RBC Global Asset Management
PH&N Institutional

Adventures in Multi-Asset Credit (MAC)

Presented by:

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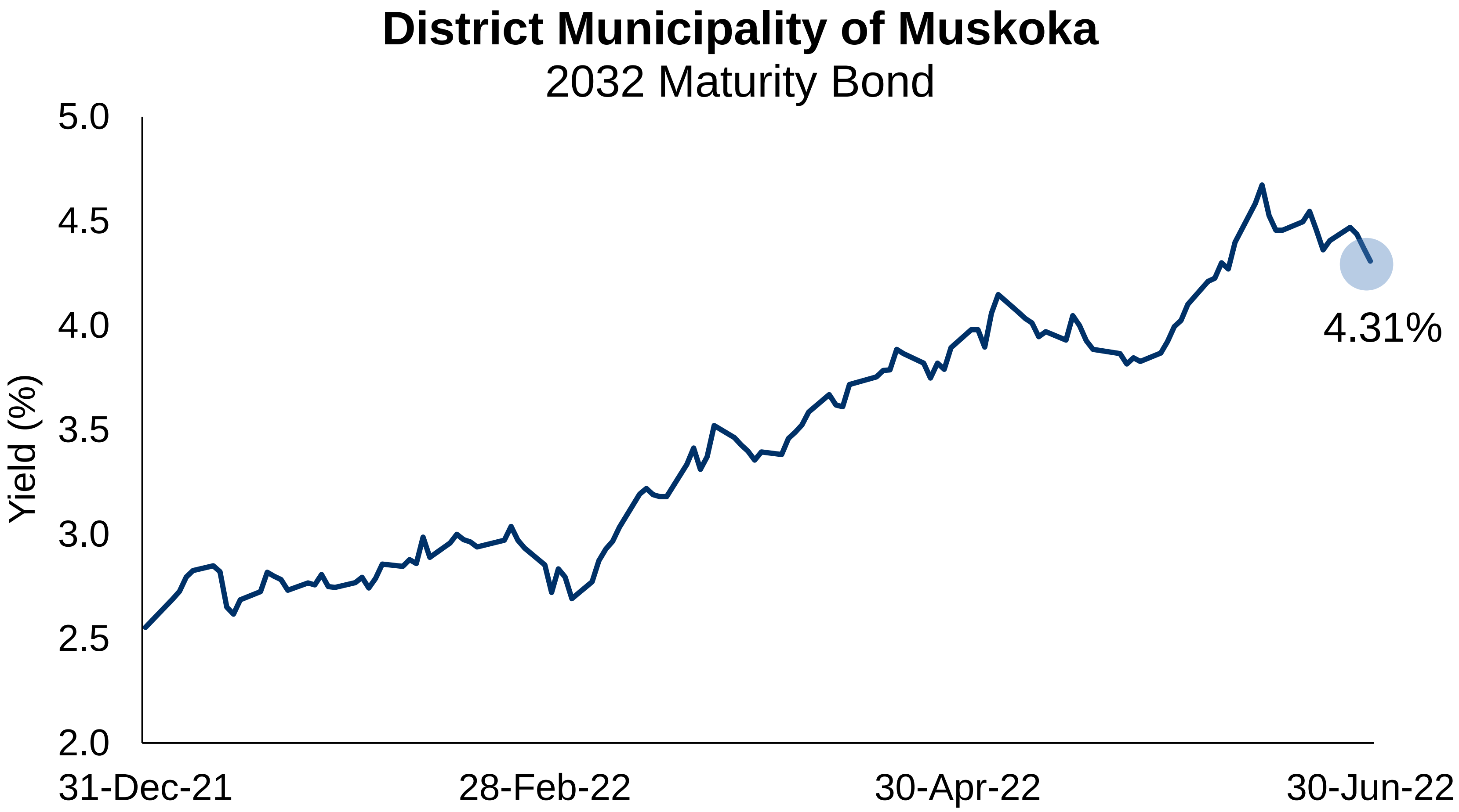
BlueBay Asset Management LLP

Question . . .

What is the *yield* on a 10-year Muskoka muni bond?

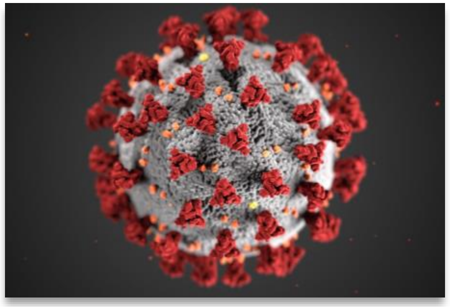
Answer . . .



Source: RBC GAM, Bloomberg, as at June 30, 2022

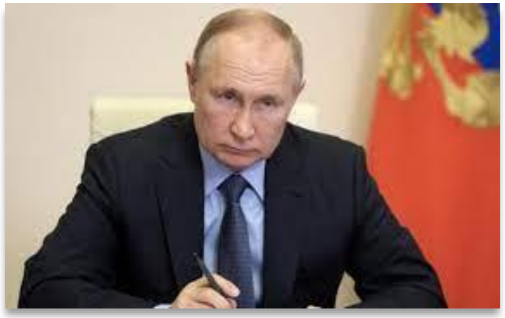
What is shaping the credit markets today?

