

Fixed Income Insights

MONTHLY REPORT - May 2023 | JAPAN EDITION

FOR PROFESSIONAL INVESTORS ONLY

End of Fed tightening cycle beckons as BoJ re-establishes curve control

Prompt action by regulators restricted banking crisis contagion, allowing the Fed to raise rates by 25bp on May 3 for inflation insurance. Lower inflation allowed government bonds and credits to hold onto Q1 gains, exc. UK. The BoJ's curve control commitment becalmed the JGB market, and may be in place for some time.

Macro and policy backdrop – IMF revises down 2023 Japan forecast. Markets see debt ceiling as tail risk only

IMF's Japan GDP forecast was modestly downgraded. Muted reaction to US debt ceiling crisis may be due to 2011 outcome. (pages 2-3)

Yields, curves and spreads – Treasury yields show further signs of a cyclical peak, while JGB curve stabilised

US Treasury yields remained near 2023 lows in April, buoyed by a loss of growth momentum and weaker housing. (pages 4-5)

Sovereign and climate bonds – Green bond issuance recovered strongly in Q1, spreads tightened

After a tough 2022, when issuance fell back sharply, both sovereigns and corporate issuance rebounded in Q1. (page 6)

Performance – Sovereigns consolidated Q1 gains, and credit rallied on risk appetite, JGBs becalmed, long gilts fell

US Treasuries held onto Q1 gains, as inflation fell. JGBs were becalmed by curve control, and long gilts underperformed on higher UK rate threat. (pages 7-8)

Appendix (from page 10)

Global bond market returns, historical bond yields, bond market durations and market values and foreign exchange returns.

Chart 1: Having risen since Covid to 1%, the BoJ may be concerned Japanese inflation breakevens are showing signs of falling back.

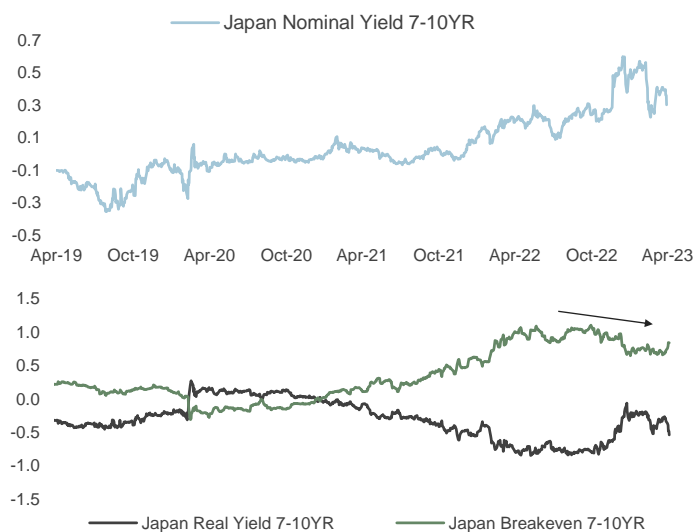
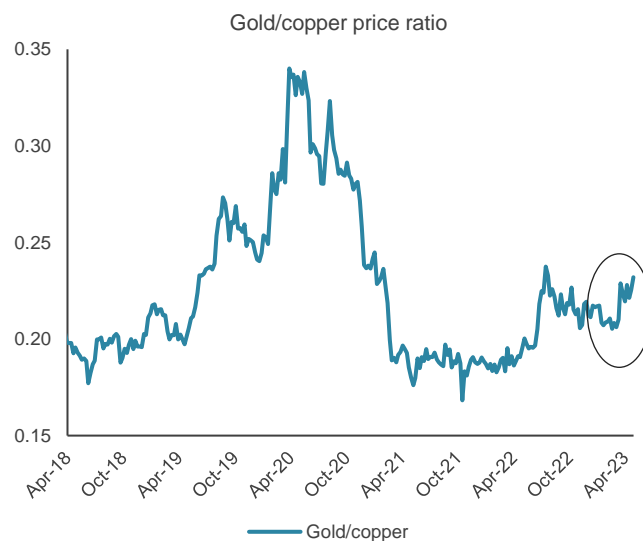


Chart 2: The gold price rallied sharply on US banking woes in March, as it did during the early risk-off stages of Covid in 2020.



Source: FTSE Russell. All data as of April 30, 2023. Past performance is no guarantee of future results. This report should not be considered 'research' for the purposes of MIFID II. Please see the end for important legal disclosures. Bond market data is derived from FTSE Fixed Income Indices. See Appendix for list of indices used for each market.

Macroeconomic Backdrop – Growth and Inflation Expectations

IMF growth forecasts show very modest upgrades for 2023, apart from Japan, where incomes are being squeezed by higher inflation, and growth by labour shortages. Japanese inflation fell sharply in March, with energy prices, and the BoJ remains cautious on inflation sustainably above 2%, despite the stronger April 2023 Shinto, which agreed a 3.8% wage increase.

IMF growth forecasts for Japan were revised lower in April, due to the squeeze on household incomes from higher inflation, so 2023 growth is forecast at 1.3% (after 1.1% in 2022), see Chart 1. GDP rebounded 0.6% in Q4 2022, as tourism and consumption recovered, and removing Covid restrictions may help consumer demand further in 2023, but GDP remains below pre-Covid levels.

Japanese inflation fell back sharply from the 41-year high of 4.3% y/y in February to 3.3% y/y in March, falling 0.6% on the month, helped by lower transport and energy costs, even if food price inflation increased to 7.5% y/y. Base effects were also a factor. This was the lowest inflation rate y/y since September 2022.

Despite the stronger wage round in 2023 (up 3.8%), Japan's inflation has outpaced wage growth since April 2022, resulting in a decline in real earnings. Labour shortages continue to restrict growth, and also add some upward pressure on wages (Chart 3).

Whither BoJ yield curve control? The March bond rally helped prevent 10-year yields rising above the 0.5% cap, introduced in December. New BoJ governor Ueda maintains a dovish stance, citing the risk of inflation falling below the 2% target (current inflation appears supply driven). Sustained inflation above 2% y/y and stronger wage growth may be needed for a policy pivot (Chart 4).

