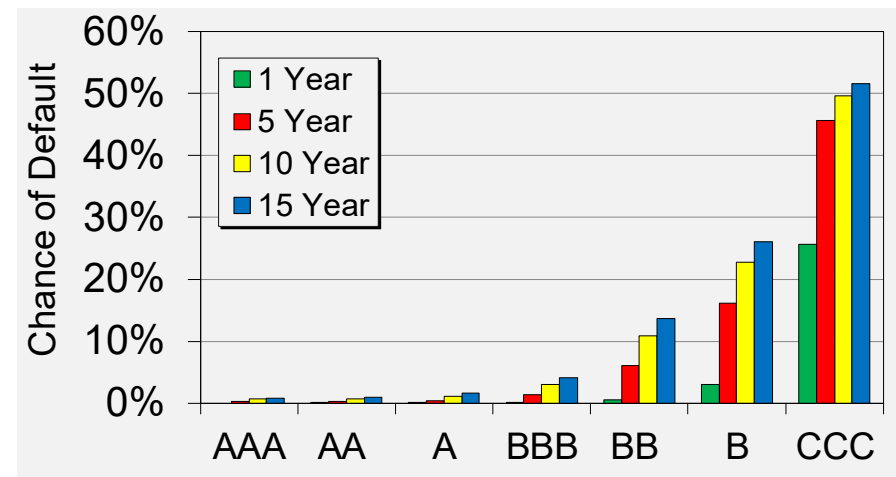
- Sector Management – **Yield Spread**
 - Difference in yield between a sector, industry or bond over and above (credit) risk-free Treasuries of same maturity
 - Changes over time; Influenced by business cycle, Fed policy, \$ flows
 - Popular measure of value (similar to P/E); Increase allocation when spreads are wide, reduce when tight



Credit Risk

- **Default Risk** increases
 - The lower the bond's rating
 - The more time passes

Cum. Default Rates: 1981-2022



Credit Risk

Moody's

Aaa

Aa

A

Baa

Ba

B

Caa

Ca

C

D

S&P

AAA

AA

A

BBB

BB

B

CCC

CC

C

D

Ability to Pay Principal and Interest

Extremely Strong

Very Strong

Strong

Adequate

Speculative Grade

In Default

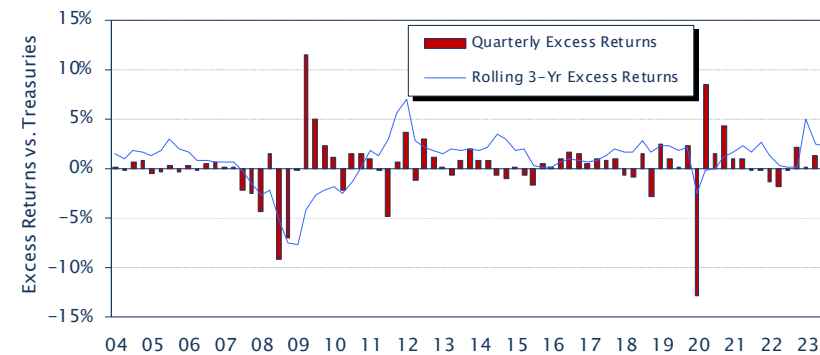
Credit Risk

Issuer	Apple	Apple
Coupon Yield	4.30%	4.30%
Maturity	5/10/2033	5/10/2033
Price	\$103.22	\$96.13
Rating	Aaa/AA+	Baa3/BBB-
Yield to Maturity (YTM)	3.85%	4.85
Yield (Credit) Spread	6	106

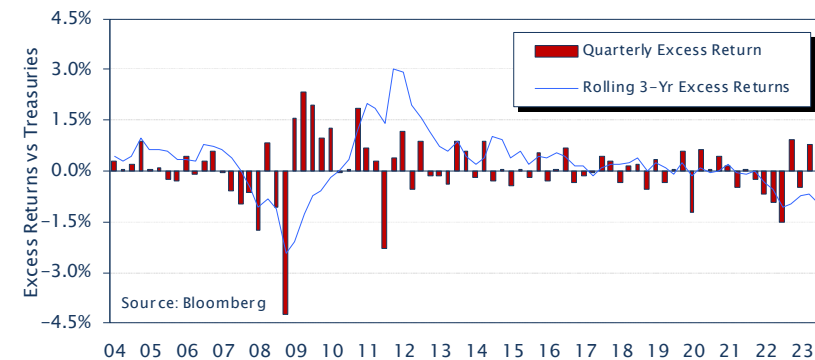
Credit Risk

- Sector Management – **Excess Return**
 - Difference in return between a sector, industry or bond over and above (credit) risk-free Treasuries of same maturity
 - Corporates tied to economic cycle
 - MBS tied to economic cycle, but even more to Fed policy
 - Both tied to supply/demand factors, changing risk sentiment, and credit ratings changes