Covid



Inflation

Geopolitics



Central banks

Energy prices

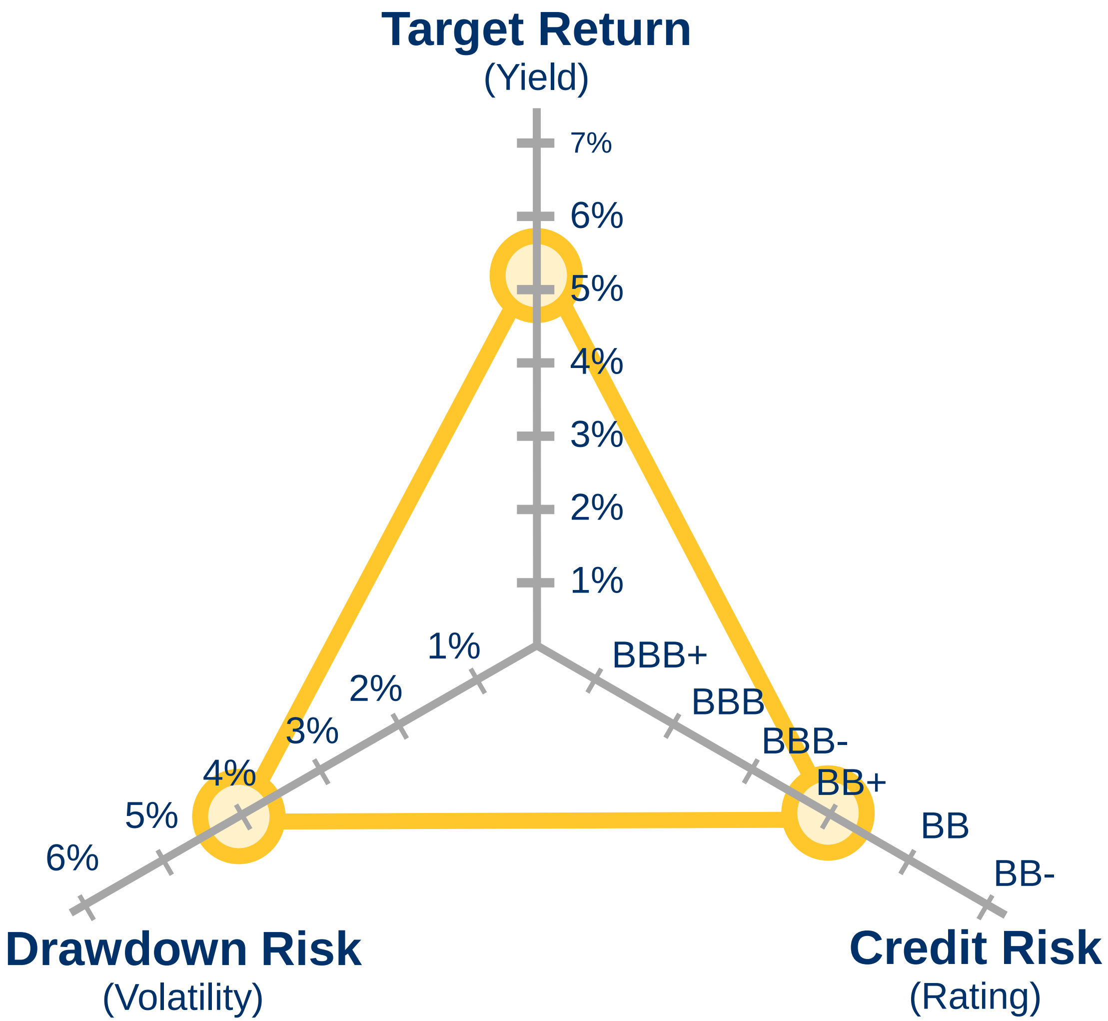
Changing behaviour

Section 1

Risk dynamics in credit

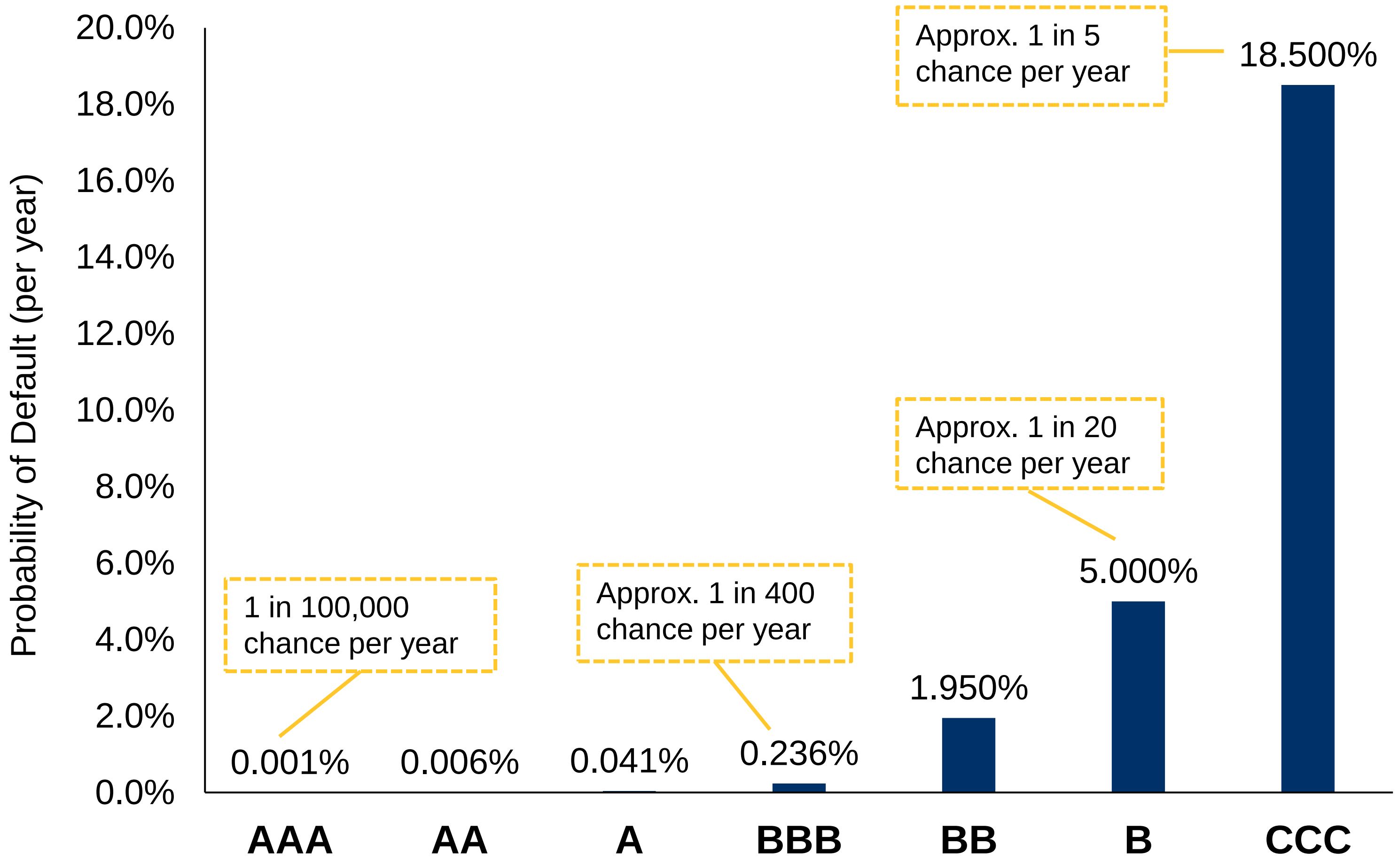
A ‘workable’ efficiency framework

Efficiency is a natural evolution



Source: BlueBay Asset Management, illustrative

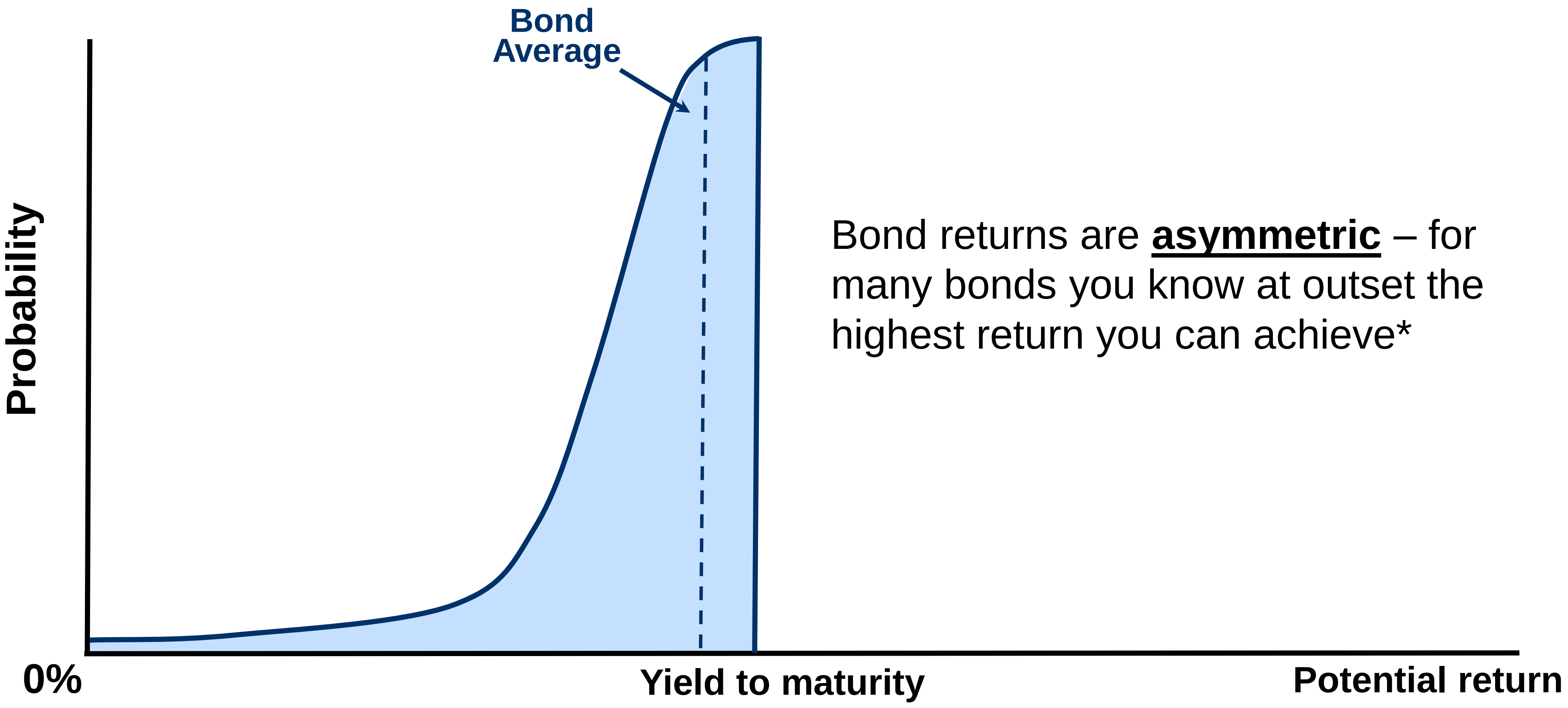
A credit rating implies a probability of default



Source: Bloomberg default matrix, as at 22 February 2022
For illustrative purposes only. There is no assurance that any of the trends depicted or described herein will continue

