

Efficient Frontier #3 - Adding RRBs, Mortgages & Real Estate

	Total Risk		MCT Charge	Current (A)	Higher Return (B)	Lower Risk (C)	Midpoint (D)	Higher Return & Risk (E)
Provincial short-term bonds	0%	Fixed Income		100%	85%	85%	85%	85%
Provincial mid-term bonds	0%	3x Real Return Bonds	0.0%	---	0%	0%	0%	0%
Provincial long-term bonds	0%	Real return bonds	0.0%	---	20%	46%	34%	16%
Corporate mid-term bonds	4.0%	3x Long Provincial Bonds	0.0%	---	0%	---	---	0%
Corporate long-term bonds	3.7%	Provincial short-term bonds	0.0%	---	---	---	---	---
Overall Corporate	3.6%	Provincial mid-term bonds	0.0%	33%	1%	5%	3%	0%
Private Debt IG (Universe)	3.0%	Provincial long-term bonds	0.0%	27%	---	---	---	---
MUSH Bonds	0.0%	Corporate mid-term bonds	4.0%	9%	8%	14%	11%	7%
Commercial Mortgages	10.0%	Corporate long-term bonds	3.7%	11%	36%	---	17%	42%
Real Return Bonds	0.0%	MUSH Bonds	0.0%	20%	20%	20%	20%	20%
3x Real Return Bonds	0.0%	Public Equities	--	--	0%	0%	0%	0%
3x Long Provincial Bonds	0.0%	Canadian equity (large cap.)	30.0%	---	0%	0%	0%	0%
Canadian equity (large cap.)	30.0%	All Country World Equity	40.0%	---	0%	---	---	0%
Canadian equity (small cap.)	30.0%	Alternatives	--	--	15%	15%	15%	15%
Global equity (large cap.)	40.0%	Commercial mortgages	10.0%	---	1%	9%	5%	0%
Global equity (small cap.)	40.0%	Core Canadian Real Estate	20.0%	---	14%	6%	10%	15%
Global low vol equity	40.0%	Other Metrics						
All Country World Equity	40.0%	Minimum Capital Required		15.6 M	92.5 M	53.9 M	72.4 M	98.2 M
Core Canadian Real Estate	20.0%	Basic Claims Asset Value (Dec. 31, 2021)	2,179 M					
Infrastructure	30.0%	Proportion of Basic Long (%)	93%					
Private debt non-investment grade	20.5%	Basic Long Asset Value (Dec. 31, 2021)	2,026 M					
Multi-asset credit	20.5%							

Efficient Frontier #4 - Adding Levered Bonds & Equities

	Total Risk
Provincial short-term bonds	0%
Provincial mid-term bonds	0%
Provincial long-term bonds	0%
Corporate mid-term bonds	4.0%
Corporate long-term bonds	3.7%
Overall Corporate	3.6%
Private Debt IG (Universe)	3.0%
MUSH Bonds	0.0%
Commercial Mortgages	10.0%
Real Return Bonds	0.0%
3x Real Return Bonds	0.0%
3x Long Provincial Bonds	0.0%
Canadian equity (large cap.)	30.0%
Canadian equity (small cap.)	30.0%
Global equity (large cap.)	40.0%
Global equity (small cap.)	40.0%
Global low vol equity	40.0%
All Country World Equity	40.0%
Core Canadian Real Estate	20.0%
Infrastructure	30.0%
Private debt non-investment grade	20.5%
Multi-asset credit	20.5%

	MCT Charge	Current (A)	Higher Return (B)	Lower Risk (C)	Midpoint (D)	Higher Return & Risk (E)
Fixed Income		100%	69%	81%	75%	68%
3x Real Return Bonds	0.0%	---	9%	2%	12%	8%
Real return bonds	0.0%	---	---	38%	---	---
3x Long Provincial Bonds	0.0%	---	4%	---	---	5%
Provincial short-term bonds	0.0%	---	---	---	---	---
Provincial mid-term bonds	0.0%	33%	33%	21%	43%	31%
Provincial long-term bonds	0.0%	27%	---	---	---	---
Corporate mid-term bonds	4.0%	9%	3%	---	---	4%
Corporate long-term bonds	3.7%	11%	---	---	---	---
MUSH Bonds	0.0%	20%	20%	20%	20%	20%
Public Equities	--	--	16%	4%	10%	17%
Canadian equity (large cap.)	30.0%	---	12%	4%	10%	13%
All Country World Equity	40.0%	---	4%	---	---	4%
Alternatives	--	--	15%	15%	15%	15%
Commercial mortgages	10.0%	---	4%	12%	9%	3%
Core Canadian Real Estate	20.0%	---	11%	3%	6%	12%
Other Metrics						
Minimum Capital Required		15.6 M	160.5 M	60.8 M	103.3 M	169.4 M

Basic Claims Asset Value (Dec. 31, 2021)	2,179 M
Proportion of Basic Long (%)	93%
Basic Long Asset Value (Dec. 31, 2021)	2,026 M

