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IDEA

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Cross-Asset Strategy | Global

US Fixed Income Rotation Model (FIRM): 1Q22

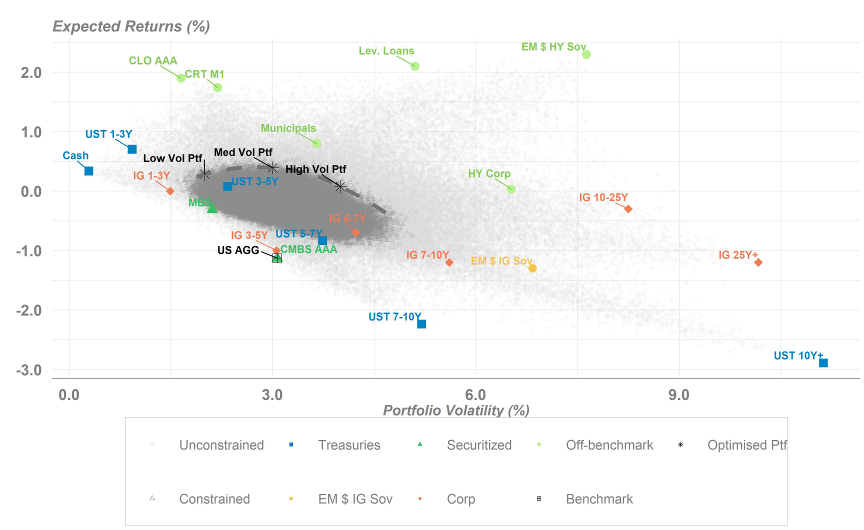
Our fixed income asset allocation model (FIRM), based on Morgan Stanley strategists' forecasts, suggests that for better total return/volatility than the US Aggregate Bond Index, portfolios should be EW US Treasuries, EW EM $ IG, UW MBS, EW IG corporates and OW off-benchmark assets.

With our expectations for higher Treasury yields and wider credit spreads, expected N12M total returns are low across the board: Continued macro progress and expectations for policy tightening lead to our strategists forecasting US Treasury yields to rise through 2022. Together with expectations for wider spreads across most risk assets, N12M total returns are likely going to be low or negative for most US fixed income.

FIRM continues to favour short duration and low quality: The optimal portfolio aiming to maximise total returns while targeting similar volatility as US AGG is EW UST, EW IG EM sovereigns, UW securitized, EW corporate credit and OW off-benchmark assets.

Compared to six months ago, FIRM has lower exposure to corporates: The optimised portfolio has cut exposure in IG and HY corporates. Off-benchmark assets see the biggest increase in allocation, in particular CLO AAA, EM $ HY sovereigns and municipals; allocation to front-end US Treasuries has also increased.

Exhibit 1: US fixed income and components risk/reward and efficient frontier



Source: Bloomberg, Morgan Stanley Research forecasts; Note: Optimisation seeks to maximise risk/reward, based on Morgan Stanley N12M expected total returns, trailing 10Y volatility and correlations, and constraints on weights based on current share of market value of assets. Light grey shows feasible portfolios, darker grey shows portfolios with weight constraints.

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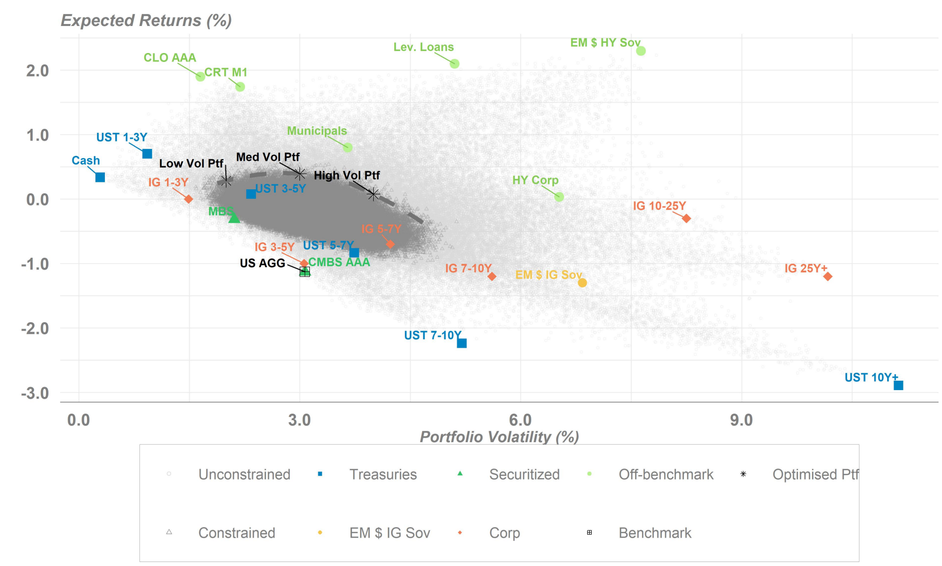
US Fixed Income Rotation Model: 1Q22

We update our US Fixed Income Rotation Model (FIRM), first introduced in Cross-Asset Strategy: Introducing the US Fixed Income Rotation Model (FIRM), June 4, 2021, with our strategists' latest forecasts for 2022. FIRM uses a Markowitz mean-variance portfolio optimisation approach, with our fixed income strategists' forecasts and historical volatility and covariances as inputs.

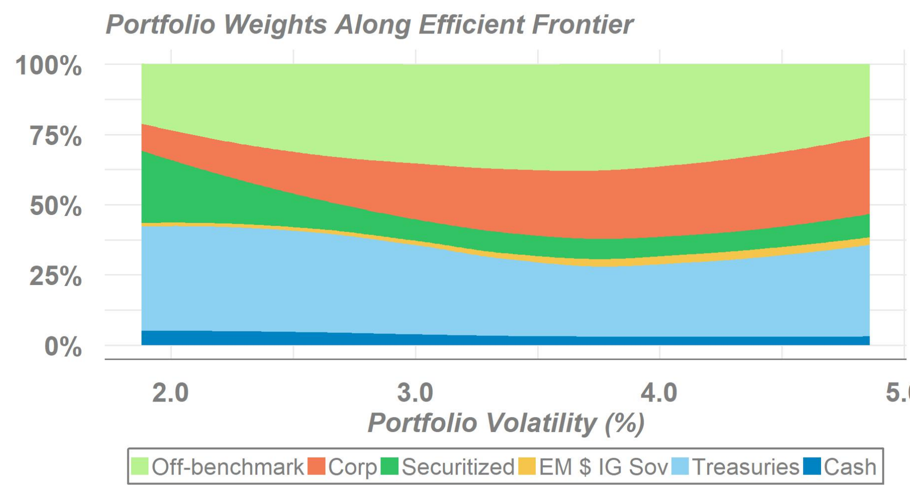
Our strategists are now projecting Treasury yields to mostly end up higher than forwards; modest spread widening across most other asset classes means that expected total returns continue to be low and mostly negative across the board, with most risk premium lying in off-benchmark assets like CLO AAA, leveraged loans and CRT M1. See What's Changed in Our Fixed Income Views? for a summary of notable shifts in price targets and views within US fixed income.

Exhibit 2: US AGG and components risk/reward and efficient frontier based on Morgan Stanley forecasts



Source: Bloomberg, S&P LCD, Morgan Stanley Research forecasts; Note: Optimisation seeks to maximise risk/reward, based on Morgan Stanley N12M expected total returns, trailing 10Y volatility and correlations, and constraints on weights based on current share of market value of assets. Light grey shows feasible portfolios, darker grey shows portfolios with weight constraints.

Exhibit 3: US fixed income optimal portfolios along efficient frontier based on Morgan Stanley forecasts



Source: Morgan Stanley Research forecasts; Note: Optimisation seeks to maximise risk/reward, based on Morgan Stanley N12M expected total returns, trailing 10Y volatility and correlations, and constraints on weights based on current share of market value of assets.

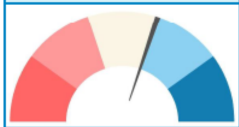
Our FIRM framework suggests that if Morgan Stanley strategists are right about the future, the optimal portfolio with similar volatility as US AGG that beats the benchmark in terms of expected risk/reward:

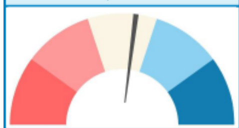
- Has lower duration versus both the benchmark and UST 10Y;
- Is equal-weight Treasuries, underweight securitized products, equal-weight IG corporates, and has added exposure to off-benchmark assets;
- Is currently running low beta versus US AGG.

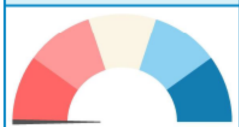
The portfolio recommendation from FIRM is similar to the conclusions from our year-ahead outlook, where we argue that the start of tightening and tight valuations would make the next 12 months a more challenging environment for risk assets.

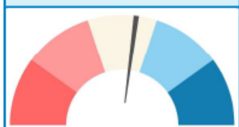
Exhibit 4: Morgan Stanley US fixed income asset allocation

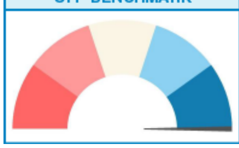
ALLOCATION vs MARKET VALUE	ALLOC. vs MV	Wght Opt Ptf	Wght AGG	MS N12M Exp Rtn (%)	MS N12M Risk Reward	Trail 10Y Avg Rtn (%)	Trail 10Y Risk Reward	vs AGG Corr.	vs AGG Beta+	vs AGG Beta-
US TREASURY	US TREASURY	32%	41%	0.2	0.0	1.9	0.5	0.9	1.2	0.9
	UST 1-3Y	19%	13%	0.7	0.8	1.0	1.1	0.7	0.3	0.1
	UST 3-5Y	7%	9%	0.1	0.0	1.5	0.7	0.8	0.8	0.5
	UST 5-7Y	3%	7%	-0.8	-0.2	2.0	0.5	0.9	1.2	1.0
	UST 7-10Y	2%	4%	-2.2	-0.4	2.4	0.5	0.9	1.6	1.4
	UST 10Y+	1%	9%	-2.9	-0.3	4.1	0.4	0.9	3.7	2.9
EM $ IG SOV	EM $ IG SOV	2%	1%	-1.3	-0.2	4.1	0.6	0.8	1.2	2.5
	EM $ IG SOV	2%	1%	-1.3	-0.2	4.1	0.6	0.8	1.2	2.5
SECURITIZED	SECURITIZED	8%	31%	-0.5	-0.6	2.2	1.0	0.9	0.6	0.7
	MBS	6%	29%	-0.3	-0.1	2.1	1.0	0.9	0.6	0.7
	CMBS AAA	2%	2%	-1.1	-0.4	3.3	1.1	0.9	0.8	0.8
IG CORPORATES	IG CORPORATES	20%	26%	0.0	0.0	4.1	0.8	0.8	1.2	1.4
	IG 1-3Y	3%	4%	0.0	0.0	2.1	1.4	0.6	0.3	0.2
	IG 3-5Y	3%	5%	-1.0	-0.3	3.2	1.0	0.7	0.6	0.7
	IG 5-7Y	2%	3%	-0.7	-0.2	4.3	1.0	0.8	0.9	1.1
	IG 7-10Y	3%	4%	-1.2	-0.2	4.3	0.8	0.8	1.2	1.6
	IG 10-25Y	5%	6%	-0.3	0.0	5.8	0.7	0.8	1.8	2.3
	IG 25Y+	3%	4%	-1.2	-0.1	5.6	0.5	0.9	2.5	3.0
OFF-BENCHMARK	OFF-BENCHMARK	35%	0%	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	HY	6%	0%	0.0	0.0	6.2	1.0	0.3	-0.2	0.8
	Lev. Loans	9%	0%	2.1	0.4	4.5	0.9	0.1	-0.2	0.1
	CRT M1	3%	0%	1.7	0.8	2.1	0.9	0.1	-0.1	0.0
	CLO AAA	4%	0%	1.9	1.1	2.5	1.5	0.1	0.0	0.1
	EM $ HY Sov	6%	0%	2.3	0.3	4.4	0.6	0.5	0.3	2.1
	Municipals	8%	0%	0.8	0.2	3.2	0.9	0.7	0.5	1.2
	CASH	4%	0%	0.3	1.2	0.7	2.5	0.3	0.1	0.0



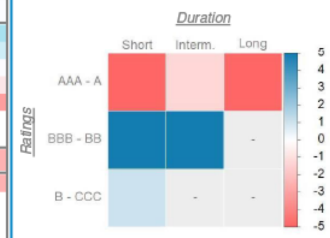








ALLOCATION VS MARKET VALUE
Duration x Ratings



Note: Numbers show model portfolio weights less market value weights as %.

SUMMARY COMPS

vs. US AGG	Ptf	Agg
QUALITY	A2	Aa2
DURATION	4.5	6.5
VOL	3.1%	3.1%
DOWN. DEV	0.6%	0.5%
BETA to US AGG	0.8	1.0
BETA to UST 10Y	0.2	0.5

vs UST 5Y	Ptf	UST 5Y
DURATION	4.5	4.8
VOL	3.1%	3.1%
DOWN. DEV	0.6%	0.5%
BETA to US AGG	0.8	0.8
BETA to UST 5Y	0.2	1.0

vs UST 10Y	Ptf	UST 10Y
DURATION	4.5	9.1
VOL	3.1%	6.0%
DOWN. DEV	0.6%	1.1%
BETA to US AGG	0.8	1.7
BETA to UST 10Y	0.2	1.0

Less Risk / More Risk

Source: Bloomberg, S&P LCD, Morgan Stanley Research; Note: Shows breakdown of portfolio targeting 3.0% annualised vol. Optimisation seeks to maximise risk/reward based on Morgan Stanley N12M expected total returns, trailing 10Y volatility and correlations, and constraints on weights based on current share of amount outstanding of market segments. For the 'dials', each segment represents 5% allocation, ranging from -12.5% to +12.5% versus market weight; similarly allocation 'bars' range from -10% to +10% for all assets except sovereign (EM), EM sovereign (HY), CRT M1 and CLO AAA, which range from -5% to +5% versus market weight due to smaller market cap.

What's Changed in Our Fixed Income Views?

Cross-asset strategy team

Changes in strategy views

Notable recent changes in Morgan Stanley macro and fixed income research views include:

- **In our latest cross-asset allocation recommendation, we maintain an underweight to both US Treasuries and US corporate credit** on the back of above-consensus global growth forecasts but mid-cycle challenges and rich valuations. See Cross-Asset Playbook: Pivot…PIVOT! January 21, 2022.

- **Our macro strategy team forecasts US yields to mostly rise above their market-implied forwards,** and now sees 5-year yields ending 2022 at 2.2%, with 10-year yields at 2.3%, on the back of expected policy tightening from the Fed. See US Economics, Global Macro, Agency MBS, Credit and Equity Strategy: More Tightening Than You Think, January 13, 2022.