Return profiles

Bonds vs equities

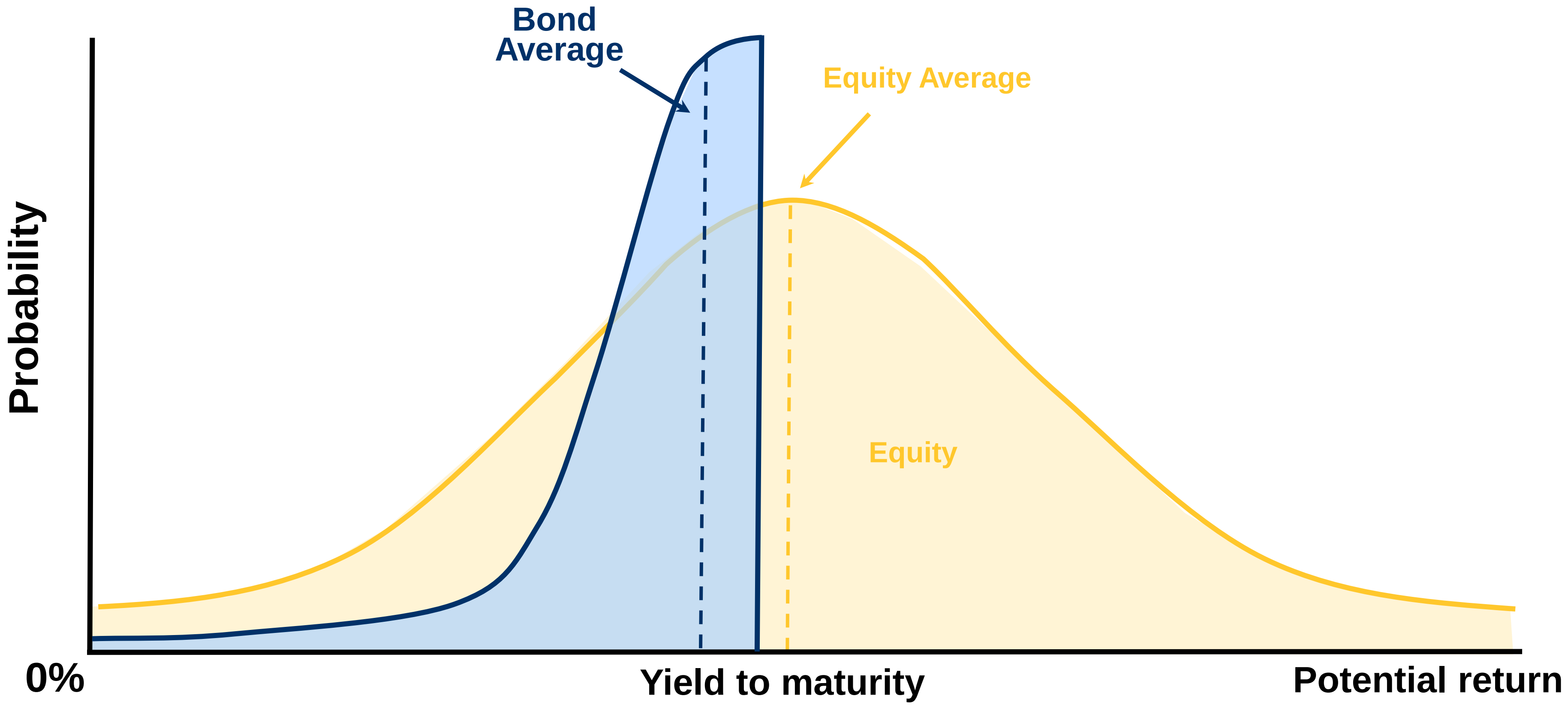


Bond returns are **asymmetric** – for many bonds you know at outset the highest return you can achieve*

* usually, although for some types of bonds the coupons are floating, other bonds have options embedded and myriad other factors mean there are plenty of exceptions. Diagram illustrative and not to scale

Return profiles

Bonds vs equities



Illustrative, not to scale

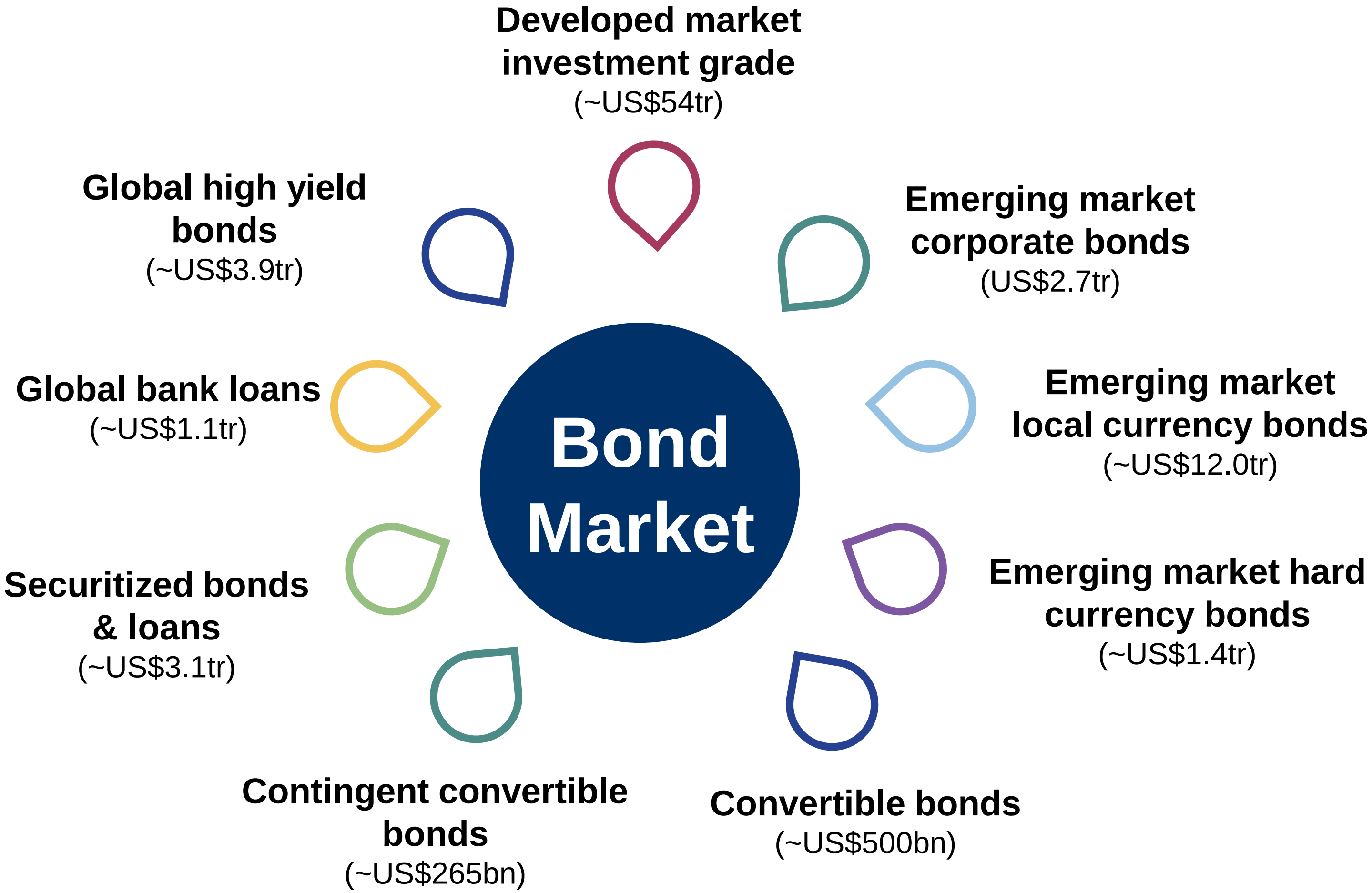
Section 2

What is MAC?

Multi-Asset Credit (MAC): What is it?

Credit markets	Global opportunity set
Targeting attractive yields	Dynamic asset allocation

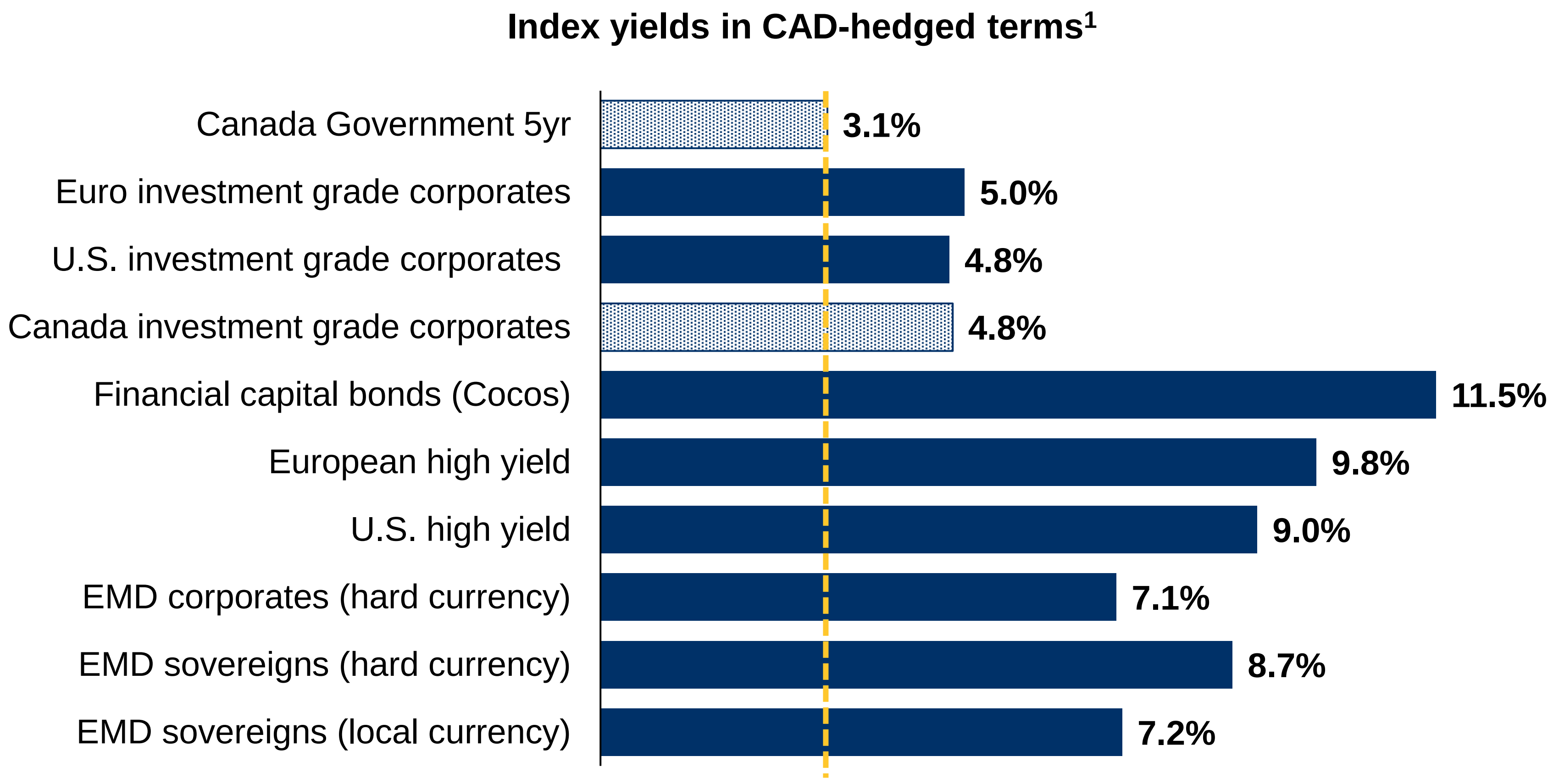
A selection of bond 'asset classes'



Source BlueBay Asset Management, AUMs by asset class are BlueBay estimates as of December 31, 2021

Global yields

Credit spreads are compensation for default (and other) risks



Note: see Appendix for index names.