Chart 1: The IMF revised down GDP forecast for Japan in April, despite the rebound in GDP in Q4. The real income squeeze from inflation is offsetting the growth benefit of lifting Covid restrictions.

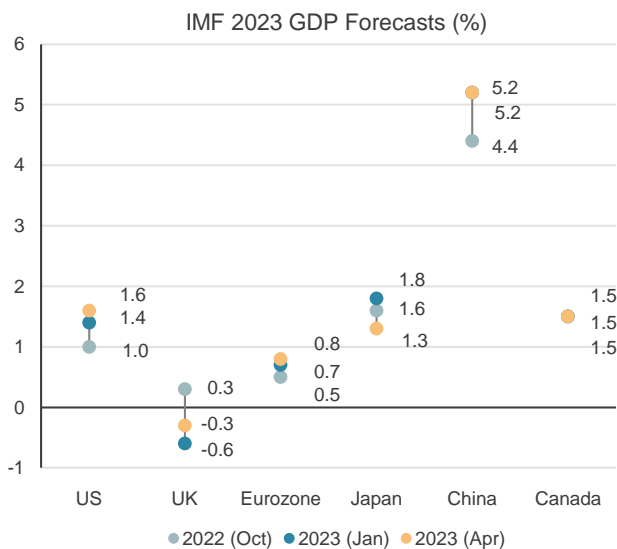


Chart 2: Japan is expected to meet its 2% price stability target in 2023, helped by yen weakness, higher food and energy prices. The BoJ challenge is the sustainability of inflation at 2%.

Consensus Inflation Forecasts (% , April 2023)				
	2023	Change Since Jan-23 (Bps)	2024	Change Since Jan-23 (Bps)
US	4.1	40	2.5	0
UK	6.5	-50	2.4	-10
Eurozone	5.6	-40	2.6	10
Japan	2.1	30	1.5	20
China	2.3	0	2.3	0
Canada	3.7	0	2.2	0

Chart 3: Labour shortages may be boosting wage growth in Japan, as reflected in 3.8% wage increases from April 2023. The sustainability of higher inflation remains in question for the BoJ.

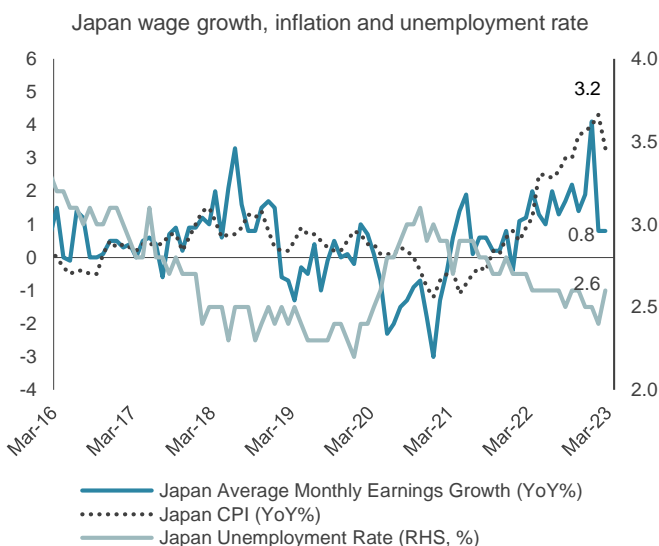
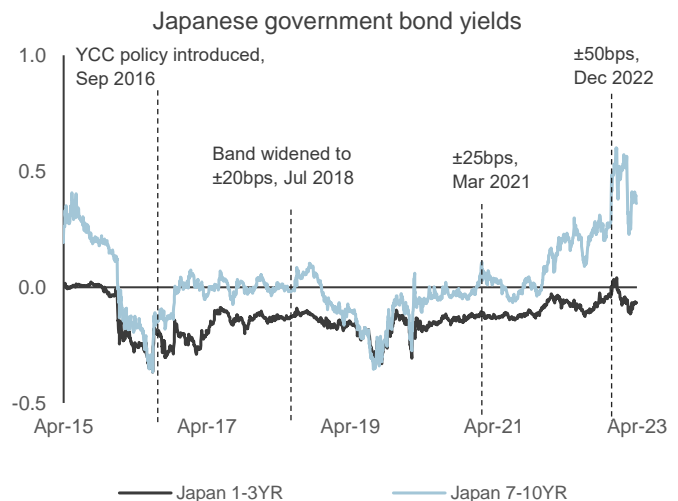


Chart 4: YCC policy may have prevented deflation, and stronger wage growth and sustained inflation above the 2% target may be required for the BoJ to abandon the policy.



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Financial Conditions and Monetary Policy Settings

Limited contagion from the US banking crisis allowed risk assets to rally again in April, despite the risk of further duration mismatches, and crisis over raising the US debt ceiling. Regional inflation shows wide dispersion, and Japanese inflation fell sharply in March, underlining BoJ caution on ending curve control. Tight labour markets remain a global policy issue.

M2 growth has slowed sharply in Japan, as Chart 1 shows. Weak loan demand is a factor in this but the decline in Japanese M2 growth is not encouraging for the sustainability of higher inflation rates in Japan.

Japan's inflation fell further in March to 3.2%, from the peak of 4.3% in January, helped by weaker energy and transport prices. The wide dispersion in regional inflation rates reflects the differing severity of energy and food price shocks in 2022/23 (Chart 2).

After banking contagion proved limited in April, the Fed raised rates a further 25bp on May 3. The BoJ confirmed it will maintain YCC, even though inflation is above 3%, and has been for nearly 12 months, and despite the higher wage round. New Governor Ueda assesses "the risk from a hasty policy change ...as more significant than the risk from a delay in policy change" (Chart 3).

Central banks continue Quantitative Tightening (QT) programs to supplement tightening, apart from the BoJ. Uncertainty about QT's impact is high, and the Fed's emergency lending in Q1 disrupted the QT program (Chart 4). Further banking instability would likely slow QT further, if financial stability concerns pre-dominate, given the uncertainty about its impact.