Credit Excess Returns



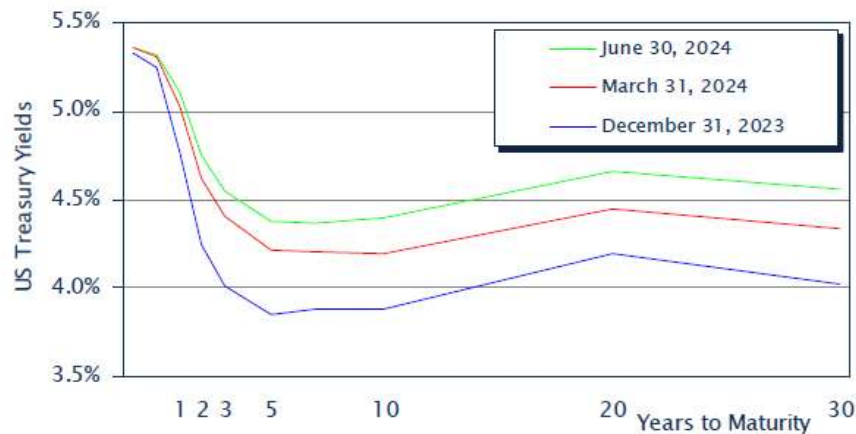
MBS Excess Returns



Interest Rate Risk

- Interest Rate Risk is the biggest risk facing a FI portfolio
- All bonds carry interest rate risk
- Yields are constantly changing
- When yields change, so do bond prices AND bond returns

U.S. Treasury Yields

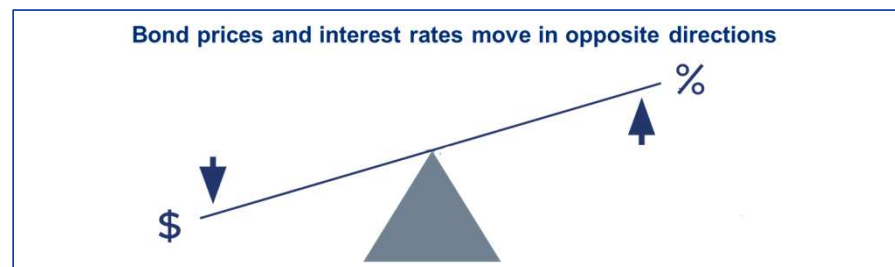


U.S. Treasury Total Returns



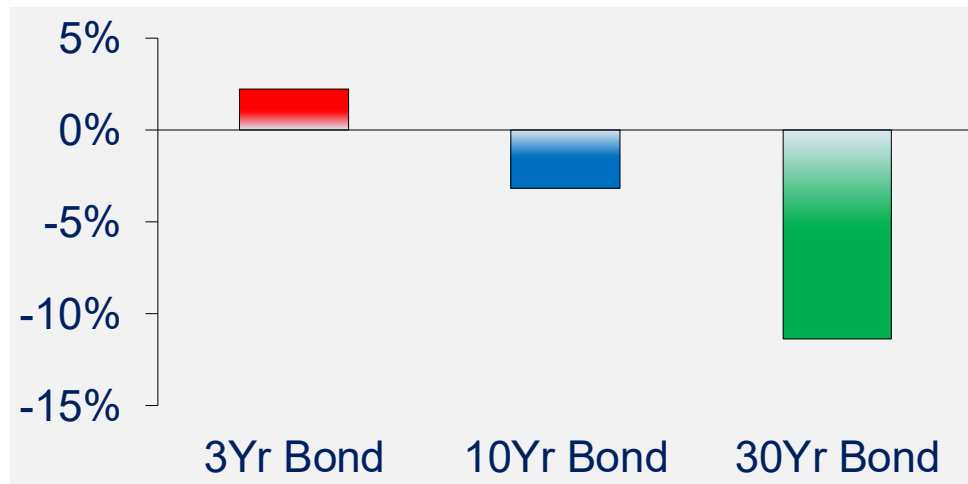
Interest Rate Risk

- The (inverse) relationship between a bond's price and its yield is mathematically related
- Generally, the longer the maturity of a bond, the more sensitive (volatile) its price is to interest rate changes



Interest Rate Risk

Total return for bonds due in 3, 10, and 30 years (4% coupon), if rates rise by 1% (over one-year):



Coupon Return =	4.0%	4.0%	4.0%
Price Return =	-1.8%	-7.2%	-15.4%
Total Return =	2.2%	-3.2%	-11.4%

Interest Rate Risk

- **Duration** is the best measure of a bond's price volatility – its sensitivity to changes in interest rates
 - Maturity is a quick, but inaccurate measure of a bond's price volatility
 - Duration takes into account not only the maturity of a bond, but also the magnitude and timing of cash flows

$$D = \frac{\sum_{t=1}^N \frac{t \cdot C_t}{(1+r)^t}}{\sum_{t=1}^N \frac{C_t}{(1+r)^t}}$$



Interest Rate Risk

Issuer	Apple	Apple
Coupon Yield	4.30%	4.30%
Maturity	5/10/2033	5/10/2033
Price	\$103.22	\$96.13
Rating	Aaa/AA+	Baa3/BBB-
Yield to Maturity (YTM)	3.85%	4.85%
Yield (Credit) Spread	6	106
Duration	7.0	7.0
Change In Price	--	-6.87%