1. CAD yields are left unchanged. U.S. yields adjusted by +0.1% and Euro yields adjusted by 1.9% (prevailing 6 month FX forwards as at 30 June 2022)

Section 3

What problems does MAC solve?

Annual market returns

2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
EM Sov 10.2%	Converts 15.4%	EM Local 18.1%	US 10 Yr 21.1%	High Yield 60.9%	EM Local 15.7%	US 10 Yr 16.9%	High Yield 18.3%	Converts 13.0%	US 10 Yr 11.1%	Cocos 6.9%	High Yield 15.7%	EM Local 15.2%	Loans 1.1%	Cocos 18.8%	Converts 22.8%	Loans 5.4%
EM Corp 6.8%	EM Local 15.2%	US 10 Yr 9.9%	US IG Corp 4.9%	Loans 51.8%	High Yield 15.3%	US IG Corp 8.2%	EM Sov 17.4%	High Yield 7.3%	US IG Corp 7.5%	Converts 3.8%	EM Corp 10.4%	Cocos 15.2%	US 10 Yr 0.1%	EM Sov 15.0%	US 10 Yr 10.7%	Cocos 5.0%
EM Local 6.3%	High Yield 10.8%	Converts 8.6%	EM Local -5.2%	EM Corp 38.6%	EM Corp 13.5%	EM Sov 7.3%	EM Corp 17.0%	Loans 5.6%	EM Sov 7.4%	EM Sov 1.2%	EM Sov 10.2%	EM Sov 10.3%	EM Corp -1.7%	US Corp IG 14.5%	US Corp IG 9.9%	High Yield 3.1%
Converts 4.9%	EM Sov 9.9%	EM Sov 6.2%	EM Sov -12.0%	EM Sov 29.8%	EM Sov 12.2%	EM Corp 3.2%	EM Local 16.8%	US IG Corp -1.5%	Cocos 5.8%	EM Corp 1.2%	EM Local 9.9%	EM Corp 7.9%	High Yield -2.0%	High Yield 14.4%	Cocos 7.5%	EM Corp 0.5%
High Yield 3.4%	EM Corp 6.6%	US IG Corp 4.6%	EM Corp -15.4%	Converts 23.9%	Loans 10.1%	High Yield 3.2%	Converts 11.3%	EM Corp -1.7%	EM Corp 5.7%	US 10 Yr 1.1%	Loans 9.8%	High Yield 7.8%	US IG Corp -2.5%	EM Corp 13.6%	EM Corp 7.4%	Converts -1.1%
US 10 Yr 2.7%	US IG Corp 4.3%	EM Corp 3.5%	High Yield -26.6%	EM Local 22.0%	Converts 9.4%	Loans 1.8%	Loans 10.0%	EM Sov -5.3%	Converts 4.7%	Loans 0.5%	Cocos 7.8%	US IG Corp 6.4%	Cocos -2.6%	EM Local 13.5%	High Yield 6.3%	US Corp IG -1.1%
US IG Corp 1.7%	US 10 Yr 1.7%	High Yield 2.1%	Converts -27.6%	US IG Corp 18.7%	US IG Corp 9.0%	EM Local -1.8%	US IG Corp 9.8%	EM Local -7.7%	High Yield 3.0%	US IG Corp -0.7%	US IG Corp 6.1%	Converts 6.0%	Converts -3.0%	Converts 13.1%	EM Sov 5.3%	EM Sov -1.8%
-	-	-	Loans -29.5%	US 10 Yr -9.6%	US 10 Yr 8.4%	Converts -4.6%	US 10 Yr 4.0%	US 10 Yr -9.0%	Loans 2.0%	High Yield -3.1%	Converts 1.6%	Loans 4.2%	EM Sov -4.3%	US 10 Yr 8.7%	Loans 3.2%	US 10 Yr -3.7%
-	-	-	-	-	-	-	-	-	EM Local -5.7%	EM Local -14.9%	US 10 Yr -0.1%	US 10 Yr 2.3%	EM Local -6.2%	Loans 8.6%	EM Local 2.7%	EM Local -8.8%

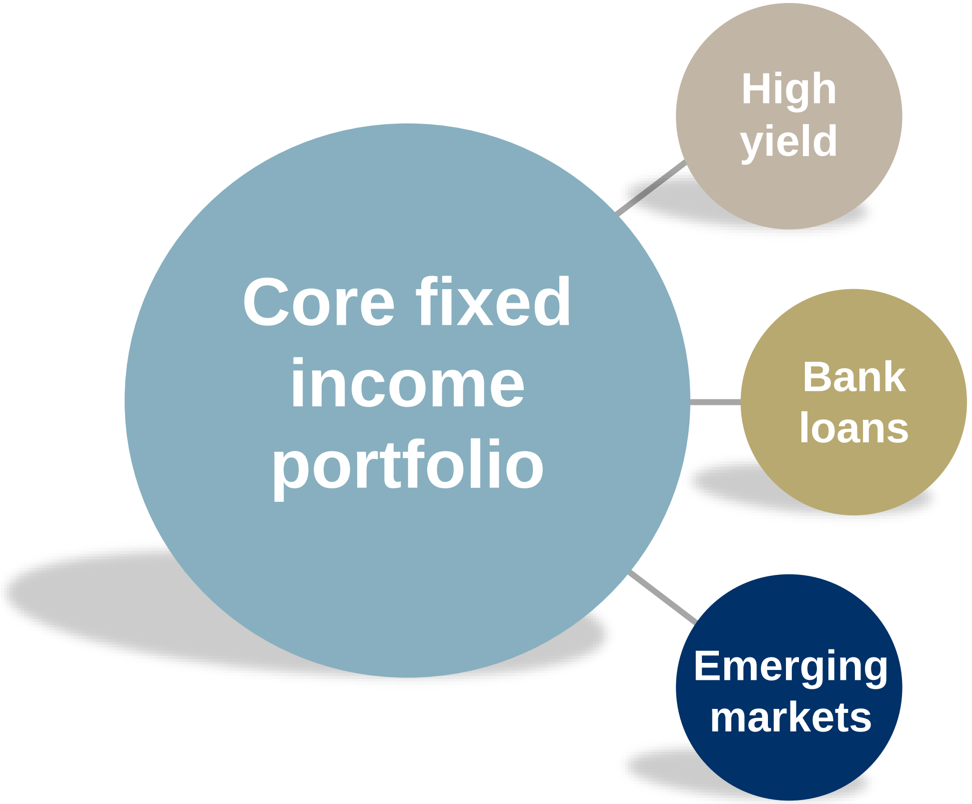
Source: Bloomberg, as at 31 December 2021. All returns in USD and unhedged unless otherwise stated. Indices: Global High Yield: ICE BofA Global High Yield Investment Grade Country Index USD Hedged (Bloomberg Code: HWIC); Loans: JP Morgan Leveraged Loan Index (JPM Code JPLLILLI); cocos: The ICE BofA Contingent Convertible Index USD hedged (Bloomberg code: COCO); Global Convertible Bonds: UBS Global Convertible Focus Index USD Hedged (Bloomberg code UCBIFX02); EMD Hard: JP Morgan EMBI Global Diversified - USD (Bloomberg code: JPGCCOMP); EMD Local: JP Morgan GBI-EM Global Diversified Index - USD Unhedged (Bloomberg code: JGENVUUG); EMD Corporates: JP Morgan CEMBI Diversified Index USD (Bloomberg code: JCMDCOMP); Bloomberg US Corporate Total Return Value Unhedged USD (Bloomberg code: LUACTRUU); S&P U.S. Treasury Bond Current 10-Year Total Return Index (Bloomberg code: SPBDU1BT). For illustrative purposes only. There is no assurance that any of the trends depicted or described herein will continue

Opportunities are everywhere

Credit Asset Classes

- Developed government bonds
- Investment grade corporate bonds
- Asset backed
- Bank loans
- Emerging market hard currency
- High yield
- Emerging market corporate bonds
- Emerging market local currency
- Convertible bonds
- Distressed debt
- Private debt