Chart 1: Japanese M2 growth has fallen since 2020, though monthly moves are volatile, reflecting swings in BoJ asset purchases. Weak M2 growth also reflects weak credit demand.

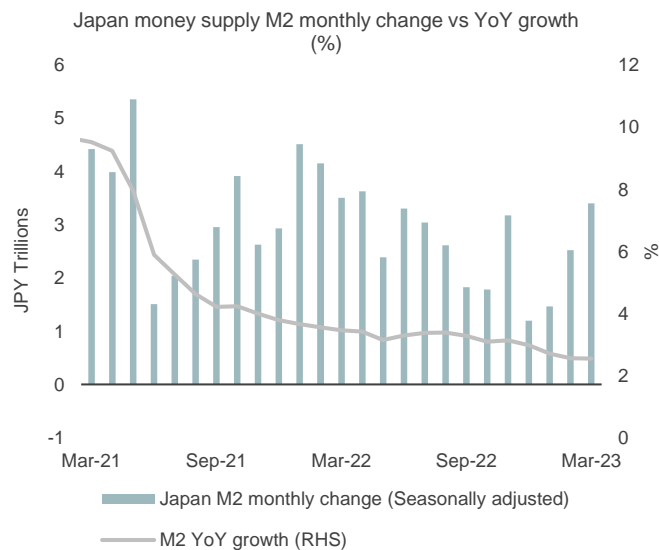


Chart 2: Japan's inflation fell back to 3.2% in March, but whether the higher-than-2% increase could be sustainable is uncertain and prevents the BoJ from ending its ultra-loose policy.

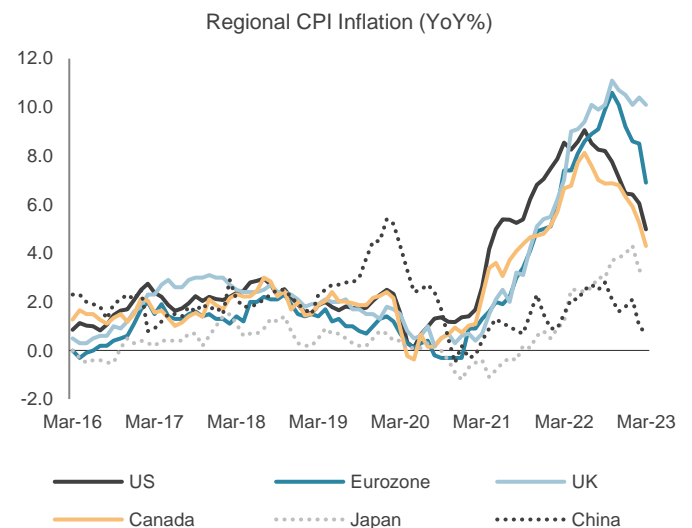


Chart 3: The Fed raised rates a further 25bp on May 3, and may be followed by the UK and ECB in May, while the BoJ retains its yield curve control policy, and negative rates.

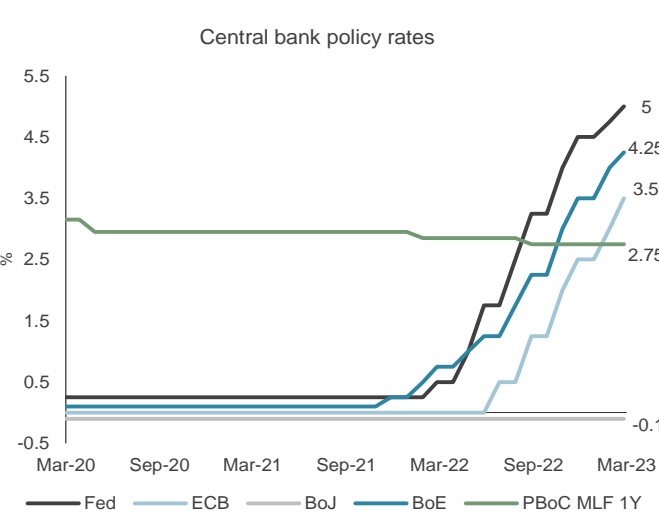
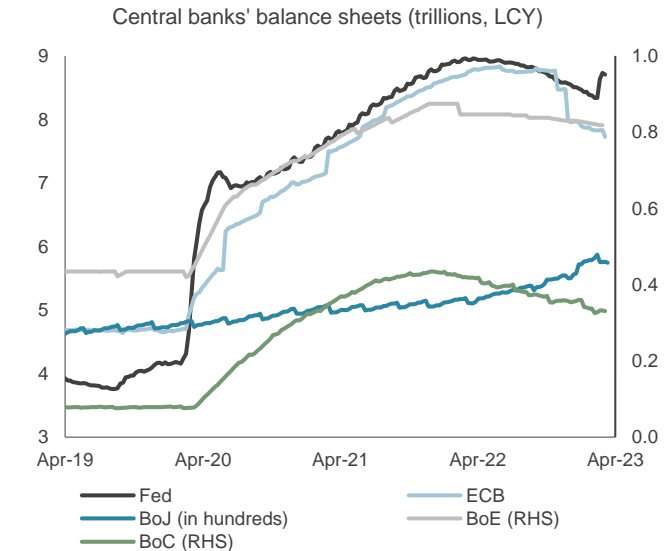


Chart 4: Central banks continue Quantitative Tightening (QT), apart from the BoJ, though the Fed's QT was interrupted by the provision of emergency liquidity to regional banks in March.



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Global Yields, Curves and Spread Analysis

Chart 1: Nominal 7-10-year yields declined sharply in March, and a flight to quality developed. Markets stabilised in April, though the yield downtrend since October is intact.