- **We continue to find ourselves less constructive on agency MBS** as supply technicals look more challenging, despite the recent widening. We like short agency MBS versus the entire yield curve. See Agency MBS Weekly: Will The Real Mortgage Correlation Please Stand Up? January 21, 2022.

- **Our EM fixed income team is bearish on EM sovereigns** as valuations should be cheaper given external tightening. Only into 2H22 do we think there is a case for adding more broad beta, unless the market reprices more significantly in the near term. See 2022 Global EM Fixed Income Outlook: A Triumph of Low Expectations, November 20, 2021.

Impact on fixed income asset allocation views

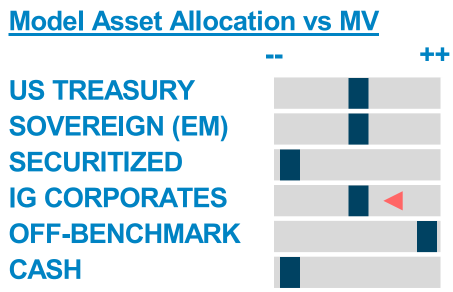
Our strategist colleagues' refreshed forecasts suggest more downside across most on-benchmark assets compared to six months ago, which leads us to an optimal portfolio that reduces exposure to IG and HY corporate credit, with most of the expected returns coming from off-benchmark bets. In greater detail:

- **Asset allocation:** The optimal US fixed income portfolio aiming to maximise total returns while targeting the same volatility as US AGG (~3%) is EW USTs, UW securitized, EW IG corporate credit and OW off-benchmark assets. In particular, it holds a large UW in MBS and cut exposure to IG and HY corporate credit while adding exposures to CLO AAA, EM $ HY and municipals versus last year.

- **Duration:** The optimal portfolio is short duration versus US AGG and versus UST 10Y, mainly via its off-benchmark bets that aren't as sensitive to rates.

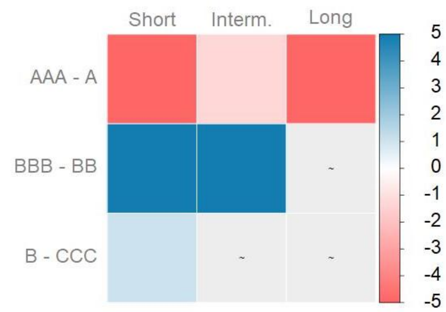
- **Quality:** The optimal US fixed income portfolio is lower quality than AGG, with a weighted rating of ~A2, versus the benchmark's Aa2.

Exhibit 5: Framework asset allocation and change



Source: Morgan Stanley Research

Exhibit 6: Framework allocation versus US AGG – by maturity and ratings



Source: Morgan Stanley Research; Note: Numbers show portfolio weights less market value weights as %.

Exhibit 7: Optimal portfolio duration and quality versus US AGG

vs. US AGG	Ptf	Agg	Less Risk / More Risk
QUALITY	A2	Aa2	
DURATION	4.6	6.5	
VOL	3.1%	3.0%	
DOWN. DEV	0.6%	0.5%	
BETA to US AGG	0.8	1.0	
BETA to UST 10Y	0.2	0.4	

Source: Bloomberg, Morgan Stanley Research forecasts

Exhibit 8: Optimal portfolio duration and quality versus UST 10Y

vs UST 10Y	Ptf	UST 10Y	Less Risk / More Risk
DURATION	4.6	9.1	
VOL	3.1%	6.0%	
DOWN. DEV	0.6%	1.0%	
BETA to US AGG	0.8	1.8	
BETA to UST 10Y	0.2	1.0	

Source: Bloomberg, Morgan Stanley Research forecasts

Fixed Income Strategy Latest Views

US Treasuries

Guneet Dhingra

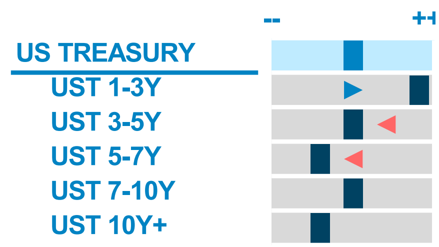
- We suggest an underweight stance on government bond duration as we expect yields to mostly end the year above their market-implied forwards.
- We expect a decline in inflation risk premiums, rising growth expectations, challenging technicals and hawkish central bank policies to put upward pressure on real yields.
- We look for higher yields in 2022 in the US, led by intermediate maturities. A combination of markets pricing in risk premium over the Fed's dot plot, a higher terminal rate, along with QT and higher Treasury supply, should drive 5y and 10y yields higher.
- Best idea(s): 5s30s flattener; short 5y TIPS versus DBRis.
- Recent notable report(s):
  - Global Macro Strategist: Flight to Quantity (25 Jan 2022)
  - US Economics & Global Macro Strategy: FOMC Reaction: Flashing Hawkish (27 Jan 2022)

Exhibit 9: Morgan Stanley UST forecasts

4Q22 Target	Yld (%)	Nom. Rtn
UST 2Y	1.60	1.0%
UST 5Y	2.20	-0.3%
UST 10Y	2.30	-2.6%
UST 30Y	2.30	-2.3%

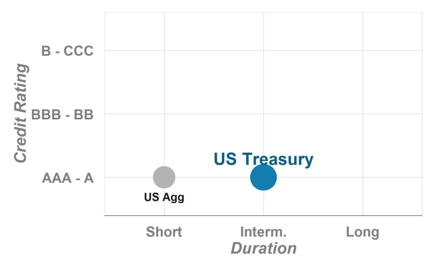
Source: Morgan Stanley Research forecasts

Exhibit 10: Framework UST allocation



Source: Morgan Stanley Research

Exhibit 11: UST versus US AGG – quality and duration

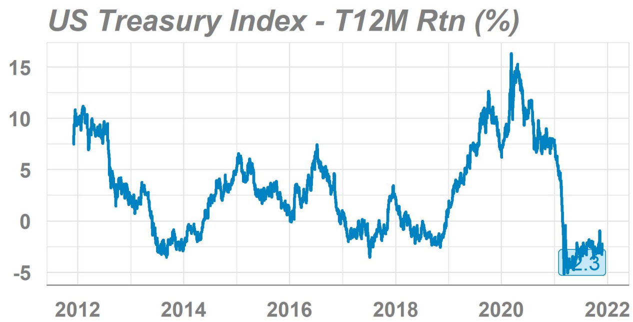


Source: Morgan Stanley Research

Exhibit 12: US Treasury index yield

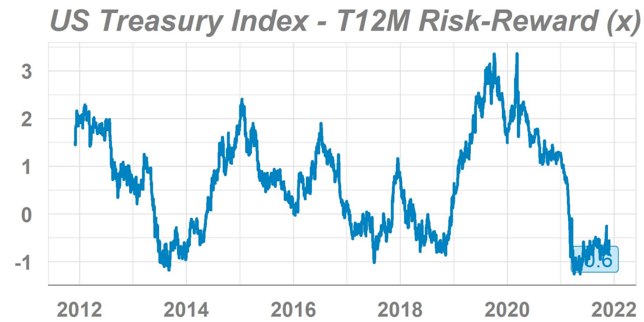
Source: Bloomberg, Morgan Stanley Research

Exhibit 13: US Treasury index T12M return



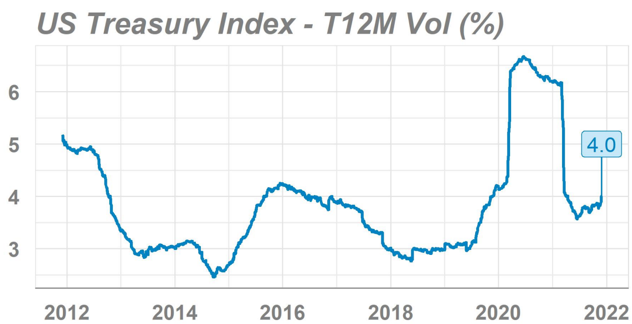
Source: Bloomberg, Morgan Stanley Research

Exhibit 14: US Treasury index T12M risk/reward



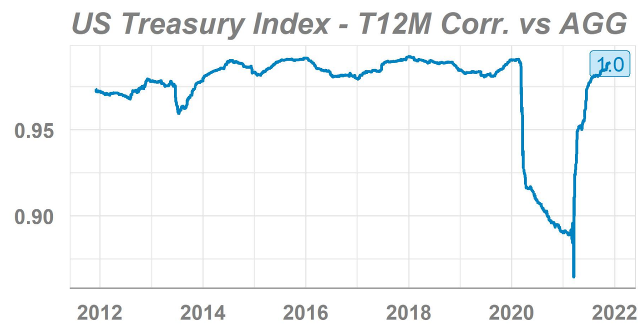
Source: Bloomberg, Morgan Stanley Research

Exhibit 15: US Treasury index T12M volatility



Source: Bloomberg, Morgan Stanley Research

Exhibit 16: US Treasury index T12M correlation versus AGG



Source: Bloomberg, Morgan Stanley Research

Securitized products

Jay Bacow & Jim Egan

Agency MBS

- While mortgages have widened, the change in the supply/demand dynamics and correlation with real yields argue for spreads to continue to widen.

- Not only will demand in the private market likely be the highest on record, but accelerating loan growth and decelerating deposit growth also argue for less bank involvement, forcing money managers to be the marginal buyer.

- With heavy net supply in the mortgage market and bank demand likely to dissipate amid loan growth, we like selling 30yr 3.0s and 15yr 2.5s while selling out the vol, effectively shorting OAS.

- Best idea(s): Our highest-conviction idea is that you can play for TBA to cheapen via long specified pools versus TBA. The removal of Fed accommodations changes the demand for TBA, since the Fed didn't buy pools, and the supply/demand technicals in pools are better, particularly if rolls cheapen. We like expressing this trade in loan balance and geo conventional 2.5s and 3.0s versus same TBA.

- Recent notable report(s):
  - 2022 Global Securitized Products Outlook: Credit Over Convexity (16 Nov 2021)
  - Agency MBS Weekly: Will The Real Mortgage Correlation Please Stand Up? (21 Jan 2022)

Securitized

- We think that securitized credit fundamentals are strong. We expect default risk to be low and issuance volumes to be high.

- We expect private-label RMBS supply to remain elevated in 2022, a call reinforced by the FHFA's recent announcement on LLPA adjustments. The changes could push billions of dollars worth of mortgages from the agency to the non-agency space.

- While we think there will be opportunities in both CMBS and resi credit throughout the balance of 2022, we would prefer tactically adding into periodic widening, which we believe will be driven more by technicals than any real fundamental concerns.

- Best idea(s): CLOs across the stack remains our preferred asset class, with top-tier US CLO equity our favourite trade. We also like the top of the CLO capital structure in both the US and Europe as our favourite high-quality carry trade, especially in the face of a hawkish Fed.

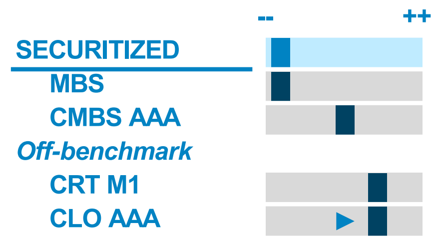
- Recent notable report(s):

Exhibit 17: Morgan Stanley securitized products forecasts

4Q22 Target	Sprd (bps)	XS. Rtn
MBS Index	45	-0.2%
CMBS AAA	77	-0.8%
CRT M1	85	0.9%
CLO AAA	90	1.2%

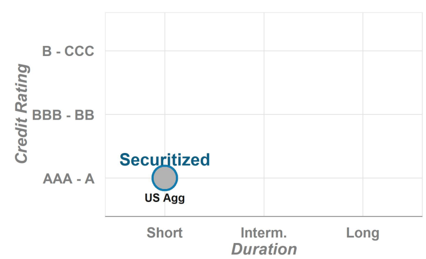
Source: Morgan Stanley Research forecasts

Exhibit 18: Framework securitized allocation



Source: Morgan Stanley Research

Exhibit 19: Securitized versus US AGG – quality and duration



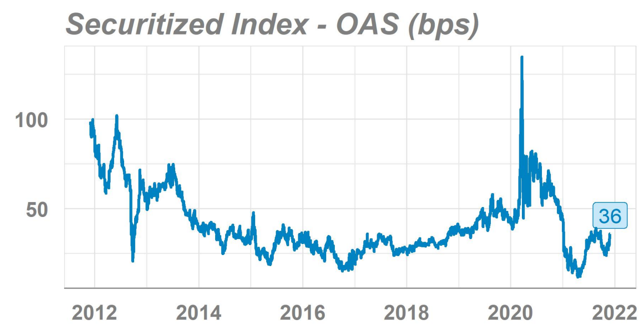
Source: Morgan Stanley Research

- Global CLOs: Key Debates on CLO Equity (24 Jan 2022)
- Credit Markets Brief: Dealing with Fed Uncertainty (10 Jan 2022)
- 2022 Global Securitized Products Outlook: Credit Over Convexity (17 Nov 2021)

Exhibit 20: Securitized index yield

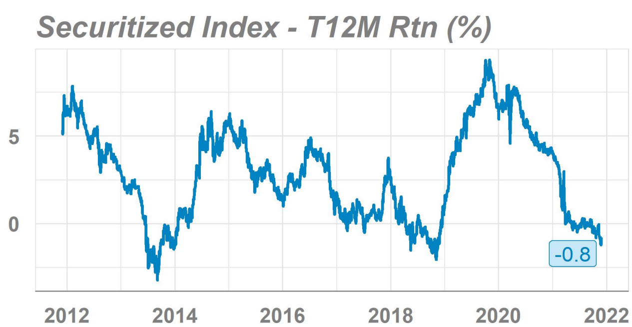
Source: Bloomberg, Morgan Stanley Research

Exhibit 21: Securitized index OAS



Source: Bloomberg, Morgan Stanley Research

Exhibit 22: Securitized index T12M return

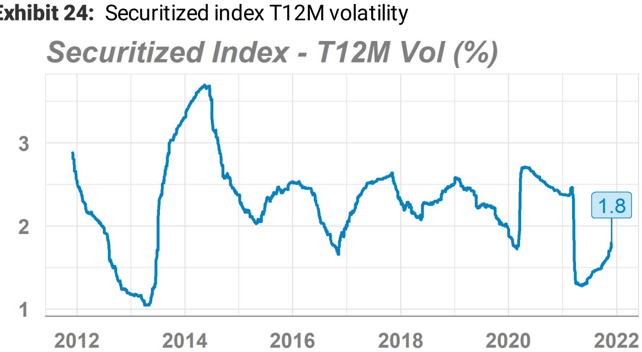


Source: Bloomberg, Morgan Stanley Research

Exhibit 23: Securitized index T12M risk/reward

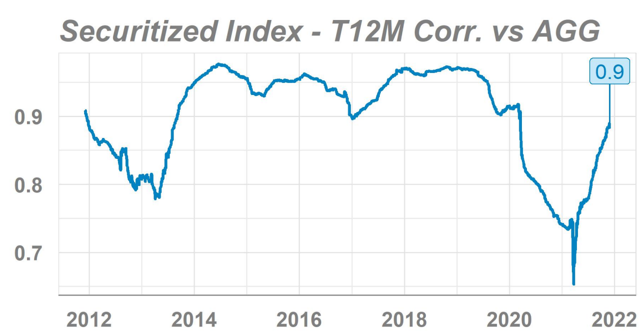
Source: Bloomberg, Morgan Stanley Research