Approach 1: adding separate mandates



Advantages of separate managers

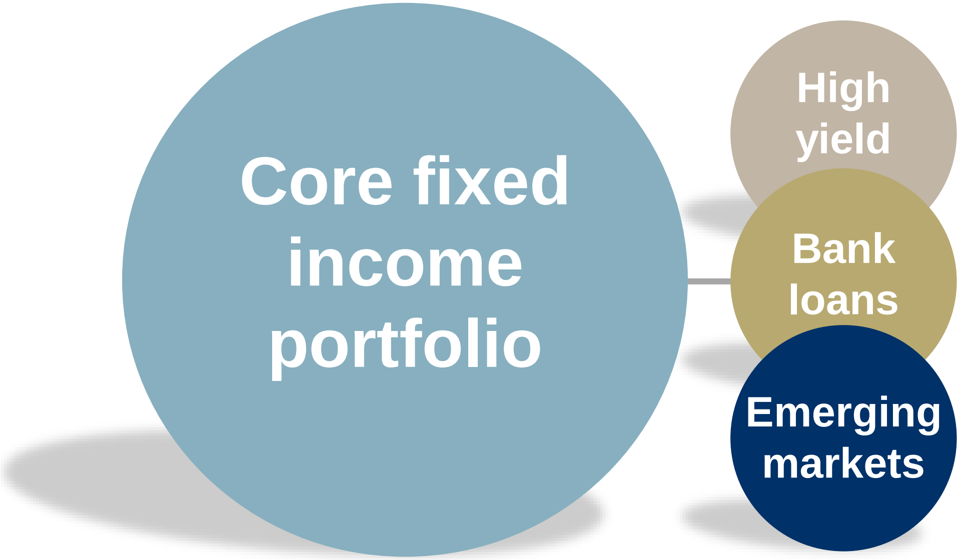
- Can select the best manager in each asset class
- Investor can control asset allocation

Disadvantages of separate managers

- Slow to allocate between managers
- Unlikely to have 0% allocation
- Governance time
- Fees

Data source: BlueBay. For illustrative purposes only.

Approach 2: adding a single flexible portfolio



Advantages of separate managers

- Investor outsources the asset allocation decision
- Faster asset allocation changes
- 0% allocation more likely
- Governance time & fees

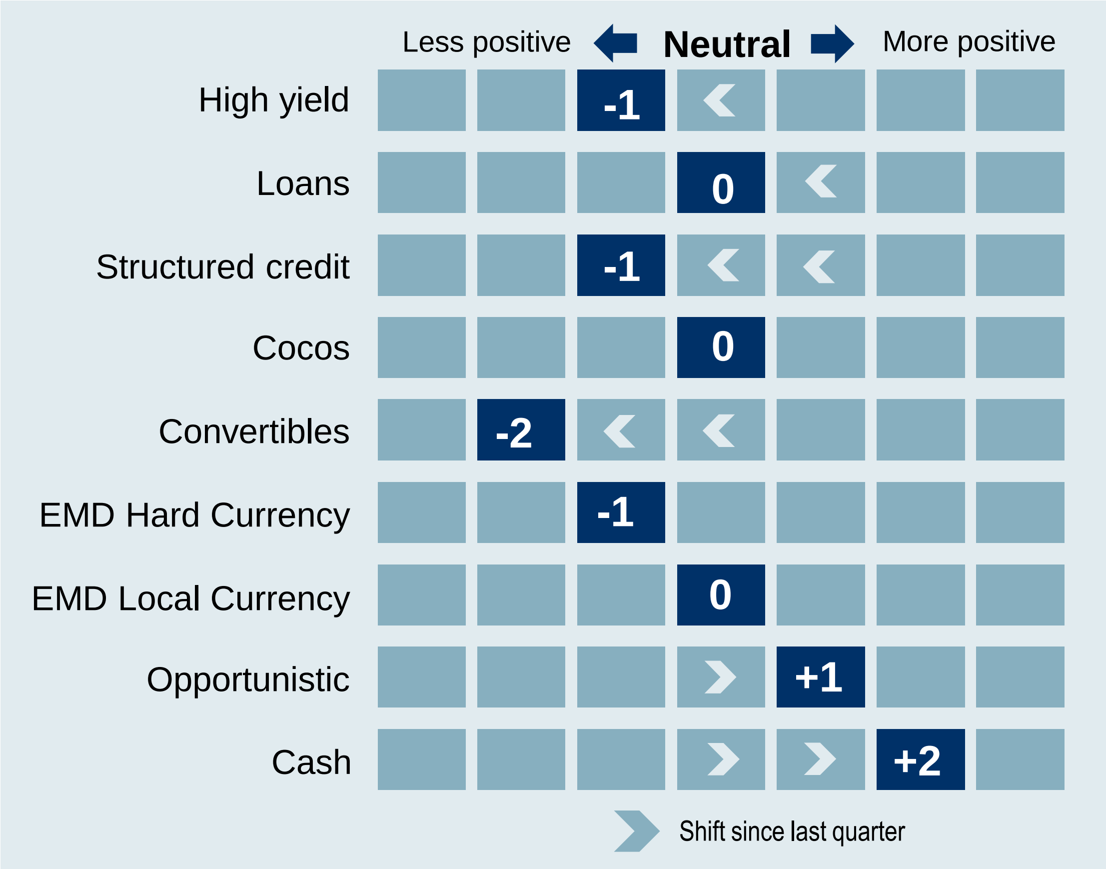
Disadvantages of single mandate

- Not necessarily best manager in each asset class
- Investor has more limited control of asset allocation

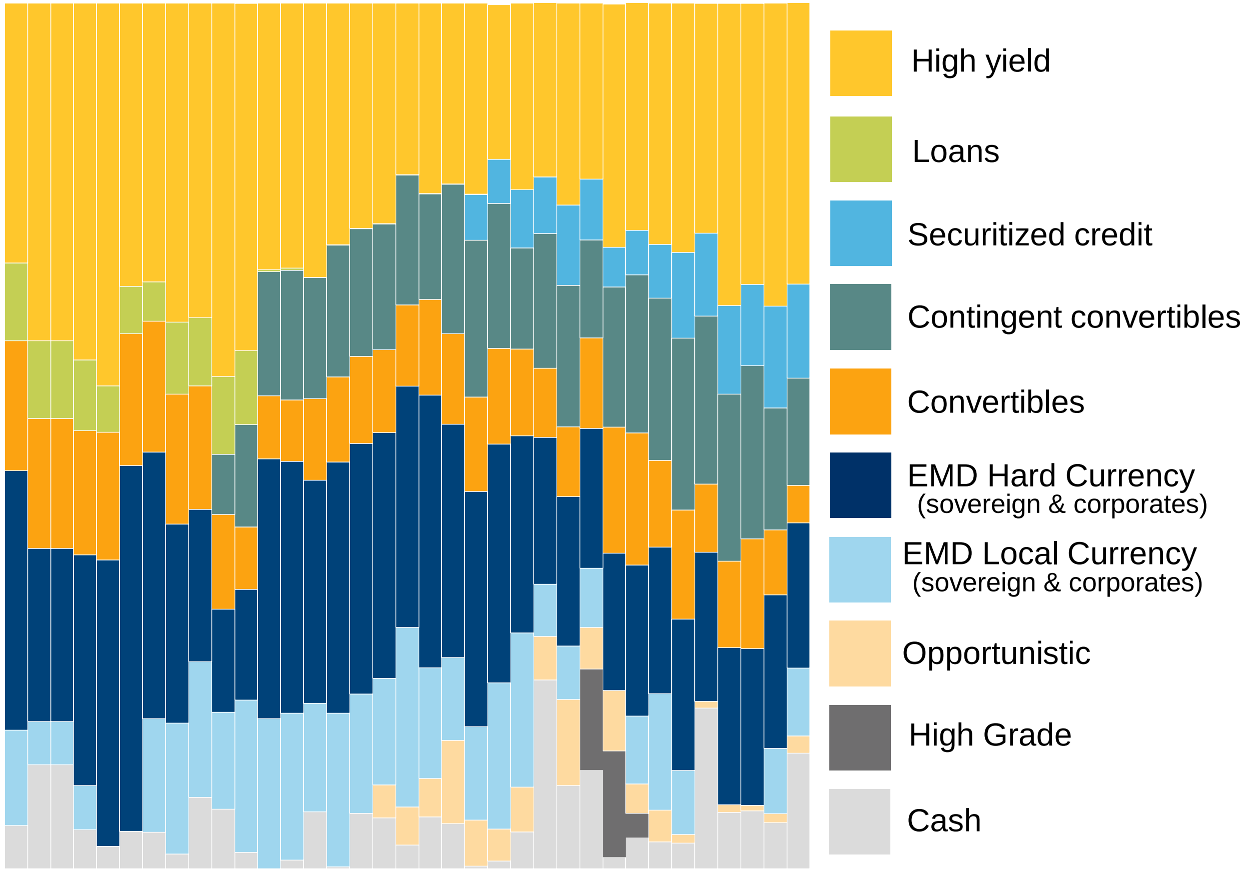
Data source: BlueBay. For illustrative purposes only.