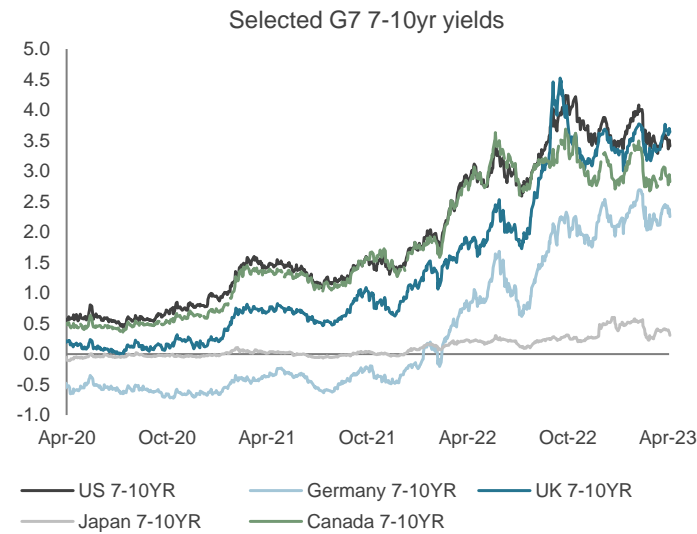


Chart 2: Real yields have also fallen since the banking crisis, though not as much as conventionals, as the latter proved a safe haven of choice. Real yields remain well above 2020/22 levels.

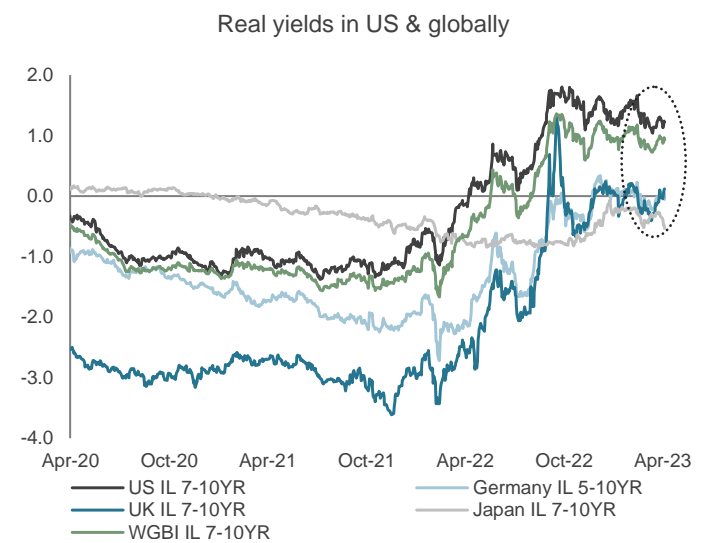


Chart 3: G7 10s/2s yield curves steepened after March's banking woes emerged, and 2-year yields collapsed. But curve inversion, or

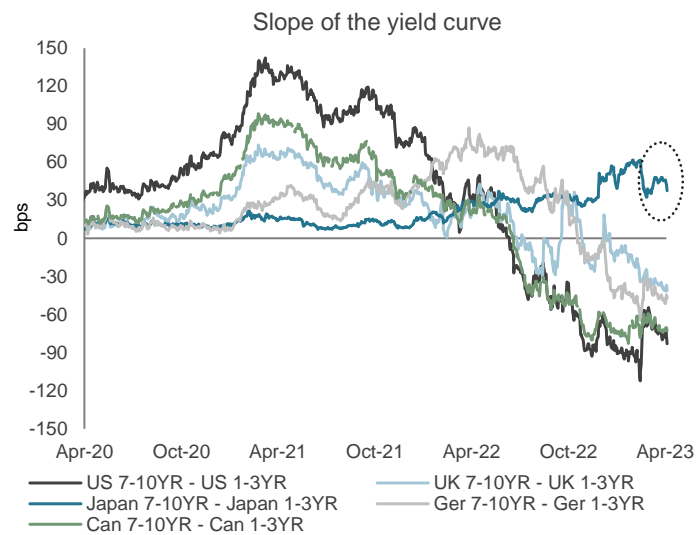


Chart 4: Like 10s/2s, the 20s+/2s yield curves resumed the 2021/23 flattening/inversion trend in April, after the brief March steepening.

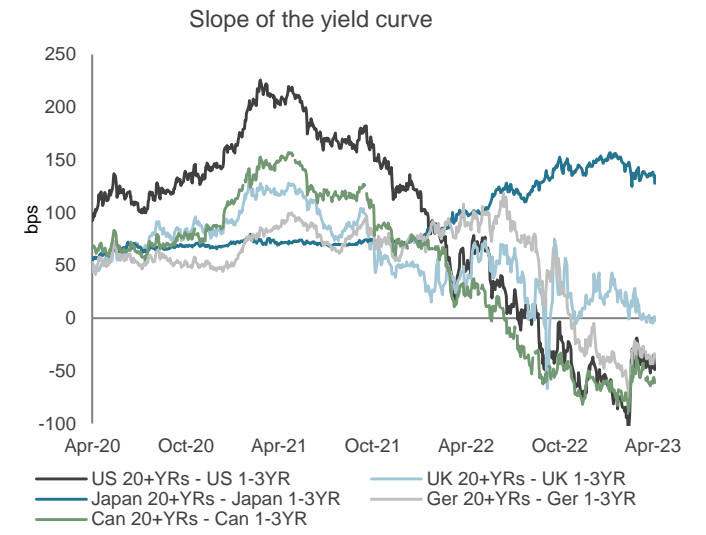


Chart 5: 7-10yr inflation breakevens stabilised near 2%, apart from the UK (due to the different RPI inflation index for accruals) & Japan. There has been little persisting impact from March's banking woes.