Exhibit 24: Securitized index T12M volatility



Source: Bloomberg, Morgan Stanley Research

Exhibit 25: Securitized index T12M correlation versus AGG



Source: Bloomberg, Morgan Stanley Research

Corporate credit

Srikath Sankaran, Vishwas Patkar

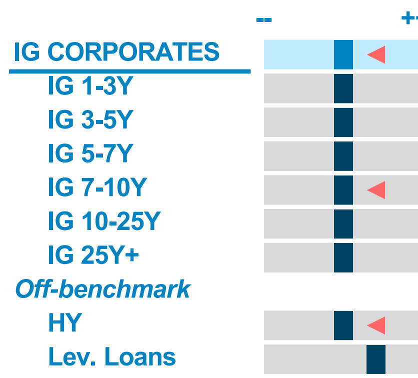
- We expect modestly wider spreads in 2022, with weakness being front-loaded as inflation remains elevated in the near term, feeding into uncertainty around margin pressures and Fed policy unwind. We expect consolidation at wider levels, as healthy fundamentals anchor the market
- We like loans over HY over IG, focusing on the BBB to high B core across ratings, the belly of the curve, and the 20-year point in IG. Rising stars remain a key alpha opportunity.
- We expect a modest increase in IG supply next year, while loan and HY issuance drop modestly.
- Best idea(s): Long loans over HY in cash or via TRS.
- Recent notable report(s):
  - 2022 US Credit Strategy Outlook: Patience Is a Virtue (22 Nov 2021)
  - Investment Grade Credit Strategy: Revisiting Rising Rates (25 Oct 2021)

Exhibit 26: Morgan Stanley corporate credit forecasts

4Q22 Target	Sprd (bps)	XS. Rtn
IG 1-3Y	55	0.0%
IG 3-5Y	70	-1.0%
IG 5-7Y	82	-0.7%
IG 7-10Y	101	-1.2%
IG 10-25Y	136	-0.3%
IG 25Y+	137	-1.2%
HY	330	0.5%
Lev. Loans	425	2.0%

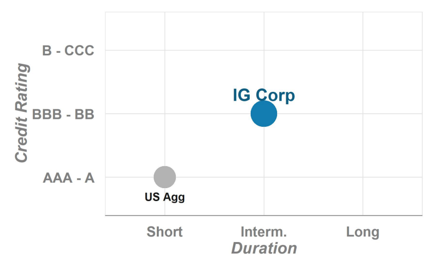
Source: Morgan Stanley Research forecasts

Exhibit 27: Framework corporate credit allocation



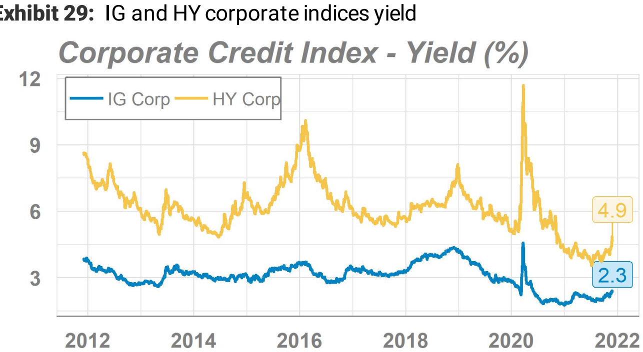
Source: Morgan Stanley Research

Exhibit 28: Corporate credit versus US AGG – quality and duration



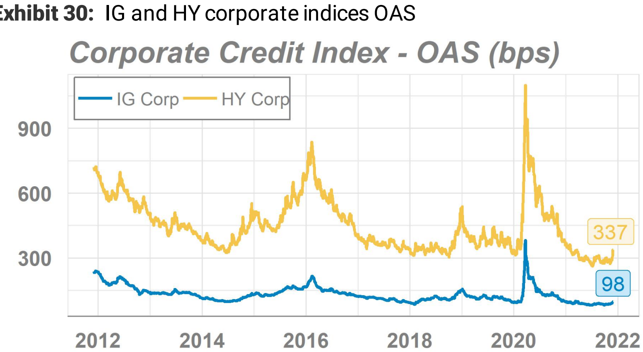
Source: Morgan Stanley Research

Exhibit 29: IG and HY corporate indices yield



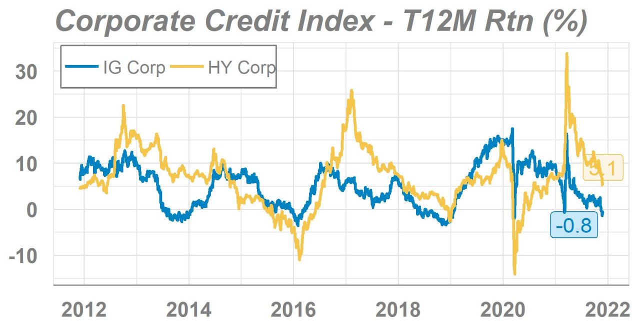
Source: Bloomberg, Morgan Stanley Research

Exhibit 30: IG and HY corporate indices OAS



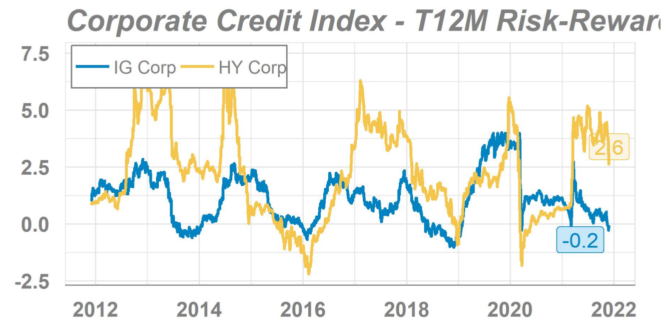
Source: Bloomberg, Morgan Stanley Research

Exhibit 31: IG and HY corporate indices T12M return



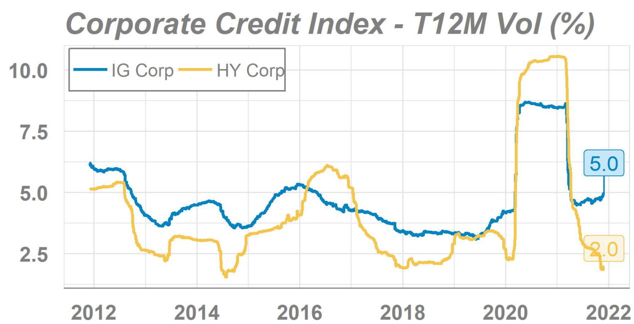
Source: Bloomberg, Morgan Stanley Research

Exhibit 32: IG and HY corporate indices T12M risk/reward



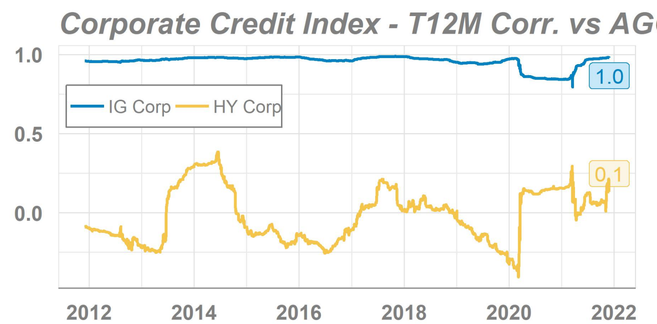
Source: Bloomberg, Morgan Stanley Research

Exhibit 33: IG and HY corporate indices T12M volatility



Source: Bloomberg, Morgan Stanley Research

Exhibit 34: IG and HY corporate indices T12M correlation versus AGG



Source: Bloomberg, Morgan Stanley Research

EM sovereigns

Simon Waever

- Wider spreads in line with global credit spreads: Morgan Stanley expectations of wider global credit spreads, higher UST real yields, a stronger dollar and EM growth lagging DM growth are important headwinds. Credit metrics have also worsened, with fiscals set to remain very wide versus history.

- Yet, the skew towards LatAm should allow spreads to outperform US IG: Given that the index only includes SEC-registered securities, 60% of the index is LatAm. While different than broader EM indices, it currently skews the sovereign subindex towards the cheapest EM region, which should see the index outperform US IG over the next year despite fiscal concerns. That said, better entry points should appear in 2Q22.

- Benchmark allocations: We like Chile and Peru. We dislike Uruguay.

- Off-benchmark suggestions: In IG, we suggest adding Saudi Arabia, while within BB we suggest adding Oman and the Dominican Republic. We also suggest moving into quasi-sovereigns to pick up additional spread, including ARAMCO (Saudi Arabia), ADGLXY (Abu Dhabi), QPETRO (Qatar) and even PEMEX (Mexico) despite being HY.

- Best idea: Add Saudi Arabia USD bonds.

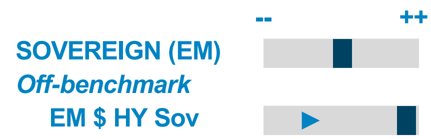
- Recent notable report(s):
  - 2022 Global EM Fixed Income Outlook: A Triumph of Low Expectations (20 Nov 2021)
  - Chile Economics, Equity, and Fixed Income Strategy: Payoff Asymmetry Around the Corner (12 Nov 2021)
  - Global EM Strategist: New Year, Similar Challenges (10 Jan 2022)

Exhibit 35: Morgan Stanley EM $ forecasts

4Q22 Target	Sprd (bps)	Nom. Rtn
EM $ IG Sov	121	-1.3%
EM $ HY Sov	608	2.3%

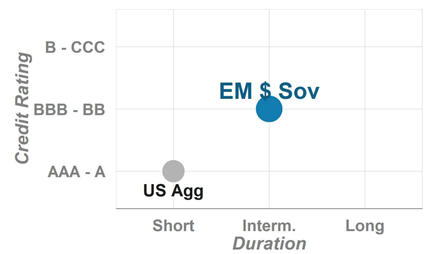
Source: Morgan Stanley Research forecasts

Exhibit 36: Framework EM $ allocation



Source: Morgan Stanley Research

Exhibit 37: EM $ versus US AGG – quality and duration

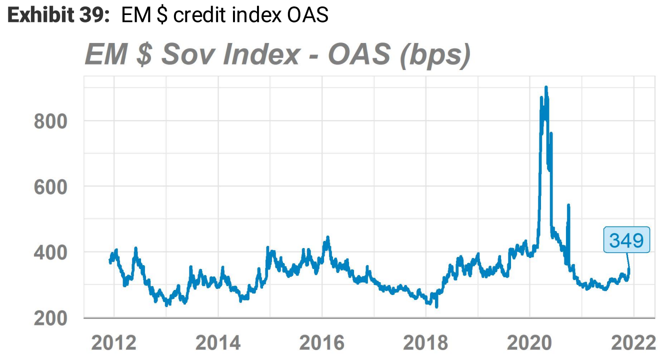


Source: Morgan Stanley Research

Exhibit 38: EM $ credit index yield

Source: Bloomberg, Morgan Stanley Research

Exhibit 39: EM $ credit index OAS



Source: Bloomberg, Morgan Stanley Research

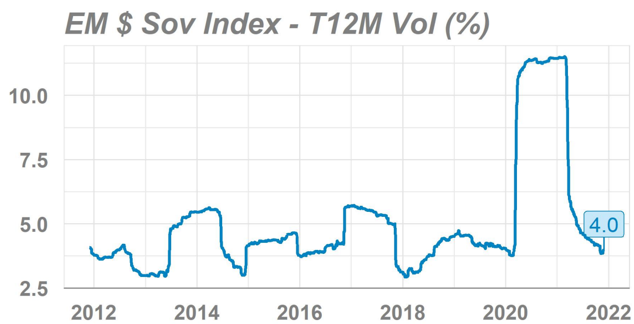
Exhibit 40: EM $ credit index T12M return

Source: Bloomberg, Morgan Stanley Research

Exhibit 41: EM $ credit index T12M risk/reward

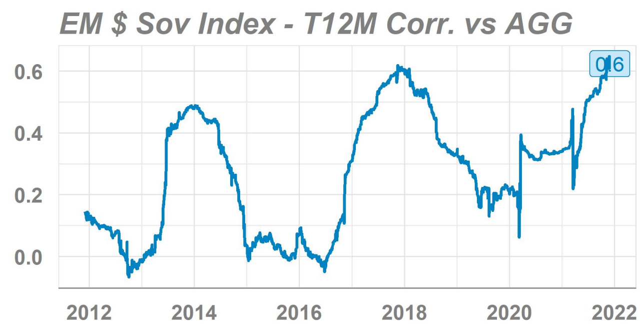
Source: Bloomberg, Morgan Stanley Research

Exhibit 42: EM $ credit index T12M volatility



Source: Bloomberg, Morgan Stanley Research

Exhibit 43: EM $ credit index T12M correlation versus AGG



Source: Bloomberg, Morgan Stanley Research

Municipals

Michael Zezas, Samantha Favis, Barbara Boakye

- Taxable munis delivered 0.94% in returns for 2021, outperforming corporate and US government fixed income.
- Fundamentals are strong and improving – municipal bonds offer a strong relative track record versus corporate counterparts, providing higher ratings and lower default rates.
- In the long run, we view taxable muni liquidity as improving as the investor base broadens; our comparative analysis of annual turnover challenges liquidity concerns to explain away the differences between taxable munis and other fixed income alternatives.
- Best idea: We recommend taxable munis for LDI accounts; we favour airports and higher ed.
- Recent notable report(s):
    - Muni Strategy Playbook: A Normalization Game (16 Nov 2021)
    - Podcast: Munis to the People Ep. 14: A Tail of 2 Tailwinds (9 Nov 2021)

Exhibit 44: Morgan Stanley municipals forecasts

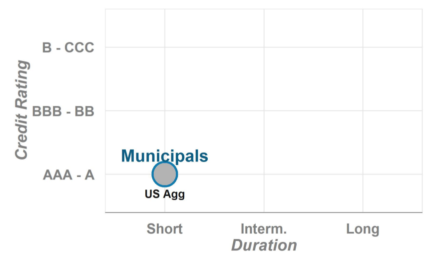
4Q22 Target	Yld (%)	Nom. Rtn
Municipals	1.99	0.80%