Success in MAC investing requires active management

Views across asset classes

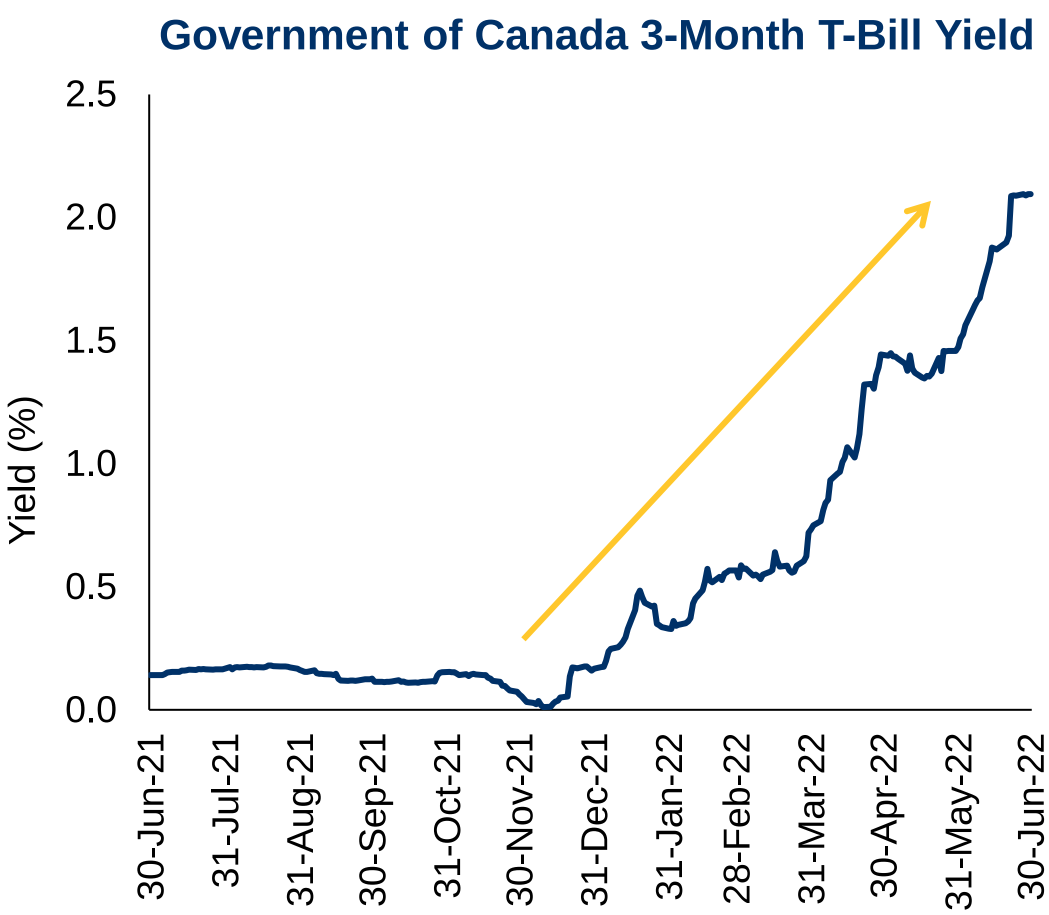


Dynamic asset allocation

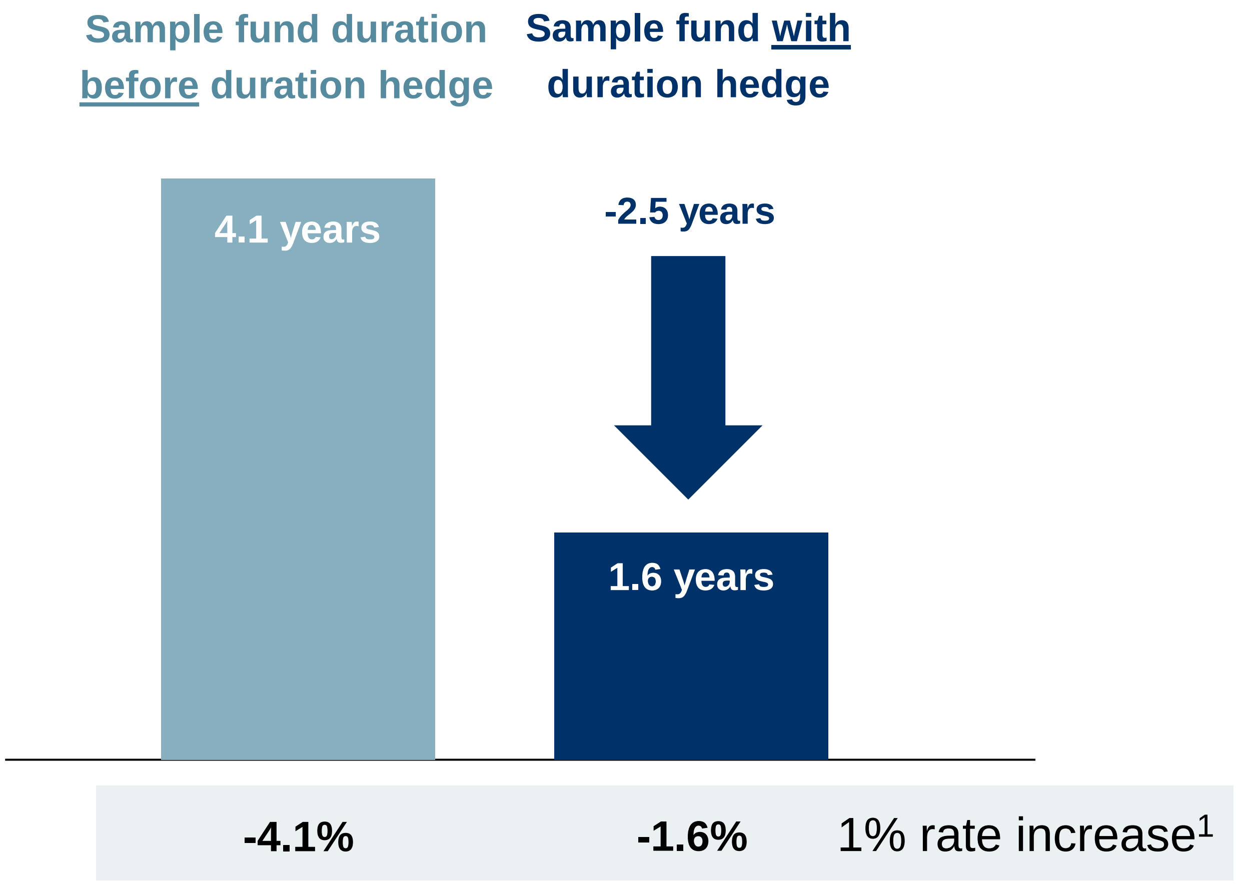


Source: BlueBay. For illustrative purposes only.

Hedging against interest rate increases



Source: RBC GAM, Bloomberg, as at June 30, 2022



For illustrative purposes only

1. Theoretical calculation of modified duration, as defined by CFA Institute

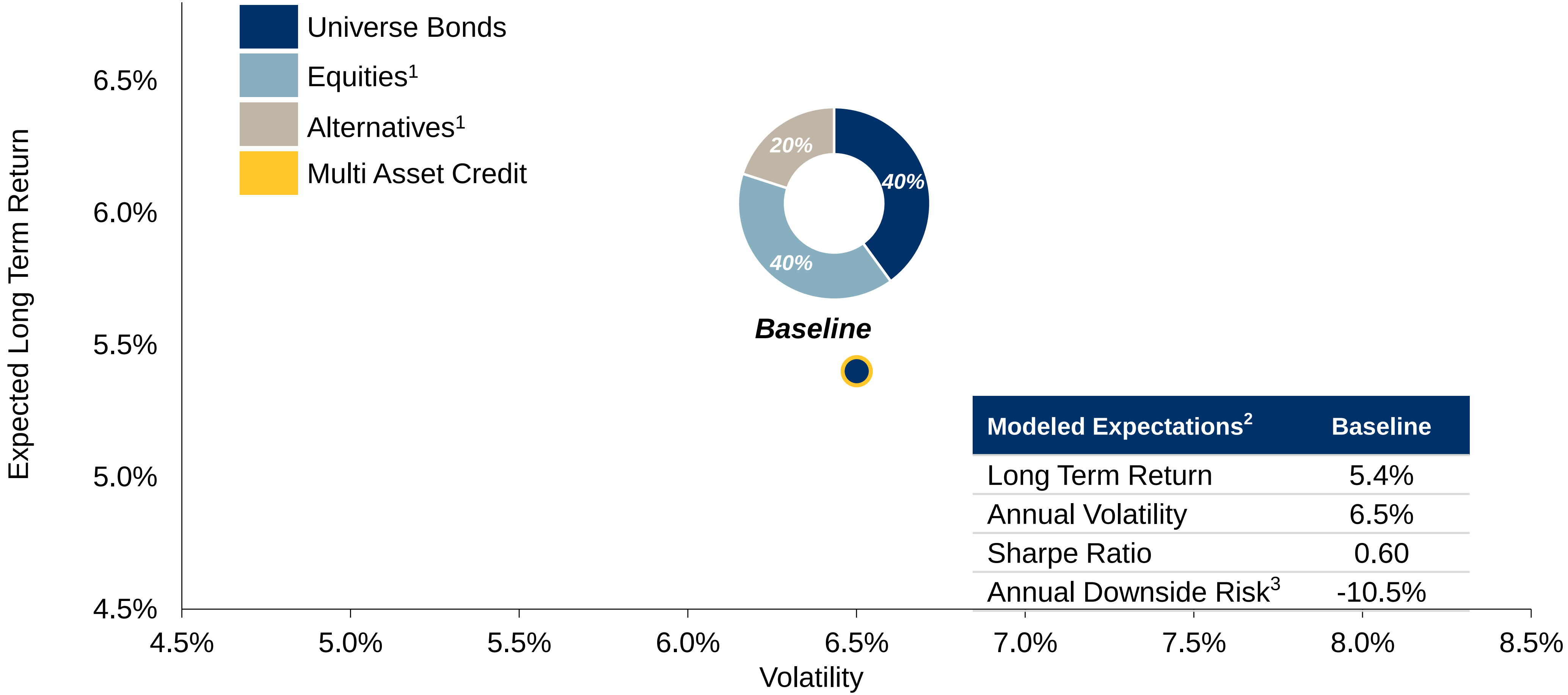
Flexibility – a big reason to like multi-asset credit