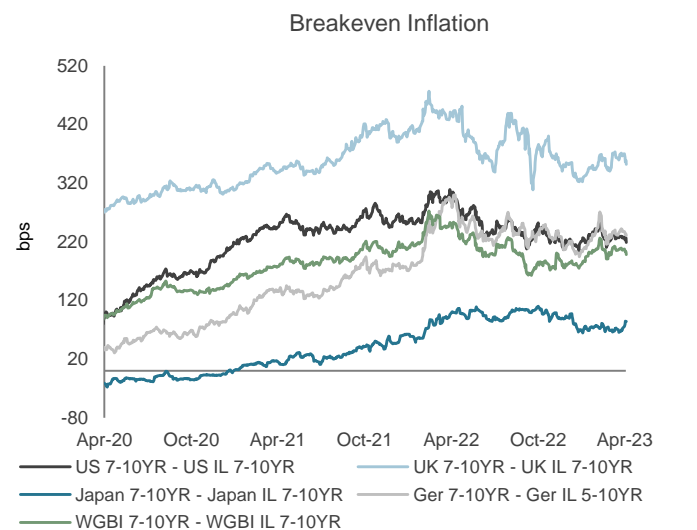
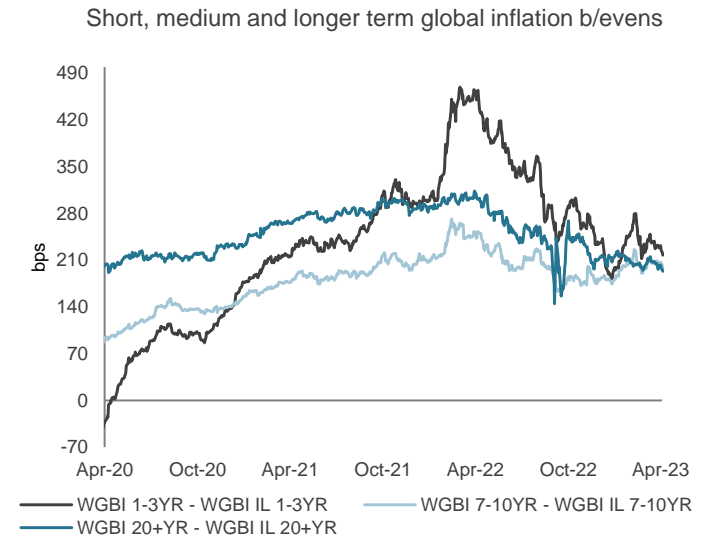


Chart 6: Short run inflation breakevens reacted more to March banking turmoil, and lower inflation prospects, if a credit crunch develops, though lower inflation rates in 2023 are also a factor.



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Yield Spread and Credit Spread Analysis

Chart 1: US sovereign spreads have shown the typical pro-cyclical pattern in 2022/23, falling as growth slows, after increasing in the post-Covid reflation trade. Spreads versus the UK tightened most.

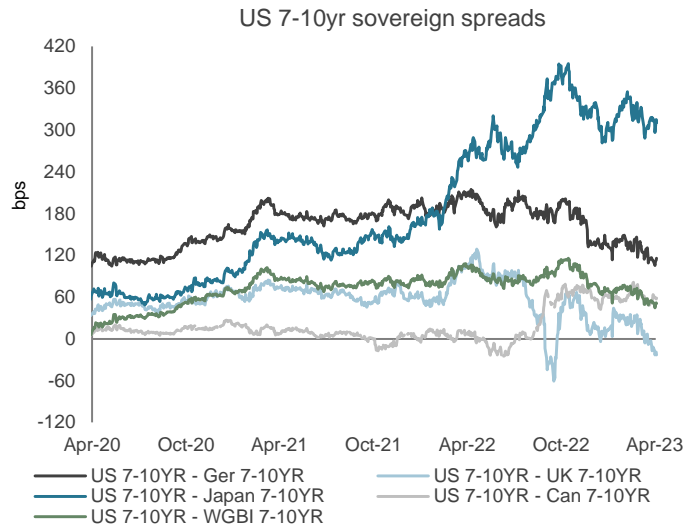


Chart 2: Peripheral Eurozone 7-10-year yield spreads reacted little to March's banking woes, though Italian spreads have widened since the ECB began signalling higher rates in Q2 2022.

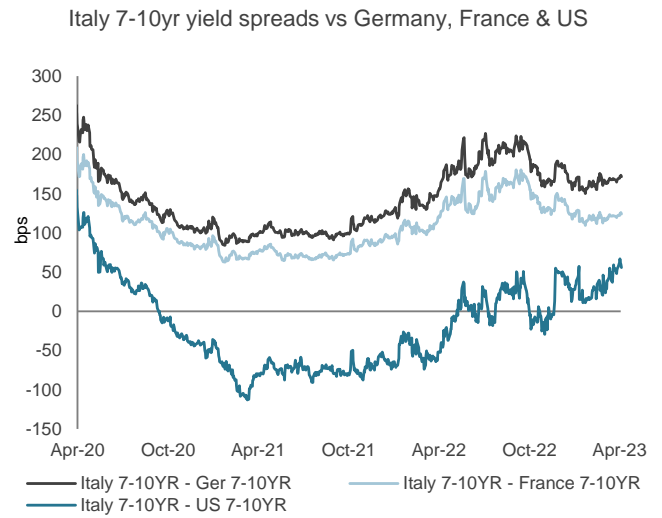


Chart 3: EM 7-10-year yield spreads widened a little in March, on fears cross-border flows may fall in a banking crisis, but moves were modest, and fell since, helped by a Fed offer of dollar swaps.

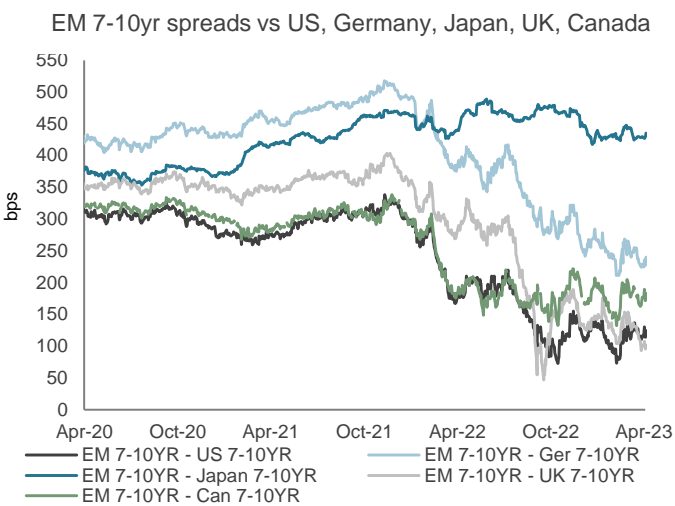


Chart 4: The modest spread widening in China 7-10-year sovereigns in March reversed in April, as Chinese inflation fell further, and nominal yields declined as a result.