Source: Morgan Stanley Research forecasts

Exhibit 45: Framework municipals allocation

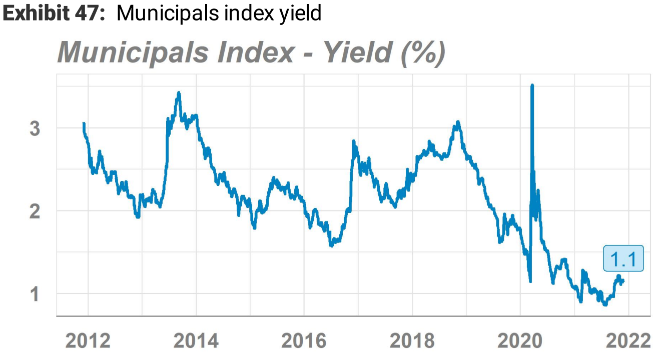
Source: Morgan Stanley Research

Exhibit 46: Municipals versus US AGG – quality and duration



Source: Morgan Stanley Research

Exhibit 47: Municipals index yield



Source: Bloomberg, Morgan Stanley Research

Exhibit 48: Municipals index T12M return

Source: Bloomberg, Morgan Stanley Research

Exhibit 49: Municipals index T12M risk/reward

Source: Bloomberg, Morgan Stanley Research

Exhibit 50: Municipals index T12M volatility

Source: Bloomberg, Morgan Stanley Research

Exhibit 51: Municipals index T12M correlation versus AGG

Source: Bloomberg, Morgan Stanley Research

US Fixed Income Strategic Asset Allocation Snapshot

Cross-asset team

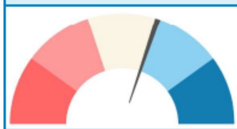
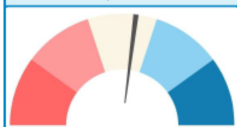
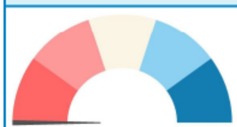
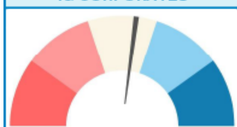
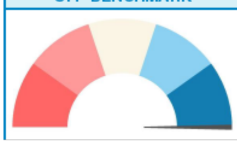
Key Takeaways

The optimal portfolio with similar volatility to that of US AGG which beats benchmark expected returns:

- Is EW US Treasuries, EW EM $ IG sovereigns, UW securitized, EW corporates and OW off-benchmark versus these segments' market values. In particular, the portfolio has a large UW in MBS; the portfolio also cut exposure to IG and HY corporate credit, and added exposure to short-end US Treasuries, EM $ credit, CLO AAA and municipals versus last year.
- Has lower duration versus both the benchmark and UST 10Y.
- Is overweight lower-quality fixed income and off-benchmark bets.
- Is currently running low beta versus US AGG.

Exhibit 52: Morgan Stanley US fixed income asset allocation – AGG vol

ALLOCATION vs MARKET VALUE	ALLOC. vs MV	Wght Opt Ptf	Wght AGG	MS N12M Exp Rtn (%)	MS N12M Risk Reward	Trail 10Y Avg Rtn (%)	Trail 10Y Risk Reward	vs AGG Corr.	vs AGG Beta+	vs AGG Beta-
US TREASURY	US TREASURY	32%	41%	0.2	0.0	1.9	0.5	0.9	1.2	0.9
	UST 1-3Y	19%	13%	0.7	0.8	1.0	1.1	0.7	0.3	0.1
	UST 3-5Y	7%	9%	0.1	0.0	1.5	0.7	0.8	0.8	0.5
	UST 5-7Y	3%	7%	-0.8	-0.2	2.0	0.5	0.9	1.2	1.0
	UST 7-10Y	2%	4%	-2.2	-0.4	2.4	0.5	0.9	1.6	1.4
	UST 10Y+	1%	9%	-2.9	-0.3	4.1	0.4	0.9	3.7	2.9
EM $ IG SOV	EM $ IG SOV	2%	1%	-1.3	-0.2	4.1	0.6	0.8	1.2	2.5
	EM $ IG SOV	2%	1%	-1.3	-0.2	4.1	0.6	0.8	1.2	2.5
SECURITIZED	SECURITIZED	8%	31%	-0.5	-0.6	2.2	1.0	0.9	0.6	0.7
	MBS	6%	29%	-0.3	-0.1	2.1	1.0	0.9	0.6	0.7
	CMBS AAA	2%	2%	-1.1	-0.4	3.3	1.1	0.9	0.8	0.8
IG CORPORATES	IG CORPORATES	20%	26%	0.0	0.0	4.1	0.8	0.8	1.2	1.4
	IG 1-3Y	3%	4%	0.0	0.0	2.1	1.4	0.6	0.3	0.2
	IG 3-5Y	3%	5%	-1.0	-0.3	3.2	1.0	0.7	0.6	0.7
	IG 5-7Y	2%	3%	-0.7	-0.2	4.3	1.0	0.8	0.9	1.1
	IG 7-10Y	3%	4%	-1.2	-0.2	4.3	0.8	0.8	1.2	1.6
	IG 10-25Y	5%	6%	-0.3	0.0	5.8	0.7	0.8	1.8	2.3
	IG 25Y+	3%	4%	-1.2	-0.1	5.6	0.5	0.9	2.5	3.0
OFF-BENCHMARK	OFF-BENCHMARK	35%	0%	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	HY	6%	0%	0.0	0.0	6.2	1.0	0.3	-0.2	0.8
	Lev. Loans	9%	0%	2.1	0.4	4.5	0.9	0.1	-0.2	0.1
	CRT M1	3%	0%	1.7	0.8	2.1	0.9	0.1	-0.1	0.0
	CLO AAA	4%	0%	1.9	1.1	2.5	1.5	0.1	0.0	0.1
	EM $ HY Sov	6%	0%	2.3	0.3	4.4	0.6	0.5	0.3	2.1
	Municipals	8%	0%	0.8	0.2	3.2	0.9	0.7	0.5	1.2
	CASH	4%	0%	0.3	1.2	0.7	2.5	0.3	0.1	0.0

ALLOCATION VS MARKET VALUE
Duration x Ratings

Note: Numbers show model portfolio weights less market value weights as %.

SUMMARY COMPS

vs. US AGG	Ptf	Agg
QUALITY	A2	Aa2
DURATION	4.5	6.5
VOL	3.1%	3.1%
DOWN. DEV	0.6%	0.5%
BETA to US AGG	0.8	1.0
BETA to UST 10Y	0.2	0.5

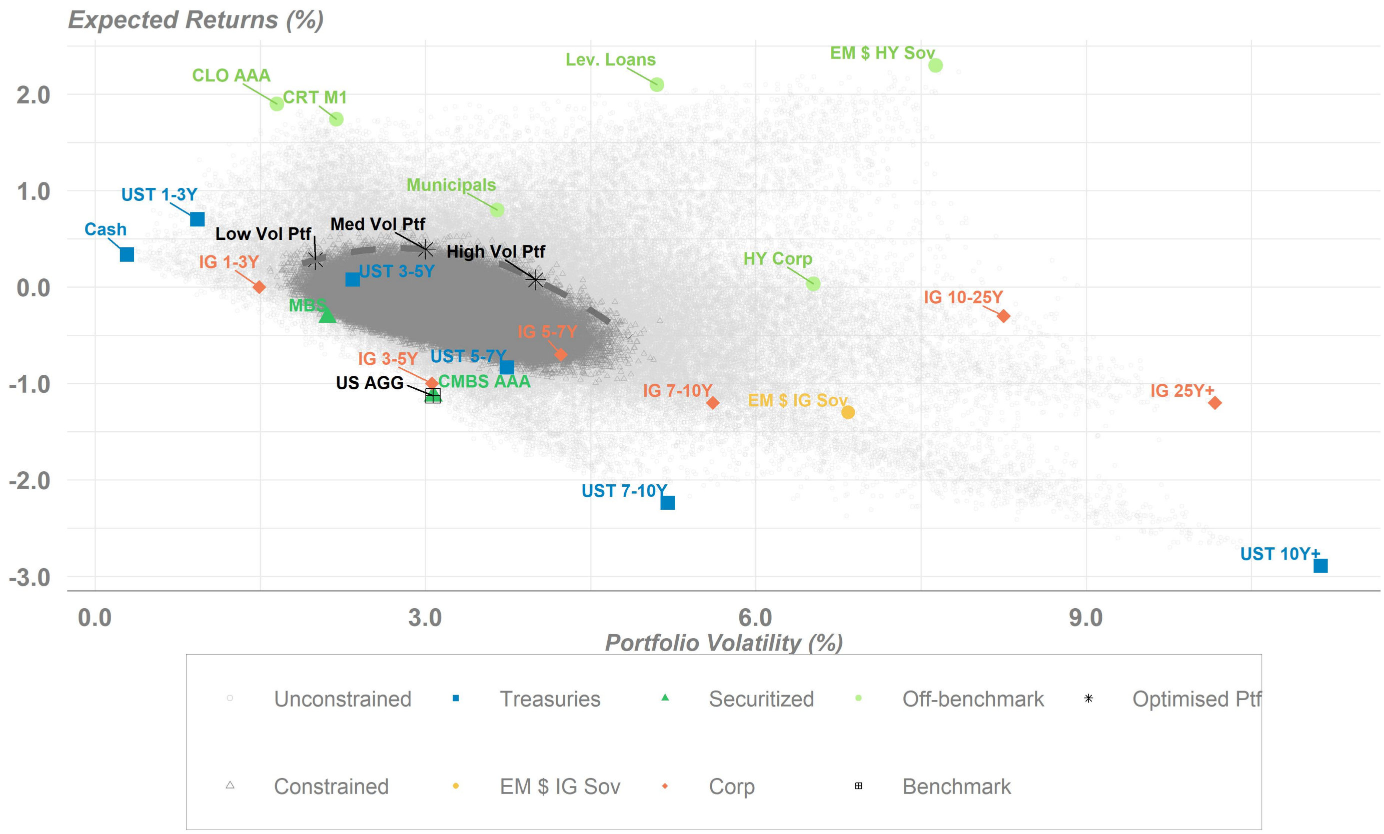
vs UST 5Y	Ptf	UST 5Y
DURATION	4.5	4.8
VOL	3.1%	3.1%
DOWN. DEV	0.6%	0.5%
BETA to US AGG	0.8	0.8
BETA to UST 5Y	0.2	1.0

vs UST 10Y	Ptf	UST 10Y
DURATION	4.5	9.1
VOL	3.1%	6.0%
DOWN. DEV	0.6%	1.1%
BETA to US AGG	0.8	1.7
BETA to UST 10Y	0.2	1.0

Less Risk / More Risk

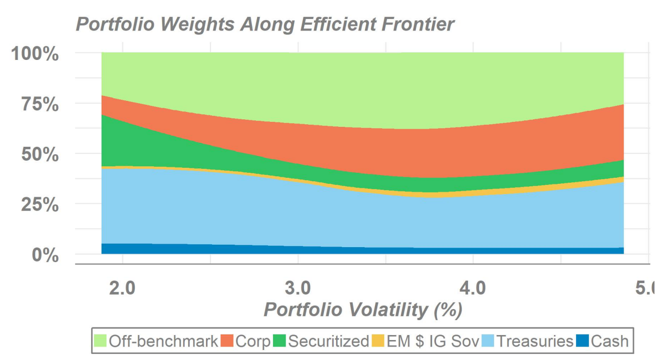
Source: Bloomberg, S&P LCD, Morgan Stanley Research; Note: Shows breakdown of portfolio targeting 3.0% annualised vol. Optimisation seeks to maximise risk/reward, based on Morgan Stanley N12M expected total returns, trailing 10Y volatility and correlations, and constraints on weights based on current share of amount outstanding of market segments. For the 'dials', each segment represents 5% allocation, ranging from -12.5% to +12.5% versus market weight; similarly allocation 'bars' range from -10% to +10% for all assets except sovereign (EM), EM sovereign (HY), CRT M1 and CLO AAA, which range from -5% to +5% versus market weight due to smaller market cap.

Exhibit 53: US fixed income and components risk/reward and efficient frontier based on Morgan Stanley forecasts



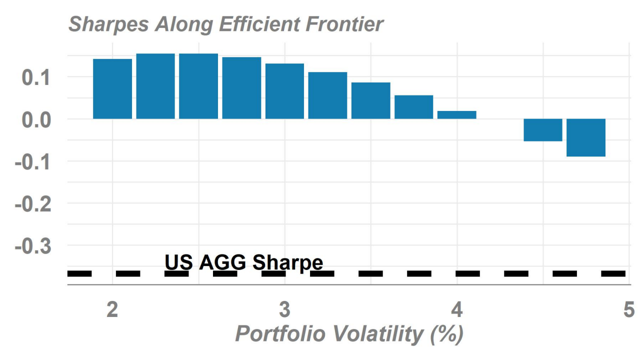
Source: Bloomberg, Morgan Stanley Research forecasts; Note: Optimisation seeks to maximise risk/reward, based on Morgan Stanley N12M expected total returns, trailing 10Y volatility and correlations, and constraints on weights based on current share of market value of assets. Light grey shows feasible portfolios, darker grey shows portfolios with weight constraints.

Exhibit 54: US fixed income optimal portfolios along efficient frontier based on Morgan Stanley forecasts



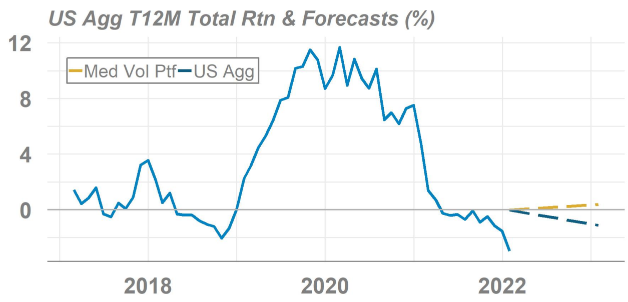
Source: Bloomberg, Morgan Stanley Research forecasts; Note: Optimisation seeks to maximise risk/reward, based on Morgan Stanley N12M expected total returns, trailing 10Y volatility and correlations, and constraints on weights based on current share of market value of assets.

Exhibit 55: Expected Sharpes along efficient frontier based on Morgan Stanley forecasts



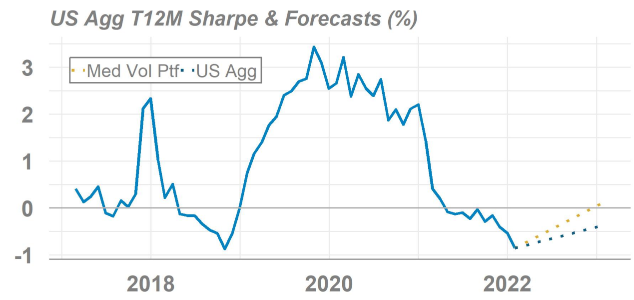
Source: Bloomberg, Morgan Stanley Research forecasts; Note: Optimisation seeks to maximise risk/reward, based on Morgan Stanley N12M expected total returns, trailing 10Y volatility and correlations, and constraints on weights based on current share of market value of assets.