Efficient Frontier #4 - Adding Levered Bonds & Equities

	Total Risk		MCT Charge	Current (A)	Higher Return (B)	Lower Risk (C)	Midpoint (D)	Higher Return & Risk (E)
Provincial short-term bonds	0%	Fixed Income		100%	70%	81%	76%	69%
Provincial mid-term bonds	0%	Treasury Bills	0.0%	---	6%	6%	6%	6%
Provincial long-term bonds	0%	3x Real Return Bonds	0.0%	---	8%	2%	11%	17%
Corporate mid-term bonds	4.0%	Real return bonds	0.0%	---	---	35%	---	---
Corporate long-term bonds	3.7%	3x Long Provincial Bonds	0.0%	---	4%	---	---	5%
Overall Corporate	3.6%	Provincial short-term bonds	0.0%	---	---	---	---	---
Private Debt IG (Universe)	3.0%	Provincial mid-term bonds	0.0%	33%	29%	18%	39%	27%
MUSH Bonds	0.0%	Provincial long-term bonds	0.0%	27%	---	---	---	---
Commercial Mortgages	10.0%	Corporate mid-term bonds	4.0%	9%	3%	---	---	4%
Real Return Bonds	0.0%	Corporate long-term bonds	3.7%	11%	---	---	---	---
3x Real Return Bonds	0.0%	MUSH Bonds	0.0%	20%	20%	20%	20%	20%
3x Long Provincial Bonds	0.0%	Public Equities	--	--	15%	4%	9%	16%
Canadian equity (large cap.)	30.0%	Canadian equity (large cap.)	30.0%	---	11%	4%	9%	12%
Canadian equity (small cap.)	30.0%	All Country World Equity	40.0%	---	4%	---	---	4%
Global equity (large cap.)	40.0%	Alternatives	--	--	15%	15%	15%	15%
Global equity (small cap.)	40.0%	Commercial mortgages	10.0%	---	5%	12%	9%	4%
Global low vol equity	40.0%	Core Canadian Real Estate	20.0%	---	10%	3%	6%	11%
All Country World Equity	40.0%	Other Metrics						
Core Canadian Real Estate	20.0%	Minimum Capital Required		16.8 M	163.9 M	65.4 M	104.6 M	173.4 M
Infrastructure	30.0%							
Private debt non-investment grade	20.5%							
Multi-asset credit	20.5%							

Basic Claims Asset Value (Dec. 31, 2021)	2,179 M
Proportion of Basic Combined (%)	#####
Basic Combined Asset Value (Dec. 31, 2021)	2,179 M

TABLE APPROVED BY MPI					2.1	2.2	2.3	2.4	2.5	3.1
	BASIC	RSR	SRE	EXT	interest rate risk	foreign exchange risk	equity risk	real estate risk	other market risk exposures	counterparty default risk for balance sheet assets
Provincial short-term bonds	N	Y	Y	Y						0%
Provincial mid-term bonds	Y	Y	Y	Y						0%
Provincial long-term bonds	Y	N	N	N						0%
Corporate mid-term bonds	Y	N	N	N						4.0%
Corporate long-term bonds	Y	N	N	N						3.7%
Overall Corporate	N	Y	Y	Y						3.6%
Private Debt IG (Universe)	N	Y	Y	Y		0%				3%
MUSH Bonds	Y	N	N	N						0%
Commercial Mortgages	Y	Y	Y	Y						10%
Real Return Bonds	Y	N	N	N						0%
3x Real Return Bonds	Y	N	N	N						0%
3x Long Provincial Bonds	Y	N	N	N						0%
Canadian equity (large cap.)	Y	Y	Y	Y			30%			
Canadian equity (small cap.)	N	Y	Y	Y			30%			
Global equity (large cap.)	Y	Y	Y	Y		10%	30%			
Global equity (small cap.)	N	Y	Y	Y		10%	30%			
Global low vol equity	N	Y	Y	Y		10%	30%			
All Country World Equity	Y	Y	Y	Y		10%	30%			
Core Canadian Real Estate	Y	Y	Y	Y				20%		
Infrastructure	N	Y	Y	Y		10%		20%		
Private debt non-investment grade	N	Y	Y	Y		10%				10.5%
Multi-asset credit	N	Y	Y	Y		10%				10.5%

Methodology for Corporate Bonds

Use weighting of AAA/AA, A, and BBB corporate bonds in the applicable overall index, and calculate weighted average risk charge. Note that IPS confirms that investments as low as BBB low are allowed.

Applicable Index	AAA/AA	A	BBB	Corporate Bonds Weight	
Overall mid-term bonds	1.73%	6.93%	14.89%	23.55%	4.0%
Overall long-term bonds	0.20%	13.24%	9.90%	23.34%	3.7%
Overall universe bonds	2.50%	12.02%	11.91%	26.43%	3.6%
Risk Charge	1.5%	3.0%	4.75%		