Interest Rate Risk

- While not as popular as Sector Management, investment managers still employ **Duration Management**
 - A shorter/longer duration than the index has a measurable impact on relative returns
 - If you can “time the market,” there are significant gains to be made; Get it wrong, and you can underperform by a wide margin
 - As a result, most bond managers only fine-tune their duration vs. their index
- Be aware of your bond manager’s duration strategy
- Consider placing limits (index +/- 10%) on duration

Interest Rate Risk

Through June 30, 2024		Annualized					
		2nd Qtr	YTD	1 Year	3 Years	5 Years	Since 1/31/06
	(gross of fees)	0.19%	-0.41%	3.05%	-2.63%	0.27%	3.74%
	(net of fees)	0.13%	-0.54%	2.79%	-2.87%	0.02%	3.49%
Bloomberg Aggregate Index		0.07%	-0.71%	2.63%	-3.02%	-0.23%	3.03%

Q: Why were returns negative in the YTD periods ending 6/30/24?

A: Price depreciation—yields rose and prices fell enough to wipe out coupon income

Interest Rate Risk

- Duration: Portfolio vs Index/Benchmark
- Note:
 - Total duration slightly less than Index
 - Notice sector mix differences

June 2024

Sector Strategy

US Treasuries
US Agency Notes
Mortgage-Backed Securities
ABS/CMBS
Industrials
Utilities
Finance
Non-Corporates
Cash Equivalents

Total

Yield to Maturity
Average Quality

Duration Strategy

Governments
Mortgages
ABS/CMBS
Corporates

Total

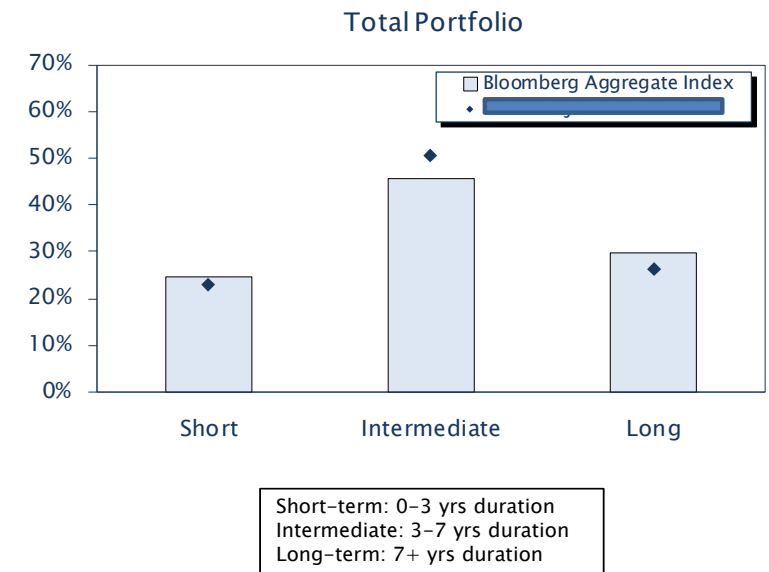
Average Maturity

Yield Curve Strategy

		Bloomberg Aggregate Index
	15%	43%
	0%	1%
	36%	26%
	3%	2%
	26%	14%
	4%	2%
	15%	8%
	0%	4%
	1%	0%
Total	100%	100%
Yield to Maturity	5.3%	5.0%
Average Quality	A+	AA
Duration Strategy		
Governments	1.6 Yrs	2.6 Yrs
Mortgages	2.1	1.4
ABS/CMBS	0.1	0.1
Corporates	2.2	2.0
Total	6.0 Yrs	6.1 Yrs
Average Maturity	8.3 Yrs	8.4 Yrs
Yield Curve Strategy	Neutral	

Interest Rate Risk

- **Yield Curve Management** (vs index) is very important, since yield curve moves are never parallel
- **Barbelled** - Overweight long and short maturities
- **Bulleted** – Clustered around intermediate maturities
- **Neutral** - Roughly same as index)



Bonus: Major Bond Indexes (7/31/24)

	Bloomberg <u>Aggregate</u>	Bloomberg <u>Gov't/Credit</u>	Bloomberg Intermed. <u>Gov't/Credit</u>
Average Maturity	8.4 yrs	8.8 yrs	4.3 yrs
Duration (Effective)	6.1 yrs	6.3 yrs	3.8 yrs
Yield to Maturity	4.6%	4.5%	4.4%
Ratings (Avg. Quality)	AA2/AA3	AA2/AA3	AA2/AA3
% in US Gov'ts	44%	61%	64%
% in Credits	28%	39%	36%
% in Securitized	28%	---%	---%
<u>Annualized Returns:</u>			
1 Year	5.1%	5.1%	5.9%
5 Years	0.2%	0.3%	1.1%
10 Years	1.6%	1.7%	1.8%