Exhibit 56: US AGG T12M returns history



Source: Bloomberg, Morgan Stanley Research forecasts

Exhibit 57: US AGG T12M Sharpe history



Source: Bloomberg, Morgan Stanley Research forecasts

Optimal US fixed income low-vol portfolio – 2.0% vol

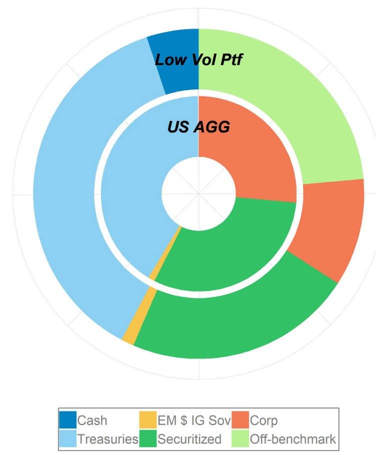
Expected return: The optimal US fixed income portfolio targeting lower risk than US AGG at 2% annualised vol has an expected return of 0.3%, versus -1.1% for the benchmark.

Asset allocation: The low-vol portfolio is OW US Treasuries, EW sovereigns (EM IG), EW securitized, UW corporates and OW off-benchmark versus these segments' market values.

Duration: The low-vol optimal US fixed income portfolio has a duration of 3.7 versus US AGG's duration of 6.5. It also has lower duration versus UST 10Y.

Quality: The low-vol optimal US fixed income portfolio has an implied rating of Aa3, similar to US AGG's Aa2.

Exhibit 58: US fixed income optimal portfolio (2.0% vol) breakdown

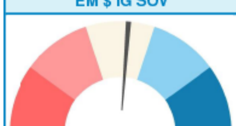


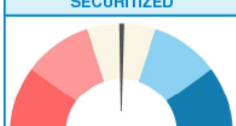
Source: Bloomberg, Morgan Stanley Research; Note: Optimisation seeks to maximise risk/reward, based on Morgan Stanley N12M expected total returns, trailing 10Y volatility and correlations, and constraints on weights based on current share of amount outstanding of market segments.

Exhibit 59: Morgan Stanley US fixed income asset allocation – low-vol portfolio

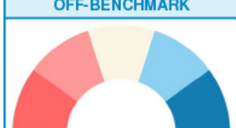
ALLOCATION vs MARKET VALUE

US TREASURY


EM $ IG SOV


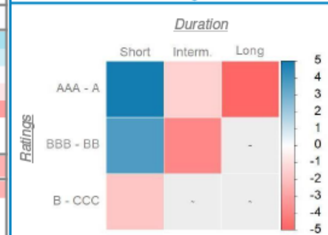
SECURITIZED


IG CORPORATES


OFF-BENCHMARK


ALLOC. vs MV (– ++)	Wght Opt Ptf	Wght AGG	MS N12M Exp Rtn (%)	MS N12M Risk Reward	Trail 10Y Avg Rtn (%)	Trail 10Y Risk Reward	vs AGG Corr.	vs AGG Beta+	vs AGG Beta-
US TREASURY	37%	41%	0.2	0.1	1.9	0.5	0.9	1.2	0.9
UST 1-3Y	22%	13%	0.7	0.8	1.0	1.1	0.7	0.3	0.1
UST 3-5Y	9%	9%	0.1	0.0	1.5	0.7	0.8	0.8	0.5
UST 5-7Y	4%	7%	-0.8	-0.2	2.0	0.5	0.9	1.2	1.0
UST 7-10Y	1%	4%	-2.2	-0.4	2.4	0.5	0.9	1.6	1.4
UST 10Y+	1%	9%	-2.9	-0.3	4.1	0.4	0.9	3.7	2.9
EM $ IG SOV	1%	1%	-1.3	-0.2	4.1	0.6	0.8	1.2	2.5
EM $ IG SOV	1%	1%	-1.3	-0.2	4.1	0.6	0.8	1.2	2.5
SECURITIZED	22%	31%	-0.4	-0.4	2.2	1.0	0.9	0.6	0.7
MBS	21%	29%	-0.3	-0.1	2.1	1.0	0.9	0.6	0.7
CMBS	2%	2%	-1.1	-0.4	3.3	1.1	0.9	0.8	0.8
IG CORPORATES	11%	26%	-0.6	-0.2	4.1	0.8	0.8	1.2	1.4
IG 1-3Y	4%	4%	0.0	0.0	2.1	1.4	0.6	0.3	0.2
IG 3-5Y	2%	5%	-1.0	-0.3	3.2	1.0	0.7	0.6	0.7
IG 5-7Y	1%	3%	-0.7	-0.2	4.3	1.0	0.8	0.9	1.1
IG 7-10Y	1%	4%	-1.2	-0.2	4.3	0.8	0.8	1.2	1.6
IG 10-25Y	1%	6%	-0.3	0.0	5.8	0.7	0.8	1.8	2.3
IG 25Y+	1%	4%	-1.2	-0.1	5.6	0.5	0.9	2.5	3.0
OFF-BENCHMARK	24%	0%							
HY	3%	0%	0.0	0.0	6.2	1.0	0.3	-0.2	0.8
Lev. Loans	7%	0%	2.1	0.4	4.5	0.9	0.1	-0.2	0.1
CRT M1	2%	0%	1.7	0.8	2.1	0.9	0.1	-0.1	0.0
CLO AAA	3%	0%	1.9	1.1	2.5	1.5	0.1	0.0	0.1
EM $ HY Sov	3%	0%	2.3	0.3	4.4	0.6	0.5	0.3	2.1
Municipals	6%	0%	0.8	0.2	3.2	0.9	0.7	0.5	1.2
CASH	5%	0%	0.3	1.2	0.7	2.5	0.3	0.1	0.0

ALLOCATION VS US AGG
Duration x Ratings vs. AGG



Note: Numbers show model portfolio weights less USD AGG weights as %.

SUMMARY COMPS

vs. US AGG	Ptf	Agg
QUALITY	Aa3	Aa2
DURATION	3.7	6.5
VOL	2.1%	3.1%
DOWN. DEV	0.4%	0.5%
BETA to US AGG	0.6	1.0
BETA to UST 10Y	0.2	0.5

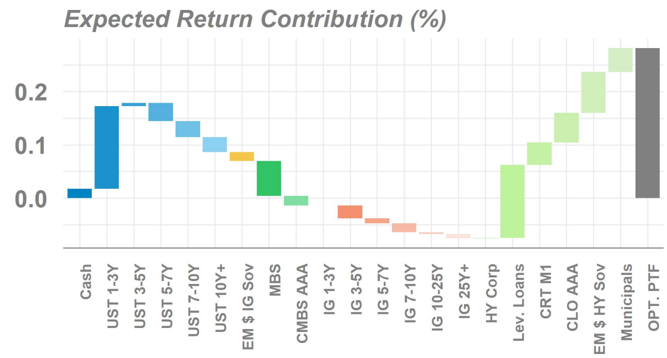
vs UST 5Y	Ptf	UST 5Y
DURATION	3.7	4.8
VOL	2.1%	3.1%
DOWN. DEV	0.4%	0.5%
BETA to US AGG	0.6	0.8
BETA to UST 5Y	0.2	1.0

vs UST 10Y	Ptf	UST 10Y
DURATION	3.7	9.1
VOL	2.1%	6.0%
DOWN. DEV	0.4%	1.1%
BETA to US AGG	0.6	1.7
BETA to UST 10Y	0.2	1.0

Less Risk / More Risk

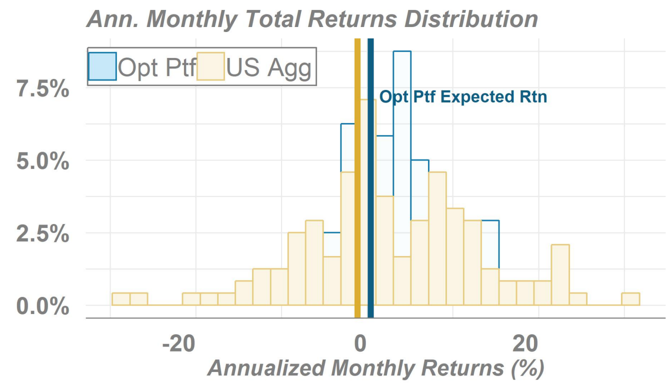
Source: Bloomberg, S&P LCD, Morgan Stanley Research; Note: Shows breakdown of portfolio targeting 2.0% annualised vol. Optimisation seeks to maximise risk/reward, based on Morgan Stanley N12M expected total returns, trailing 10Y volatility and correlations, and constraints on weights based on current share of amount outstanding of market segments. For the 'dials', each segment represents 5% allocation, ranging from -10% to +10% versus market weight; similarly allocation 'bars' range from -10% to +10% for all assets except sovereign (EM), EM sovereign (HY), CRT M1 and CLO AAA, which range from -5% to +5% versus market weight due to smaller market cap.

Exhibit 60: US fixed income optimal portfolio (2.0% vol) expected return contribution



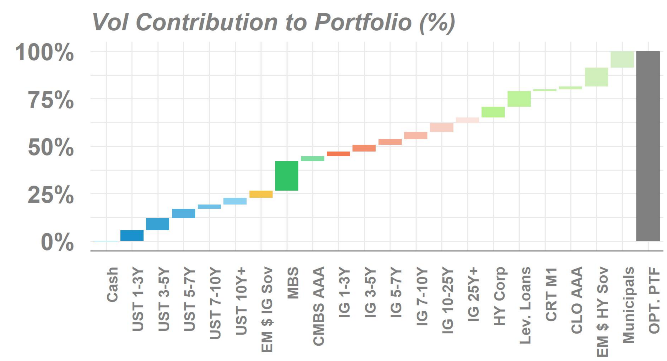
Source: Bloomberg, Morgan Stanley Research forecasts; Note: Based on Morgan Stanley N12M expected returns and optimal portfolio weights.

Exhibit 61: US fixed income optimal portfolio (2.0% vol target) historical returns distribution versus US AGG



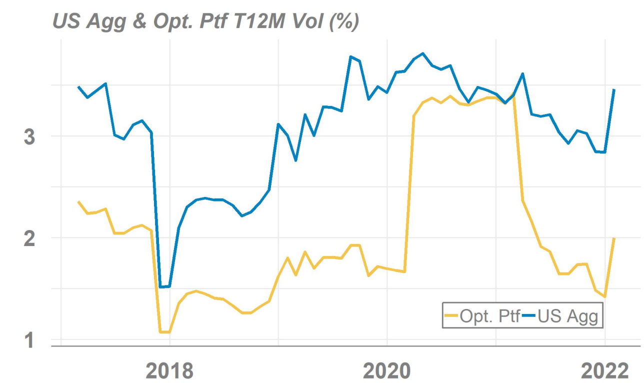
Source: Bloomberg, Morgan Stanley Research forecasts; Note: Historical returns based on realised monthly returns over last 10 years and optimal portfolio weights.

Exhibit 62: US fixed income optimal portfolio (2.0% vol) risk contribution



Source: Morgan Stanley Research; Note: Based on trailing 10Y volatility and covariances, calculated on monthly total returns.

Exhibit 63: US fixed income optimal portfolio (2.0% vol target) historical volatility



Source: Morgan Stanley Research; Note: Based on trailing 10Y volatility and covariances, calculated on monthly total returns optimal portfolio weights.

Optimal US fixed income medium-vol portfolio – 3.0% vol

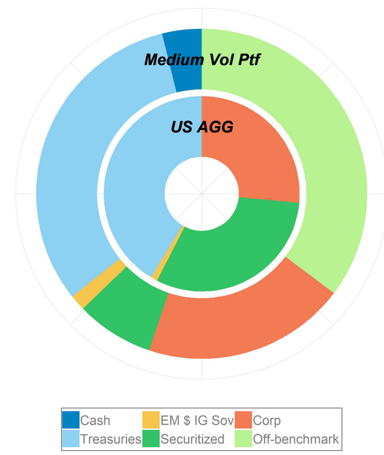
Expected return: The optimal US fixed income portfolio targeting similar risk to US AGG at 3% annualised vol has an expected return of 0.4%, versus -1.1% for the benchmark.

Asset allocation: The medium-vol portfolio is EW US Treasuries, EW sovereigns (EM IG), UW securitized, EW corporates and OW off-benchmark versus these segments' market values.

Duration: The medium-vol optimal US fixed income portfolio has a duration of 4.5 versus US AGG's duration of 6.5. It also has lower duration versus UST 10Y.

Quality: The medium-vol optimal USD fixed income portfolio has an implied rating of A2, lower quality than US AGG's Aa2.

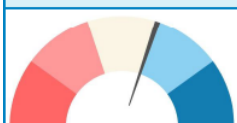
Exhibit 64: US fixed income optimal portfolio (3.0% vol) breakdown

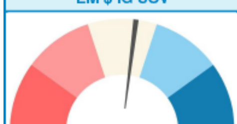


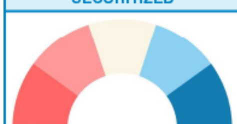
Source: Bloomberg, Morgan Stanley Research; Note: Optimisation seeks to maximise risk/reward, based on Morgan Stanley N12M expected total returns, trailing 10Y volatility and correlations, and constraints on weights based on current share of amount outstanding of market segments.