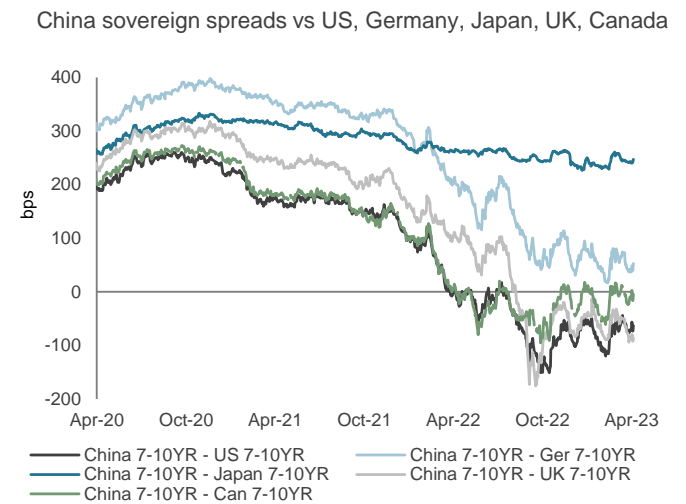


Chart 5: Lack of contagion, and prompt US regional bank takeovers, helped financial spreads stabilise in April, after the March spike on initial fears of a broader banking crisis.

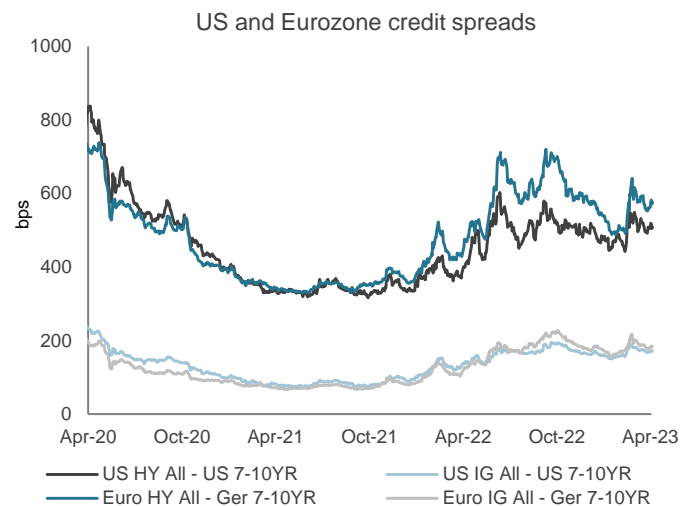


Chart 6: Although Chinese HY dollar spreads are well below the October 2022 peaks, helped by property sector support in China, they have widened sharply since March's crisis.



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Sovereign and Climate Bonds Analysis

Chart 1: After a major stress test of green bonds in 2022, when US green spreads widened sharply, led by HY, spreads have mean-reverted in 2023 to more normal spread levels, near 500bp in HY.

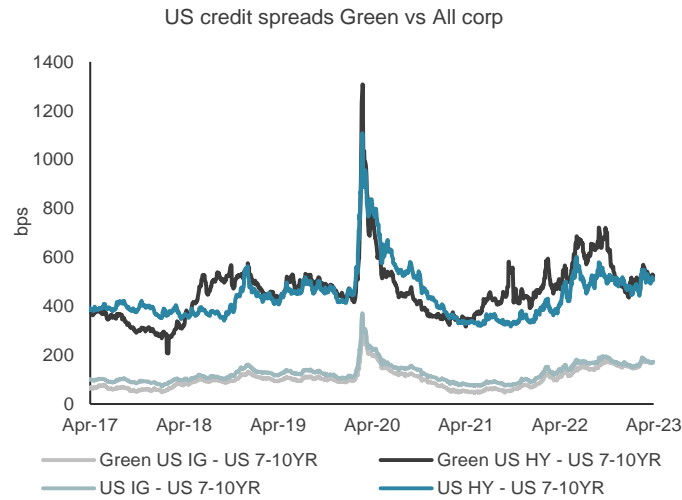


Chart 2: Unlike the US, the spread widening in HY Green Eurozone credits versus Bunds was modest in 2022, and there was no major spike. Spreads narrowed since the bond rally began in Q4 2022.

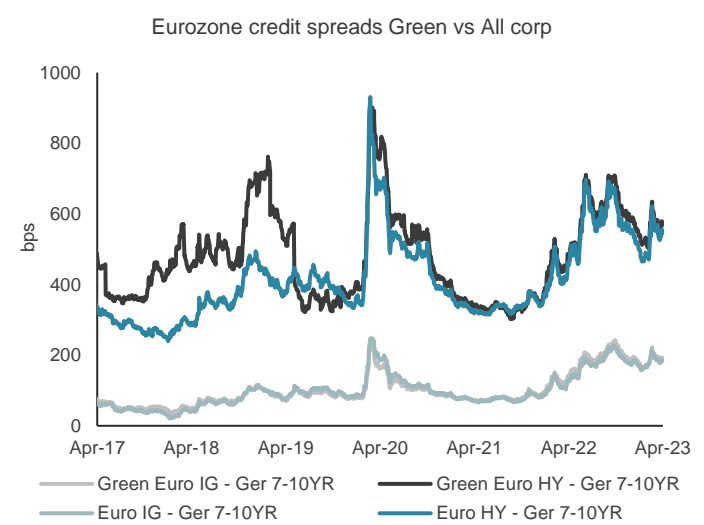


Chart 3: Overall, Green bond issuance fell more than other bonds in 2022, as yields and spreads rose. But Green issuance has rebounded in Q1 2023, and is at a new high versus total issuance.