Liquid	**Flexibility to move as markets change**
Zero Weights	**Greater flexibility for “zero” exposures**
Hedging for drawdown	**Derivatives can be used to reduce risks**
Diversification	**Diversified exposure is less susceptible to asymmetric impacts**

Section 4

Implementing MAC

Introducing Multi-Asset Credit into a Portfolio

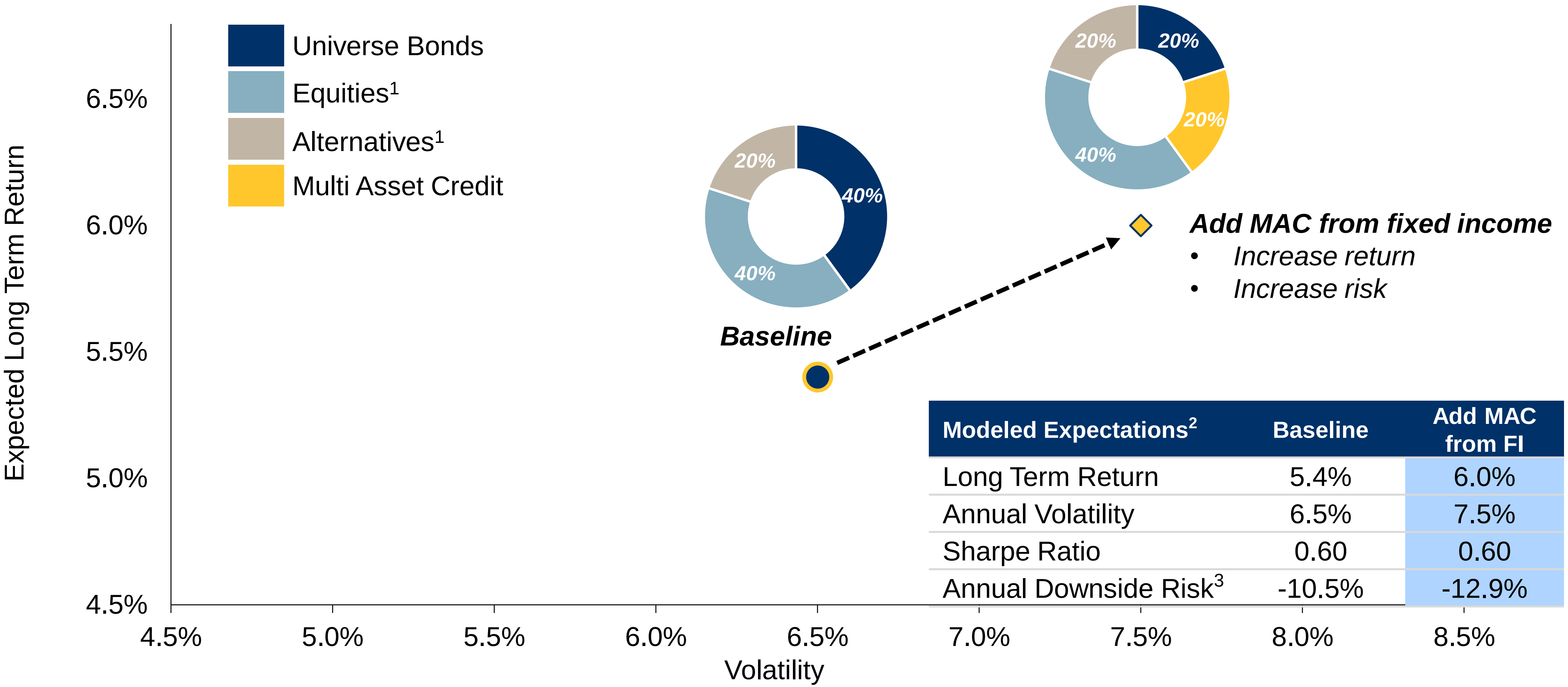


Modeled Expectations[2]	Baseline
Long Term Return	5.4%
Annual Volatility	6.5%
Sharpe Ratio	0.60
Annual Downside Risk[3]	-10.5%

1. Equities represented by 50% Canadian Equities and 50% Global Equities. Alternatives represented by 50% Liquid Alternatives and 50% Private Market Alternatives 2. Refer to appendix for modeling assumptions and disclosures. 3 CVaR95 which represents the expected loss during the worst 5% of return outcomes.

Hypothetical performance analyses are for illustrative purposes only and there is no guarantee that hypothetical returns or projections will be realized.

Introducing Multi-Asset Credit into a Portfolio



Modeled Expectations[2]	Baseline	Add MAC from FI
Long Term Return	5.4%	6.0%
Annual Volatility	6.5%	7.5%
Sharpe Ratio	0.60	0.60
Annual Downside Risk[3]	-10.5%	-12.9%

1. Equities represented by 50% Canadian Equities and 50% Global Equities. Alternatives represented by 50% Liquid Alternatives and 50% Private Market Alternatives 2. Refer to appendix for modeling assumptions and disclosures. 3 CVaR95 which represents the expected loss during the worst 5% of return outcomes.

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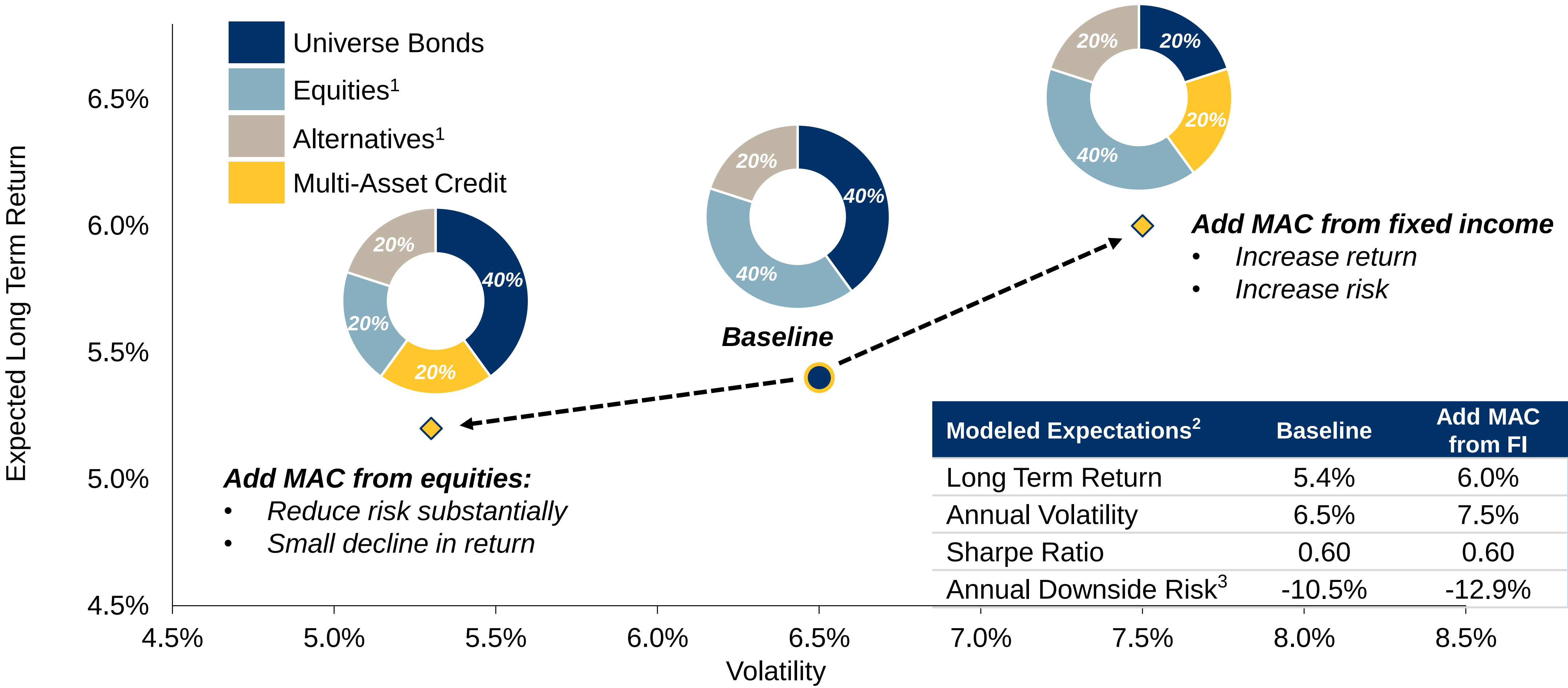
Introducing Multi-Asset Credit into a Portfolio



Modeled Expectations[2]	Baseline	Add MAC from FI	Add MAC from EQ
Long Term Return	5.4%	6.0%	5.2%
Annual Volatility	6.5%	7.5%	5.3%
Sharpe Ratio	0.60	0.60	0.71
Annual Downside Risk[3]	-10.5%	-12.9%	-8.4%

1. Equities represented by 50% Canadian Equities and 50% Global Equities. Alternatives represented by 50% Liquid Alternatives and 50% Private Market Alternatives 2. Refer to appendix for modeling assumptions and disclosures. 3 CVaR95 which represents the expected loss during the worst 5% of return outcomes.