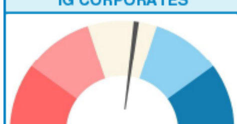
Exhibit 65: Morgan Stanley US fixed income asset allocation – medium-vol portfolio

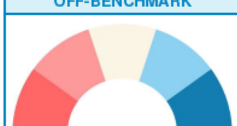
ALLOCATION vs MARKET VALUE

US TREASURY


EM $ IG SOV


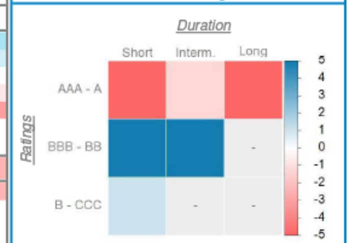
SECURITIZED


IG CORPORATES


OFF-BENCHMARK


ALLOC. vs MV (– / ++)	Wght Opt Ptf	Wght AGG	MS N12M Exp Rtn (%)	MS N12M Risk Reward	Trail 10Y Avg Rtn (%)	Trail 10Y Risk Reward	vs AGG Corr.	vs AGG Beta+	vs AGG Beta-
US TREASURY	32%	41%	0.2	0.0	1.9	0.5	0.9	1.2	0.9
UST 1-3Y	19%	13%	0.7	0.8	1.0	1.1	0.7	0.3	0.1
UST 3-5Y	7%	9%	0.1	0.0	1.5	0.7	0.8	0.8	0.5
UST 5-7Y	3%	7%	-0.8	-0.2	2.0	0.5	0.9	1.2	1.0
UST 7-10Y	2%	4%	-2.2	-0.4	2.4	0.5	0.9	1.6	1.4
UST 10Y+	1%	9%	-2.9	-0.3	4.1	0.4	0.9	3.7	2.9
EM $ IG SOV	2%	1%	-1.3	-0.2	4.1	0.6	0.8	1.2	2.5
EM $ IG SOV	2%	1%	-1.3	-0.2	4.1	0.6	0.8	1.2	2.5
SECURITIZED	8%	31%	-0.5	-0.6	2.2	1.0	0.9	0.6	0.7
MBS	6%	29%	-0.3	-0.1	2.1	1.0	0.9	0.6	0.7
CMBS AAA	2%	2%	-1.1	-0.4	3.3	1.1	0.9	0.8	0.8
IG CORPORATES	20%	26%	0.0	0.0	4.1	0.8	0.8	1.2	1.4
IG 1-3Y	3%	4%	0.0	0.0	2.1	1.4	0.6	0.3	0.2
IG 3-5Y	3%	5%	-1.0	-0.3	3.2	1.0	0.7	0.6	0.7
IG 5-7Y	2%	3%	-0.7	-0.2	4.3	1.0	0.8	0.9	1.1
IG 7-10Y	3%	4%	-1.2	-0.2	4.3	0.8	0.8	1.2	1.6
IG 10-25Y	5%	6%	-0.3	0.0	5.8	0.7	0.8	1.8	2.3
IG 25Y+	3%	4%	-1.2	-0.1	5.6	0.5	0.9	2.5	3.0
OFF-BENCHMARK	35%	0%	n/a	n/a	n/a	n/a	n/a	n/a	n/a
HY	6%	0%	0.0	0.0	6.2	1.0	0.3	-0.2	0.8
Lev. Loans	9%	0%	2.1	0.4	4.5	0.9	0.1	-0.2	0.1
CRT M1	3%	0%	1.7	0.8	2.1	0.9	0.1	-0.1	0.0
CLO AAA	4%	0%	1.9	1.1	2.5	1.5	0.1	0.0	0.1
EM $ HY Sov	6%	0%	2.3	0.3	4.4	0.6	0.5	0.3	2.1
Municipals	8%	0%	0.8	0.2	3.2	0.9	0.7	0.5	1.2
CASH	4%	0%	0.3	1.2	0.7	2.5	0.3	0.1	0.0

ALLOCATION VS MARKET VALUE
Duration x Ratings



Note: Numbers show model portfolio weights less market value weights as %.

SUMMARY COMPS

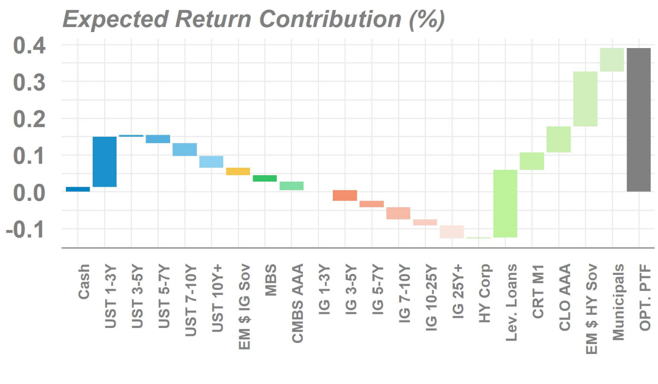
vs. US AGG	Ptf	Agg	Less Risk / More Risk
QUALITY	A2	Aa2	
DURATION	4.5	6.5	
VOL	3.1%	3.1%	
DOWN. DEV	0.6%	0.5%	
BETA to US AGG	0.8	1.0	
BETA to UST 10Y	0.2	0.5	

vs UST 5Y	Ptf	UST 5Y	Less Risk / More Risk
DURATION	4.5	4.8	
VOL	3.1%	3.1%	
DOWN. DEV	0.6%	0.5%	
BETA to US AGG	0.8	0.8	
BETA to UST 5Y	0.2	1.0	

vs UST 10Y	Ptf	UST 10Y	Less Risk / More Risk
DURATION	4.5	9.1	
VOL	3.1%	6.0%	
DOWN. DEV	0.6%	1.1%	
BETA to US AGG	0.8	1.7	
BETA to UST 10Y	0.2	1.0	

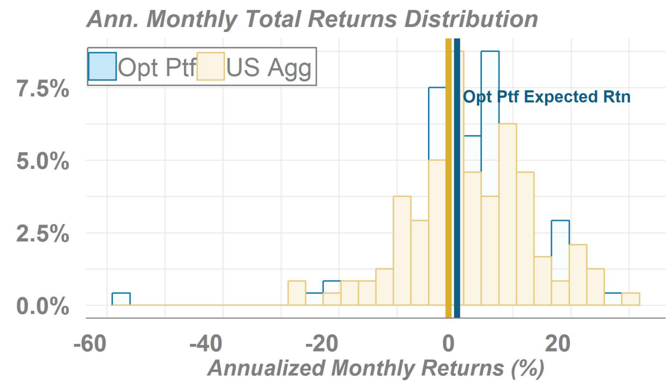
Source: Bloomberg, S&P LCD, Morgan Stanley Research; Note: Shows breakdown of portfolio targeting 3.0% annualised vol. Optimisation seeks to maximise risk/reward, based on Morgan Stanley N12M expected total returns, trailing 10Y volatility and correlations, and constraints on weights based on current share of amount outstanding of market segments. For the 'dials', each segment represents 5% allocation, ranging from -10% to +10% versus market weight; similarly allocation 'bars' range from -10% to +10% for all assets except sovereign (EM), EM sovereign (HY), CRT M1 and CLO AAA, which range from -5% to +5% versus market weight due to smaller market cap.

Exhibit 66: US fixed income optimal portfolio (3.0% vol) expected return contribution



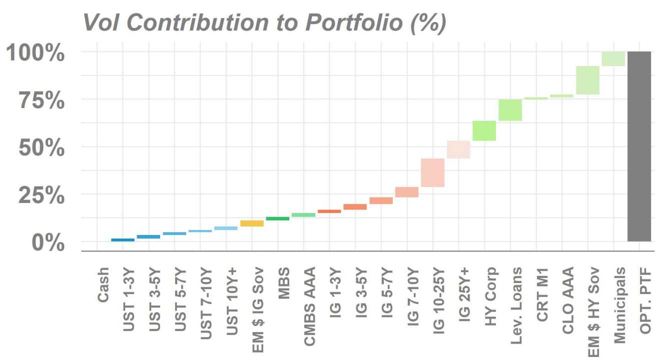
Source: Bloomberg, Morgan Stanley Research forecasts; Note: Based on Morgan Stanley N12M expected returns and optimal portfolio weights.

Exhibit 67: US fixed income optimal portfolio (3.0% vol target) historical returns distribution versus US AGG



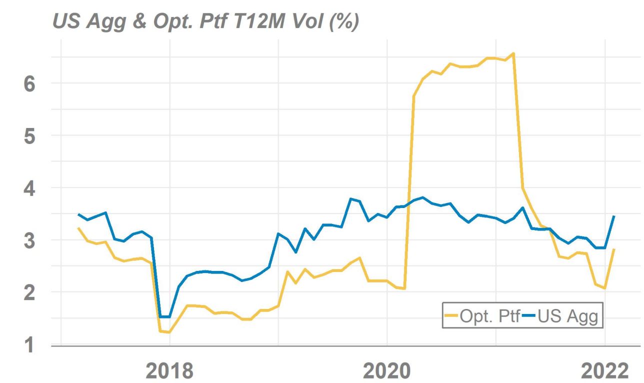
Source: Bloomberg, Morgan Stanley Research forecasts; Note: Historical returns based on realised monthly returns over last 10 years and optimal portfolio weights.

Exhibit 68: US fixed income optimal portfolio (3.0% vol) risk contribution



Source: Morgan Stanley Research; Note: Based on trailing 10Y volatility and covariances, calculated on monthly total returns.

Exhibit 69: US fixed income optimal portfolio (3.0% vol target) historical volatility



Source: Morgan Stanley Research; Note: Based on trailing 10Y volatility and covariances, calculated on monthly total returns optimal portfolio weights.

Optimal US fixed income high-vol portfolio – 4.0% vol

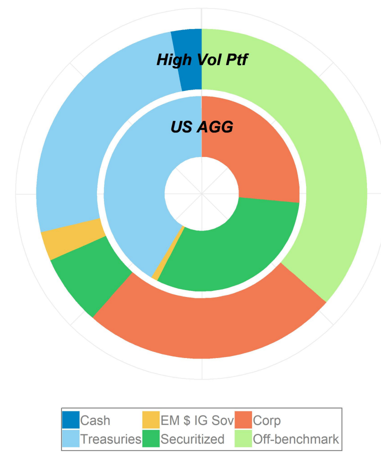
Expected return: The optimal US fixed income portfolio targeting higher risk than US AGG at 4% annualised vol has an expected return of 0.1%, versus -1.1% for the benchmark.

Asset allocation: The high-vol portfolio is UW US Treasuries, OW sovereigns (EM IG), UW securitized, OW corporates and OW off-benchmark versus these segments' market values.

Duration: The high-vol optimal US fixed income portfolio has a duration of 6.4 versus US AGG's duration of 6.5. It has lower duration versus UST 10Y.

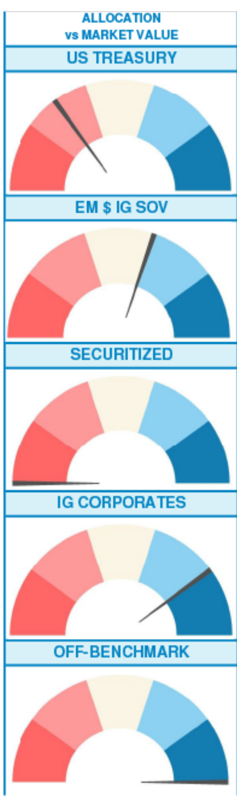
Quality: The high-vol optimal USD fixed income portfolio has an implied rating of A2, lower quality than US AGG's Aa2.

Exhibit 70: US fixed income optimal portfolio (4.0% vol) breakdown



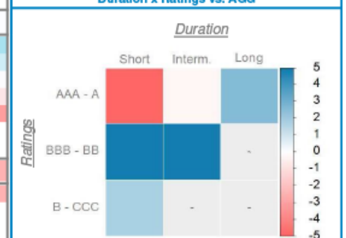
Source: Bloomberg, Morgan Stanley Research; Note: Optimisation seeks to maximise risk/reward, based on Morgan Stanley N12M expected total returns, trailing 10Y volatility and correlations, and constraints on weights based on current share of amount outstanding of market segments.

Exhibit 71: Morgan Stanley US fixed income asset allocation – high-vol portfolio



ALLOC. vs MV	Wght Opt Ptf	Wght AGG	MS N12M Exp Rtn (%)	MS N12M Risk Reward	Trail 10Y Avg Rtn (%)	Trail 10Y Risk Reward	vs AGG Corr.	vs AGG Beta+	vs AGG Beta-
US TREASURY	26%	41%	-0.8	-0.2	1.9	0.5	0.9	1.2	0.9
UST 1-3Y	7%	13%	0.7	0.8	1.0	1.1	0.7	0.3	0.1
UST 3-5Y	6%	9%	0.1	0.0	1.5	0.7	0.8	0.8	0.5
UST 5-7Y	4%	7%	-0.8	-0.2	2.0	0.5	0.9	1.2	1.0
UST 7-10Y	3%	4%	-2.2	-0.4	2.4	0.5	0.9	1.6	1.4
UST 10Y+	6%	9%	-2.9	-0.3	4.1	0.4	0.9	3.7	2.9
EM $ IG SOV	3%	1%	-1.3	-0.2	4.1	0.6	0.8	1.2	2.5
EM $ IG SOV	3%	1%	-1.3	-0.2	4.1	0.6	0.8	1.2	2.5
SECURITIZED	7%	31%	-0.6	-0.6	2.2	1.0	0.9	0.6	0.7
MBS	5%	29%	-0.3	-0.1	2.1	1.0	0.9	0.6	0.7
CMBS	2%	2%	-1.1	-0.4	3.3	1.1	0.9	0.8	0.8
IG CORPORATES	25%	26%	-0.7	-0.3	4.1	0.8	0.8	1.2	1.4
IG 1-3Y	4%	4%	0.0	0.0	2.1	1.4	0.6	0.3	0.2
IG 3-5Y	2%	5%	-1.0	-0.3	3.2	1.0	0.7	0.6	0.7
IG 5-7Y	2%	3%	-0.7	-0.2	4.3	1.0	0.8	0.9	1.1
IG 7-10Y	3%	4%	-1.2	-0.2	4.3	0.8	0.8	1.2	1.6
IG 10-25Y	9%	6%	-0.3	0.0	5.8	0.7	0.8	1.8	2.3
IG 25Y+	6%	4%	-1.2	-0.1	5.6	0.5	0.9	2.5	3.0
OFF-BENCHMARK	36%	0%							
HY	6%	0%	0.0	0.0	6.2	1.0	0.3	-0.2	0.8
Lev. Loans	8%	0%	2.1	0.4	4.5	0.9	0.1	-0.2	0.1
CRT M1	2%	0%	1.7	0.8	2.1	0.9	0.1	-0.1	0.0
CLO AAA	3%	0%	1.9	1.1	2.5	1.5	0.1	0.0	0.1
EM $ HY Sov	7%	0%	2.3	0.3	4.4	0.6	0.5	0.3	2.1
Municipals	9%	0%	0.8	0.2	3.2	0.9	0.7	0.5	1.2
CASH	3%	0%	0.3	1.2	0.7	2.5	0.3	0.1	0.0

ALLOCATION VS US AGG
Duration x Ratings vs. AGG



Note: Numbers show model portfolio weights less USD AGG weights as %.