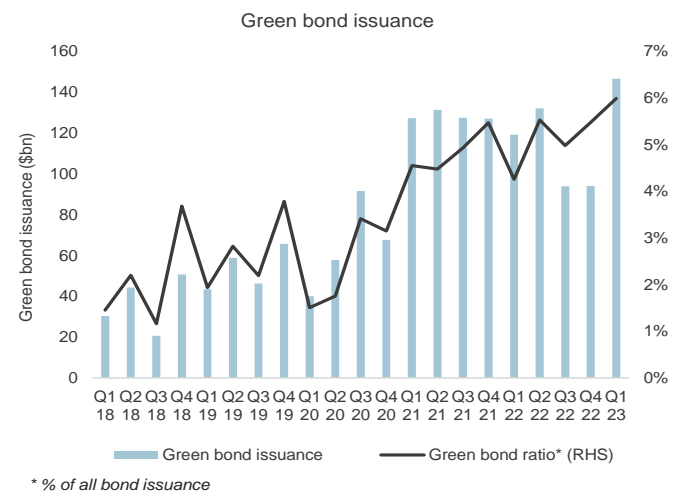


Chart 4: Within total Green bond issuance, Green corporates fell sharply, though issuance has recovered in Q1 2023, to an all-time high in absolute terms, as yields stabilized and spreads narrowed.

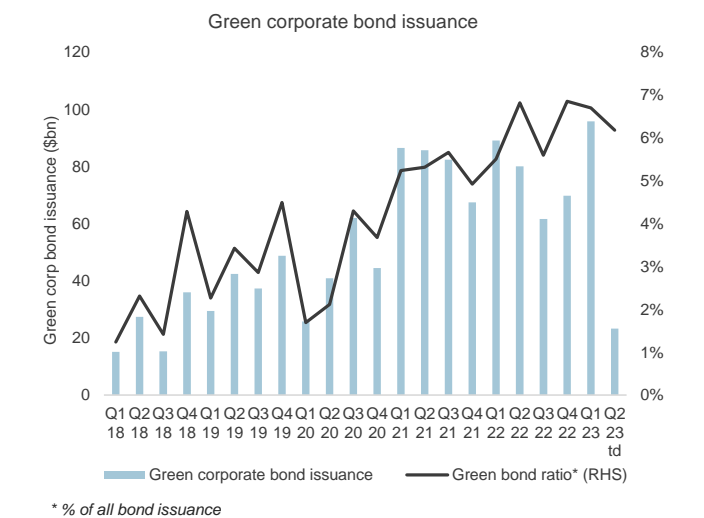


Chart 5: The currency composition of the FTSE Global Green index shows the high weighting of the Euro green bonds, at 68%, and the low US weighting, in contrast to the FTSE World BIG index.

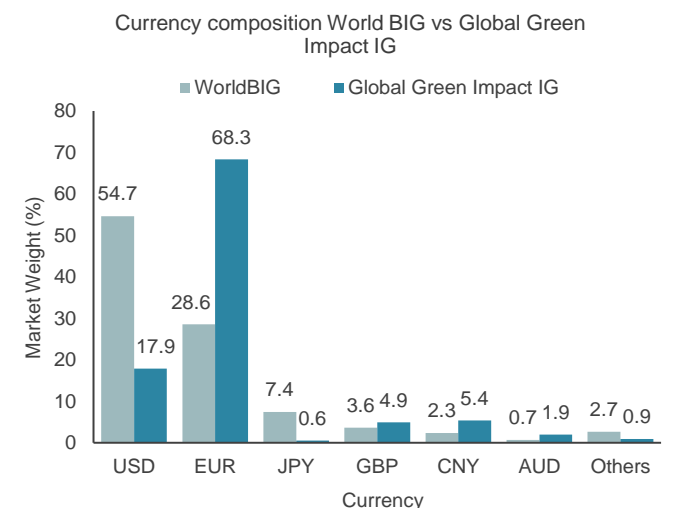
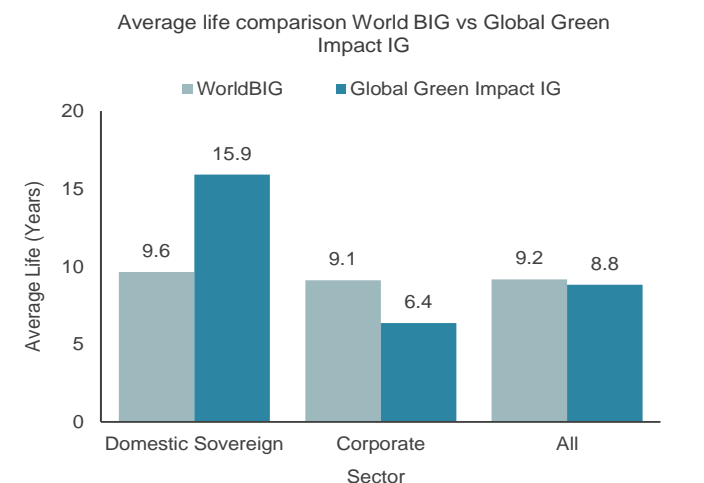


Chart 6: The higher Eurozone sovereign weighting in the Global Green (GG) index increases average life relative to World BIG, but this is offset by shorter average life of GG corporates.



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Global Sovereign Bond Returns – 1M and 12M % (JPY & LCY, TR) as of April 30, 2023