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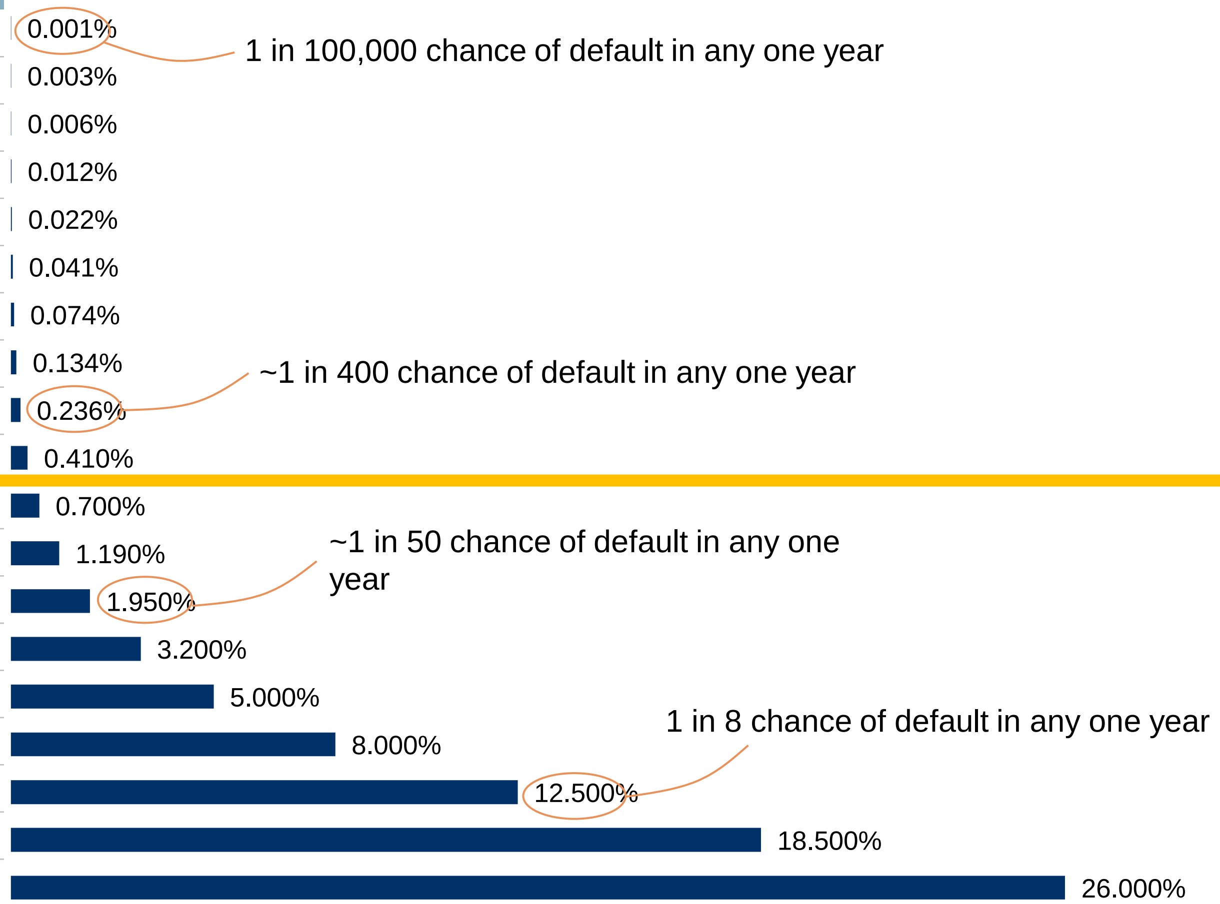
Questions?

‘If you don’t know what the future holds, *flexibility* is a better strategy than hope’

Appendix & Disclosures

A credit rating implies a probability of default

Credit rating	Implied annual default probability
AAA	0.001%
AA+	0.003%
AA	0.006%
AA-	0.012%
A+	0.022%
A	0.041%
A-	0.074%
BBB+	0.134%
BBB	0.236%
BBB-	0.410%
BB+	0.700%
BB	1.190%
BB-	1.950%
B+	3.20%
B	5.00%
B-	8.00%
CCC+	12.50%
CCC	18.50%
CCC-	26.00%



Source: Bloomberg default matrix, as at 30 June 2022
For illustrative purposes only. There is no assurance that any of the trends depicted or described herein will continue

Disclosure for “Global yields” slide

Indices referenced within yield table

- **Euro investment grade corporates:** Bloomberg Barclays Pan European Aggregate Corporate Index
- **U.S. investment grade corporates:** Bloomberg Barclays U.S. Corporate Bond Index
- **Canada investment grade corporates**: FTSE Canada Universe Corporate Bond Index
- **Financial capital bonds:** ICE BofA Contingent Capital Index
- **European high yield:** Bloomberg Barclays Pan European High Yield Index
- **U.S. high yield:** Bloomberg Barclays U.S. Corporate High Yield Index
- **EMD corporates (hard currency):** JP Morgan CEMBI Broad Index
- **EMD sovereigns (hard currency):** JP Morgan EMBI Global Diversified Index
- **EMD sovereigns (local currency):** JP Morgan GBI-EM Global Diversified Index

Capital Market Assumptions

Asset Classes	Representative Data Series	Expected Long Term Return	Expected Annual Volatility	Expected Annual Downside Risk
Universe Bonds	FTSE Canada Universe Bond Index	3.1%	4.3%	-6.5%
Global Multi-Asset Credit (MAC)	Custom Index[2]	6.1%	8.0%	-14.9%
Canadian Equities	S&P/TSX Composite Index	7.2%	16.9%	-27.0%
Global Equities	MSCI World Index (CAD)	6.5%	14.2%	-24.6%
Liquid Alternatives[1]	HFRI Fund of Funds Composite Index (USD)	4.8%	8.0%	-15.6%
Private Market Alternatives[1]	MSCI RealPac Property Index	6.5%	9.6%	-12.9%

[1] Expected long term annualized return net of fees.

[2] 7.5% ICE BofA 3 Month US T-Bills (CAD-H), 35% ICE BofA Global High Yield Index (CAD-H), 11.25% J.P. Morgan Emerging Market Bond Index (CAD-H), 11.25% J.P. Morgan Corporate Emerging Markets Bond Index (CAD-H), 7.5% J.P. Morgan Government Bond Index-Emerging Markets (GBI-EM) (CAD-H), 7.5% Credit Suisse Leveraged Loan Index (CAD-H) and 20% Thomson Reuters Convertible Global Focus Index (CAD-H).

Capital market assumptions represent the views of PH&N Institutional for the purposes of illustrating and understanding the potential risk-reward trade-off of different portfolio decisions and are established by considering a variety of qualitative and quantitative sources of information including: different forecasting models; internal and external research; existing and implied future conditions as priced by capital markets; and internal views of our fund managers. Expected long term annualized returns are for a 10 year forecast time horizon. Volatilities, downside risk and correlations are estimated from historical data and adjusted as required to reflect future market conditions. Investors should be aware of the limitations using forward-looking assumptions in that there is absolutely no guarantee that future performance will occur according to any ex-ante expectation.

Capital Market Assumptions

Correlations

	Universe Bonds	Global Multi-Asset Credit (MAC)	Canadian Equities	Global Equities	Liquid Alternatives	Private Market Alternatives
Universe Bonds	**1**					
Global Multi-Asset Credit (MAC)	0.3	**1**				
Canadian Equities	0.0	0.7	**1**			
Global Equities	0.1	0.5	0.7	**1**		
Liquid Alternatives	0.1	0.8	0.7	0.5	**1**	
Private Market Alternatives	-0.2	-0.1	0.0	0.0	-0.1	**1**

Capital market assumptions represent the views of PH&N Institutional for the purposes of illustrating and understanding the potential risk-reward trade-off of different portfolio decisions and are established by considering a variety of qualitative and quantitative sources of information including: different forecasting models; internal and external research; existing and implied future conditions as priced by capital markets; and internal views of our fund managers. Expected long term annualized returns are for a 10 year forecast time horizon. Volatilities, downside risk and correlations are estimated from historical data and adjusted as required to reflect future market conditions. Investors should be aware of the limitations using forward-looking assumptions in that there is absolutely no guarantee that future performance will occur according to any ex-ante expectation.

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