SUMMARY COMPS

vs. US AGG	Ptf	Agg
QUALITY	A2	Aa2
DURATION	6.4	6.5
VOL	4.0%	3.1%
DOWN. DEV	0.8%	0.5%
BETA to US AGG	1.1	1.0
BETA to UST 10Y	0.4	0.5

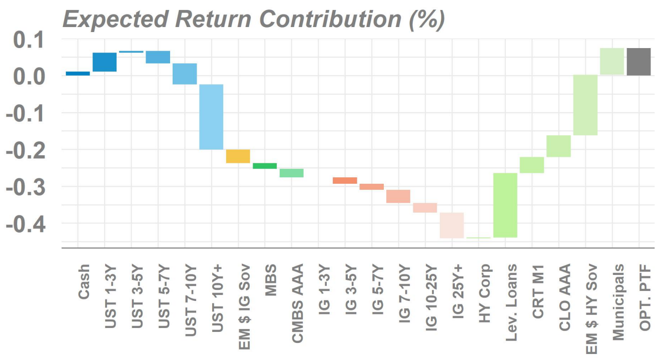
vs UST 5Y	Ptf	UST 5Y
DURATION	6.4	4.8
VOL	4.0%	3.1%
DOWN. DEV	0.8%	0.5%
BETA to US AGG	1.1	0.8
BETA to UST 5Y	0.4	1.0

vs UST 10Y	Ptf	UST 10Y
DURATION	6.4	9.1
VOL	4.0%	6.0%
DOWN. DEV	0.8%	1.1%
BETA to US AGG	1.1	1.7
BETA to UST 10Y	0.4	1.0

Less Risk / More Risk

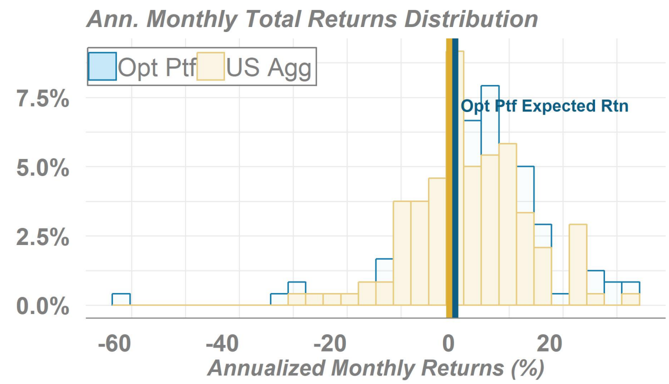
Source: Bloomberg, S&P LCD, Morgan Stanley Research; Note: Shows breakdown of portfolio targeting 4.0% annualised vol. Optimisation seeks to maximise risk/reward, based on Morgan Stanley N12M expected total returns, trailing 10Y volatility and correlations, and constraints on weights based on current share of amount outstanding of market segments. For the 'dials', each segment represents 5% allocation, ranging from -10% to +10% versus market weight; similarly allocation 'bars' range from -10% to +10% for all assets except sovereign (EM), EM sovereign (HY), CRT M1 and CLO AAA, which range from -5% to +5% versus market weight due to smaller market cap.

Exhibit 72: US fixed income optimal portfolio (4.0% vol) expected return contribution



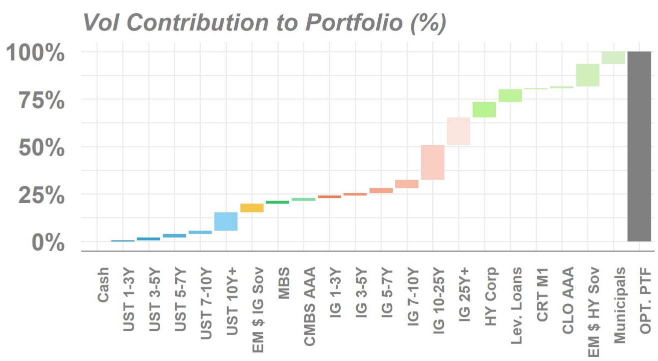
Source: Bloomberg, Morgan Stanley Research forecasts; Note: Based on Morgan Stanley N12M expected returns and optimal portfolio weights.

Exhibit 73: US fixed income optimal portfolio (4.0% vol target) historical returns distribution versus US AGG



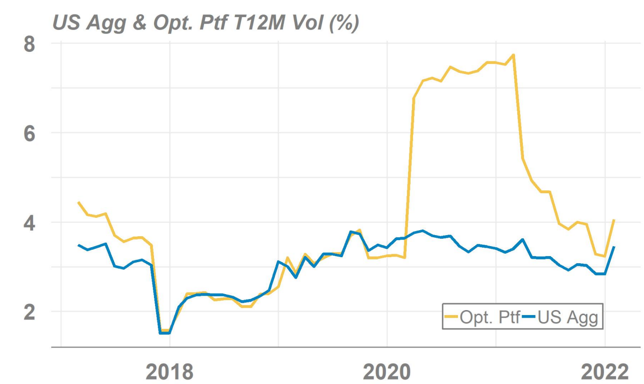
Source: Bloomberg, Morgan Stanley Research forecasts; Note: Historical returns based on realised monthly returns over last 10 years and optimal portfolio weights.

Exhibit 74: US fixed income optimal portfolio (4.0% vol) risk contribution



Source: Morgan Stanley Research; Note: Based on trailing 10Y volatility and covariances, calculated on monthly total returns.

Exhibit 75: US fixed income optimal portfolio (4.0% vol target) historical volatility



Source: Morgan Stanley Research; Note: Based on trailing 10Y volatility and covariances, calculated on monthly total returns optimal portfolio weights.

Appendix: US Fixed Income Valuations

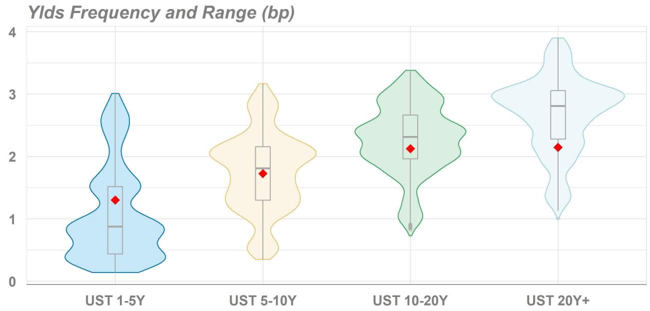
Exhibit 76: US fixed income valuations table

Asset	Rating	O/S ($ bn)	Dur	Latest: Yld	(%)	Sprd	(bp)	%-tile	Perf. (bp): 1M Chg	12M Chg	Vol (%)	Next 12M Exp.: TR (%)	XS (%)	RR	RR vs Agg
US AGG															
US Agg	AA1/AA2	25.7	6.5	2.1		36			-1	1	3.5	-1.1	-0.1	-0.3	0.0
US Treasury	AAA/AAA	10.3	6.9	1.6		~		~	35	82	4.1	-1.5	0.0	-0.4	-0.1
UST 1-3Y	AAA/AAA	3.3	1.9	1.1		~		~	0	0	0.8	0.7	0.0	0.9	1.2
UST 3-5Y	AAA/AAA	2.2	3.9	1.5		~		~	-1	1	2.3	0.1	0.0	0.0	0.4
UST 5-7Y	AAA/AAA	1.7	5.8	1.7		~		~	0	1	3.9	-0.8	0.0	-0.2	0.1
UST 7-10Y	AAA/AAA	1.0	8.1	1.8		~		~	0	0	5.5	-2.2	0.0	-0.4	-0.1
UST 10Y+	AAA/AAA	2.0	18.3	2.1		~		~	0	0	13.0	-2.9	0.0	-0.2	0.1
EM $ IG Sov	BAA1/BAA2	0.3	10.0	3.1		133			11	8	5.4	-1.3	1.6	-0.2	0.1
Securitized	AAA/AA1	7.8	4.5	2.2		22			-13	1	2.2	-0.4	-0.2	-0.2	0.2
MBS	AAA/AAA	7.2	4.4	2.3		18			-14	2	2.2	-0.3	-0.2	-0.1	0.2
CMBS AAA	AAA/AA1	0.5	5.0	2.2		69			1	-4	3.0	-1.1	-0.8	-0.4	-0.1
IG Corp	A3/BAA1	6.2	8.3	2.8		105			13	9	5.0	-1.4	-0.3	-0.3	0.0
IG 1-3Y	A3/BAA1	1.0	1.7	1.6		49			8	14	0.9	0.0	0.3	0.0	0.3
IG 3-5Y	A3/BAA1	1.1	3.5	2.2		70			13	8	2.2	-1.0	0.5	-0.5	-0.1
IG 5-7Y	A3/BAA1	0.7	5.1	2.6		91			14	16	3.3	-0.7	0.5	-0.2	0.1
IG 7-10Y	A3/BAA1	1.1	7.2	2.9		111			13	10	4.8	-1.2	0.6	-0.2	0.1
IG 10-25Y	A3/BAA1	1.3	12.6	3.5		148			16	4	8.3	-0.3	-1.2	0.0	0.3
IG 25Y+	A2/A3	1.0	17.6	3.5		144			17	9	11.5	-1.2	-2.7	-0.1	0.2
OFF-BENCHMARK US FIXED INCOME															
HY Corp	BA3/B1	1.6	4.0	5.3		339			66	-11	3.4	0.0	0.0	0.0	0.3
EM $ HY Sov	BAA3/BA1	1.1	8.3	5.2		351			15	57	4.9	2.3	4.7	0.5	0.8
Municipals	AA2/AA3	1.5	5.1	1.7		~		~	~	~	2.3	0.8	1.2	0.4	0.7
CRT M1	BAA2/BAA2	0.0	~	~		~		~	~	~	1.0	1.7	0.9	1.8	2.1
Lev. Loans	B1/B2	1.3	~	4.1		399			-7	-17	1.9	2.1	2.0	1.1	1.4
CLO AAA	AAA/AAA	0.4	~	2.2		105			-3	-2	0.8	1.9	1.2	2.4	2.7

Note:
Data as of Mon 31 January 2022
'Risk-reward' estimated as next 12 months total returns divided by an average of trailing 1Y and trailing 10Y volatility.

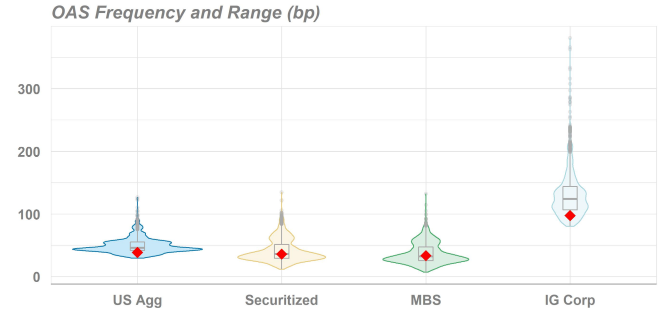
Source: Bloomberg, S&P LCD, Morgan Stanley Research

Exhibit 77: Treasuries – yields versus history



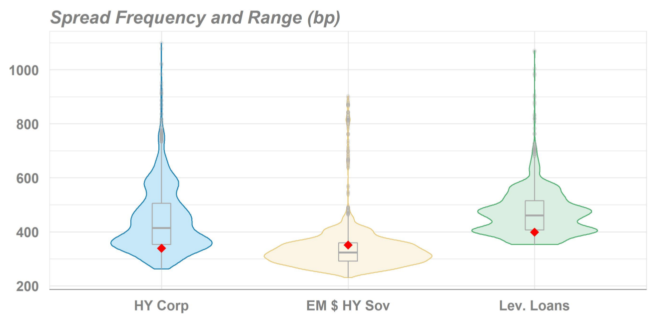
Source: Bloomberg, Morgan Stanley Research; Note: Red marker represents latest levels. Shows range and frequency over last 10 years.

Exhibit 78: US AGG and credit – spreads versus history



Source: Bloomberg, Morgan Stanley Research; Note: Red marker represents latest levels. Shows range and frequency over last 10 years.

Exhibit 79: Off-benchmark US fixed income – spreads versus history



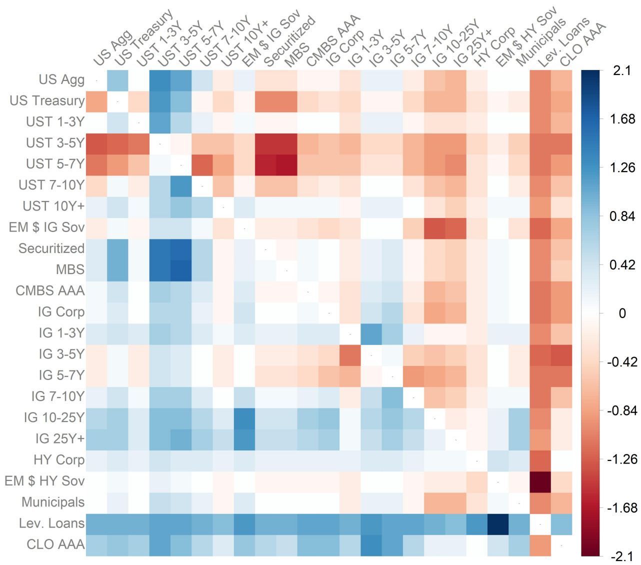
Source: Bloomberg, Morgan Stanley Research; Note: Red marker represents latest levels. Shows range and frequency over last 10 years.

Exhibit 80: Relative spreads and yields versus AGG

	Yld vs. USD Agg		Sprd vs. USD Agg	
Asset	Yld (%)	Yld Z	Sprd (bp)	Sprd Z
US AGG				
US Treasury	-0.5		-	-
EM $ IG Sov	1.0		97	
Securitized	0.1		-14	
MBS	0.1		-18	
CMBS AAA	0.1		33	
IG Corp	0.7		70	
OFF-BENCHMARK US FIXED INCOME				
HY Corp	3.2		304	
EM $ HY Sov	3.1		315	
Lev. Loans	2.1		363	

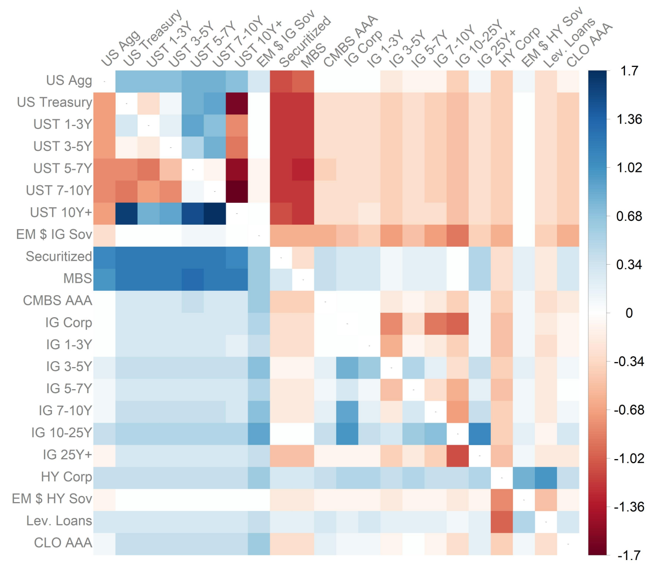
Source: Bloomberg, Morgan Stanley Research; Note: Red marker represents latest levels. Shows range and frequency over last 10 years.

Exhibit 81: Yields differentials heat map



Source: Bloomberg, S&P LCD, Morgan Stanley Research; Note: Blue square means Asset A (top/horizontal) yield is high versus Asset B (left/vertical) compared to history. Red square means Asset A yield is low versus Asset B compared to history.

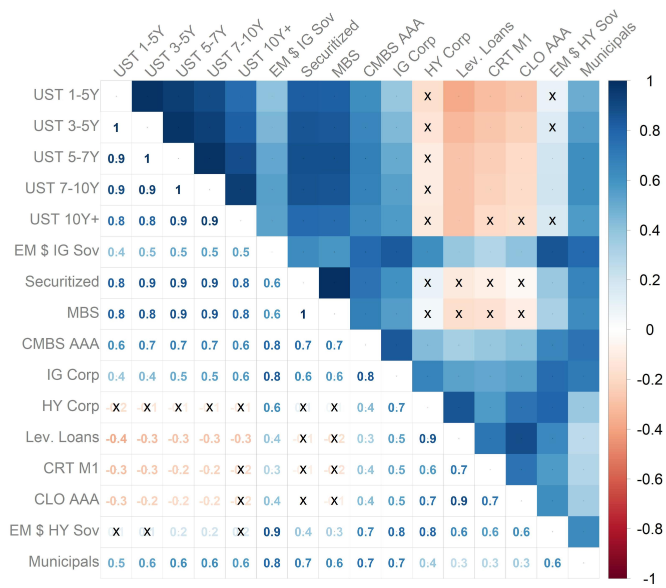
Exhibit 82: Spread differentials heat map



Source: Bloomberg, S&P LCD, Morgan Stanley Research; Note: Blue square means Asset A (top/horizontal) spread is high versus Asset B (left/vertical) compared to history. Red square means Asset A spread is low versus Asset B compared to history.

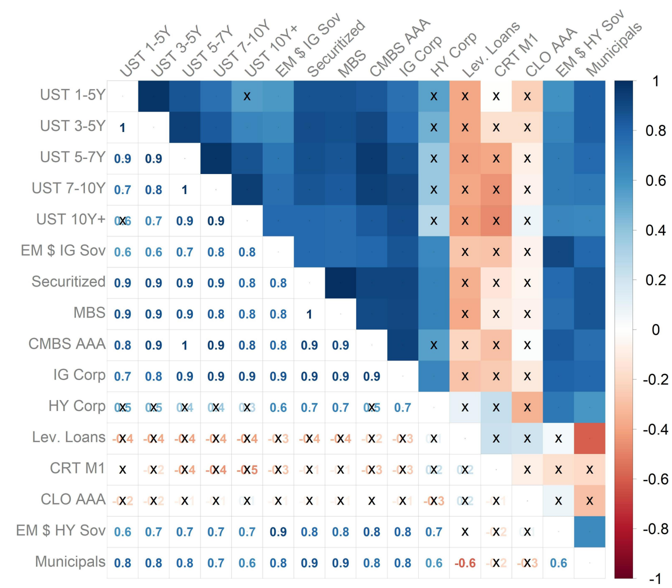
Appendix II: Covariances and Correlations

Exhibit 83: US fixed income return correlations – last 10 years



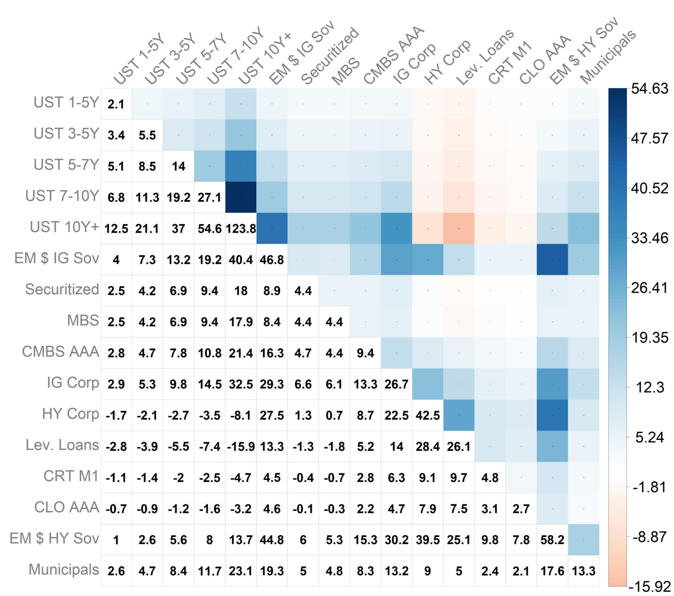
Source: Bloomberg, S&P LCD, Morgan Stanley Research; Note: Based on last 20 years weekly returns.

Exhibit 84: US fixed income return correlations – last 1 year



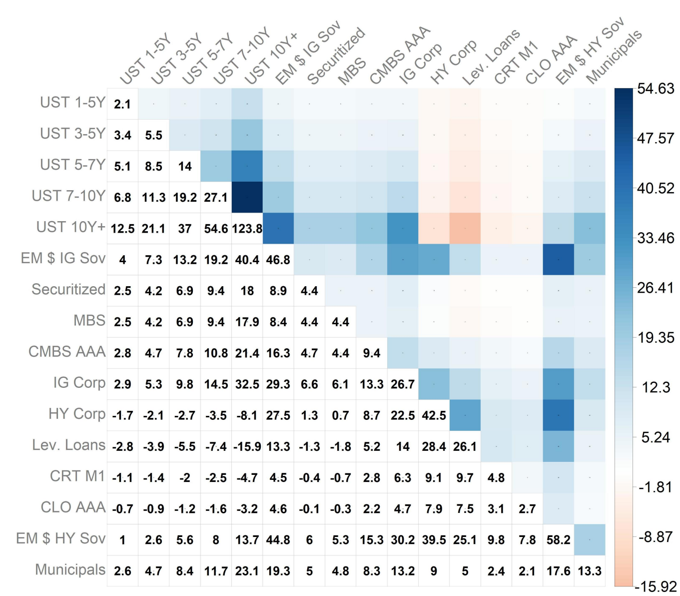
Source: Bloomberg, S&P LCD, Morgan Stanley Research; Note: Based on last 1 year weekly returns.

Exhibit 85: US fixed income spread covariances – last 10 years



Source: Bloomberg, S&P LCD, Morgan Stanley Research; Note: Based on last 20 years weekly spread change.

Exhibit 86: US fixed income spread correlations – last 1 year



Source: Bloomberg, S&P LCD, Morgan Stanley Research; Note: Based on last 20 years weekly spread change.

Valuation Methodology and Risks

Trade	Entry Date	Entry Level	Rationale	Risk
Short 5y TIPS vs. long 5y DBRi	19-Nov-21	45bp	We maintain our bias for higher real yields over the long term, but hedge some of that risk, and the negative carry in the near term, by pairing it with long 5y DBRi. The trade is directional to short 5y TIPS.	Breakevens keep widening while nominal yields stay low.
UST 5s30s flatteners	6-Jan-22	61bp	We think the market will price a higher terminal rate, while a return of the pension fund bid would support a curve flattening driven by the long end.	The market does not price a higher terminal rate, while the pension fund bid does not return.
Short FNCL 3.0 vs. curve partials and 3mo10yr vol	7-Jan-22		Demand picture could worsen if Fed normalises balance sheet, spreads still tight to levels when Fed not net adding, bank demand could slow with less deposits and loan growth picking up, deliverable shift in TBA.	Spreads off the wides, cash on sideline, Fed more dovish than market expecting.
Short FNCI 2.5 vs. curve partials and 3mo10yr vol	7-Jan-22		Demand picture could worsen if Fed normalises balance sheet, spreads still tight to levels when Fed not net adding, bank demand could slow with less deposits and loan growth picking up, deliverable shift in TBA.	Spreads off the wides, cash on sideline, Fed more dovish than market expecting, less supply in 15s.
Long IBoxx Loan TRS Vs. Short IBoxx HY TRS To June 22 Expiry	19-Nov-21		Given our view for the market possibly pricing in an aggressive tightening cycle in early 2022, we think the set-up remains constructive for loans to outperform bonds.	Rates decline, supporting fixed-rate exposure over floating.
Buy ADGLXY 36 versus ABDPOC 31	15-Sep-21	45	In our view, ADGLXY 36's spread pick-up over the sovereign more than compensates for EMBI-ineligibility and bond structure. Meanwhile, ABDPOC 31 has rallied since issuance and is now trading in line with MUBAUH, which we see as unjustified given that Abu Dhabi Ports' fundamentals are set to worsen and a potential listing by ADQ would make the bond EMBI-ineligible. ADGLXY is also rated two notches higher than ABDPOC.	Smaller capital expenditure programme by ABDPOC or ADQ's listing plans being abandoned.
Buy PEMEX 2047 versus MEX 2047	29-Nov-21	430	Government support has strengthened, lower taxes and higher oil leave free cash flow much better and net bond issuance should remain negative.	The government pulls back on support or renewed positive net long-end issuance.
Buy ARAMCO 31 versus DUGB 30	19-Nov-21	15	We prefer ARAMCO over the sovereign curve, which looks comparatively tight in the 10y. The Dubai sukuk looks excessively rich, in our view, and investors are now paid 15bp to pick up 3-4 notches in ratings (using Dubai's DEWA-implied rating), while Aramco should outperform Dubai into a weaker outlook.	Vision 2030 and new ESG ambitions raise the risk of accelerating issuance in the broader public sector.
Buy QPETRO 31 versus INDON 03/31	10-Jan-22	110	Capital expenditure restraint in Qatar's budget was a positive surprise while strength in sovereign externals will help with concerns about the NFA position of the banking sector. With the quasi-sovereign spread pick-up near recent wides, we like moving out to QPETRO. We expect QPETRO to outperform INDON and PETMK in the 10y, where we add buy QPETRO 31 versus INDON 03/31.	Regional tensions in GCC.
Like Chile Hard Currency Bonds	26-Jul-21		With cheap valuations, supply out of the way, still UW investor positioning at 0.6% and the added support of all recent issuance taking some form of ESG bond, we move Chile to a like stance.	Fall in copper prices, political uncertainty in Chile given upcoming elections.
Like Dominican Republic Hard Currency Bonds	19-Nov-21		Valuations are cheap, fiscal trend is better than BB peers, external balances are helped by strong remittances and tourism that are also supporting growth. DOMREP 2060 favoured bond.	Fall in remittances or tourism, or significant fiscal deterioration.
Like Oman Hard Currency Bonds	19-Nov-21		Oman still trades cheap to its ratings, which suggests further upside as fiscals improve and debt levels moderate. OMAN 2048 favoured bond.	Fiscal weakness.

Like Peru Hard Currency Bonds	10-Dec-21	Peru has lagged significantly recently and now trades less than 10bp tight to Mexico, a level we had been looking for to turn more constructive, and also prices 1.5 downgrades. While political uncertainty is set to remain, we take comfort from fiscals that we expect to hold up well, in addition to a higher share of local issuance that should see external issuance be half of 2021 levels.	Peru politics in case there are changes made to the finance minister.
Like Saudi Arabia Hard Currency Bonds	24-Jan-22	Saudi valuations have improved substantially in the belly, leaving an attractive entry point for adding exposure. The sovereign is set to benefit from our commodity strategist's expectation of Brent prices at US$100/bbl as Saudi spreads tend to outperform EMBI when oil prices trend towards this level. Oil at these levels may also cause issuance to undershoot expectations as the sovereign absorbs some of the upcoming maturity.	Rising regional geopolitical risk.
Dislike Uruguay Hard Currency Bonds	26-Jul-21	While fiscals look better than most credits in LatAm, Uruguay spreads also reflect this, in our view. So with peers like Chile, Peru and Panama much cheaper it leaves Uruguay as the credit we dislike.	Significant risk-off where Uruguay would outperform on a relative basis.

Exhibit 87: History of recommendations for buy ADGLXY 36 versus ABDPOC 31

Instrument	Maturity	Trade	Entry Date	Entry Level	Exit Date	Exit Level	Target/ Objective	Stop/Re-assess	Size of Trade or Unit/Notional	CUSIP/ISIN/ BLOOMBERG
ADGLXY 2.625 03/31/36	31-Mar-36	Buy ADGLXY 36 versus ADGB 31	6-Apr-21	73	15-Sep-21	63	30	100	10X10	XS2249741245
ADGB 1.7 03/02/31	2-Mar-31	Buy ADGLXY 36 versus ADGB 31	6-Apr-21	73	15-Sep-21	63	30	100	10X10	XS2225210413

Source: Morgan Stanley Research

Exhibit 88: History of recommendations for stances

History of recommendations for Chile Hard Currency Bonds		
Trade	Entry Date	Exit Date
Dislike Chile Hard Currency Bonds	7-Dec-20	8-Mar-21
Like Chile Hard Currency Bonds	8-Mar-21	11-May-21

History of recommendations for Peru Hard Currency Bonds		
Trade	Entry Date	Exit Date
Like Peru Hard Currency Bonds	4-May-21	26-Jul-21

History of recommendations for Saudi Arabia Hard Currency Bonds		
Trade	Entry Date	Exit Date
Like Saudi Arabia Hard Currency Bonds	8-Mar-21	21-Jun-21
Dislike Saudi Arabia Hard Currency Bonds	01-Nov-21	19-Nov-21

Source: Morgan Stanley Research

Definition of terms

Buy/Long: The analyst expects the total or excess return (depending on the nature of the recommendation) of the instrument or issuer that is the subject of the investment recommendation to be positive over the relevant time period.

Sell/Short: The analyst expects the total or excess return (depending on the nature of the recommendation) of the instrument or issuer that is the subject of the investment recommendation to be negative over the relevant time period.

Selling protection or Buying Risk: The analyst expects that the price of protection against the event occurring will decrease over the relevant time period.

Buying protection or Selling Risk: The analyst expects the price of protection against the event occurring will increase over the relevant time period.

Pay: The analyst expects that over the specified time period the variable rate underlying the swap agreement that is the subject of the investment recommendation will increase.

Receive: The analyst expects that over the specified time period the variable rate underlying the swap agreement that is the subject of the investment recommendation will decrease.

Like: Based on current market conditions as of the date of this report the analyst expects that the relevant securities of the issuer that is subject of the recommendation will perform favorably over the relevant time period as compared to the overall market of comparable securities by other issuers. This is not intended to be, nor should it be interpreted as a formal fundamental rating of the issuer or its creditworthiness.

Dislike: Based on current market conditions as of the date of this report the analyst expects that the relevant securities of the issuer that is subject of the recommendation will perform unfavorably over the relevant time period as compared to the overall market of comparable securities by other issuers. This is not intended to be, nor should it be interpreted as a formal fundamental rating of the issuer or its creditworthiness.

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(as of January 31, 2022)
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	COVERAGE UNIVERSE		INVESTMENT BANKING CLIENTS (IBC)			OTHER MATERIAL INVESTMENT SERVICES CLIENTS (MISC)	
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Overweight/Buy	**1498**	**42%**	**401**	**46%**	**27%**	**650**	**42%**
Equal-weight/Hold	**1508**	**42%**	**385**	**44%**	**26%**	**695**	**45%**
Not-Rated/Hold	**0**	**0%**	**0**	**0%**	**0%**	**0**	**0%**
Underweight/Sell	**554**	**16%**	**89**	**10%**	**16%**	**213**	**14%**
TOTAL	**3,560**		**875**			**1558**	

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