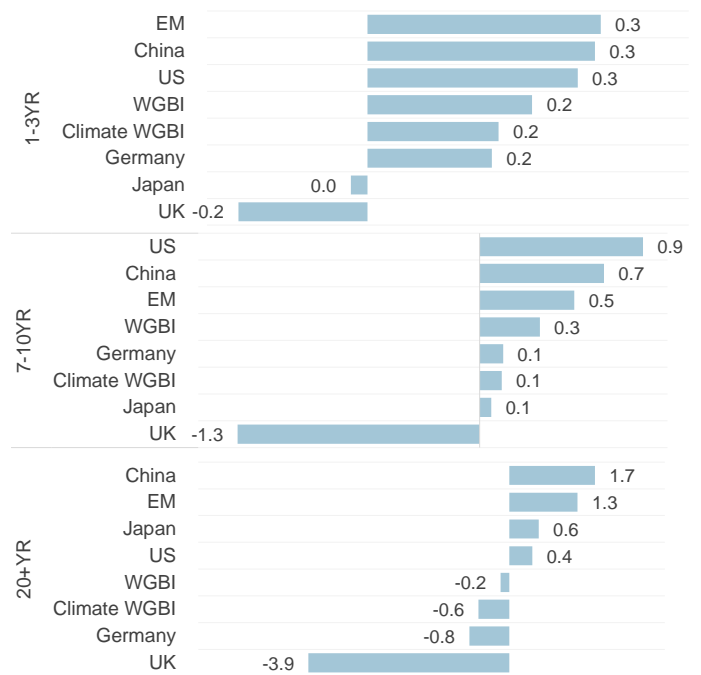
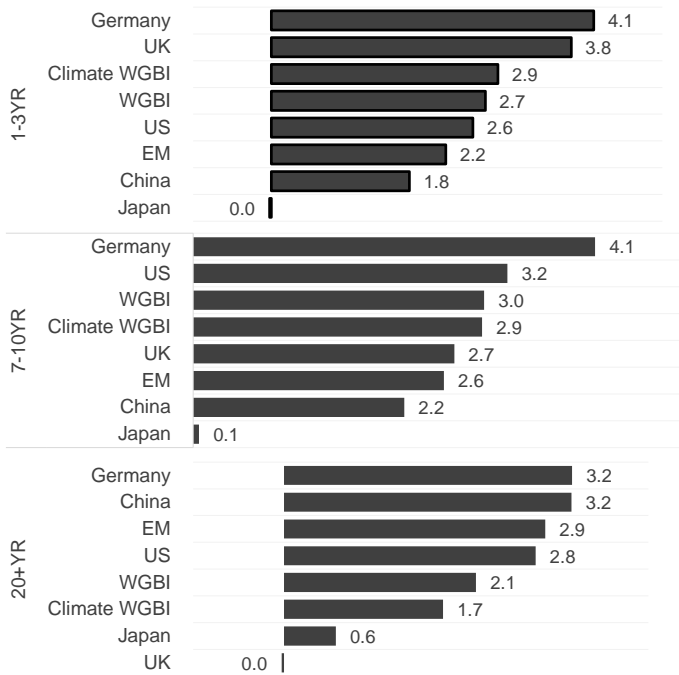
Sovereign bonds stabilized in April, after the strong rally on banking woes in March. Bunds, US Treasuries, WGBI and longer Chinese bonds offered returns of up to 4% in yen terms. Longer UK gilts lagged. 12M returns continue to show the damage done by longer duration and higher policy rates in 2022, with losses of 5-31% in long government bonds.

Bunds returned up to 4.1% in April, for a yen investor, helped by the stronger Euro. JGBs barely moved on the month. Gilt losses in long maturities were completely offset, in yen terms, by the stronger sterling, as the MPC signalled more tightening.

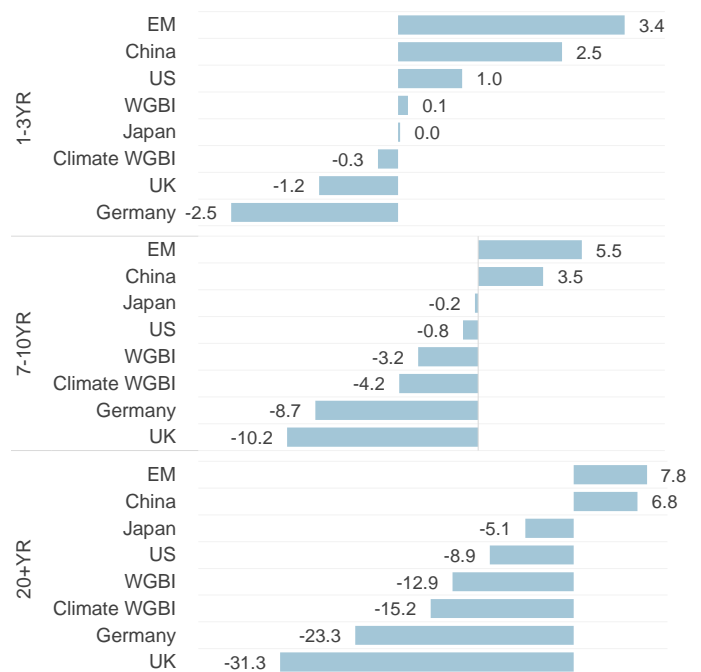
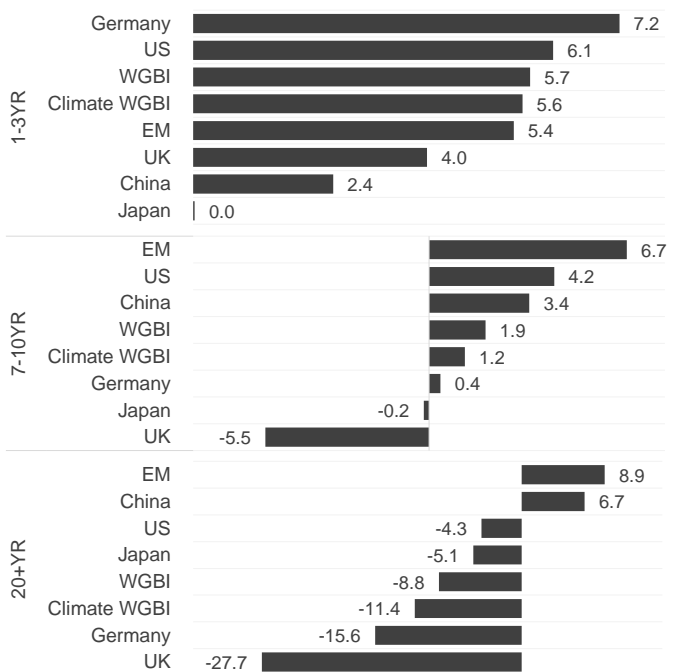
12M returns in G7 longs remain strongly negative, but EM and China escaped with positive returns of 2-9% across the curve.

CONVENTIONAL GOVT BONDS

1M JPY 1M LCY



12M JPY 12M LCY



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Top and Bottom Bond Returns – 1M & 12M % (JPY,TR) as of April 30, 2023

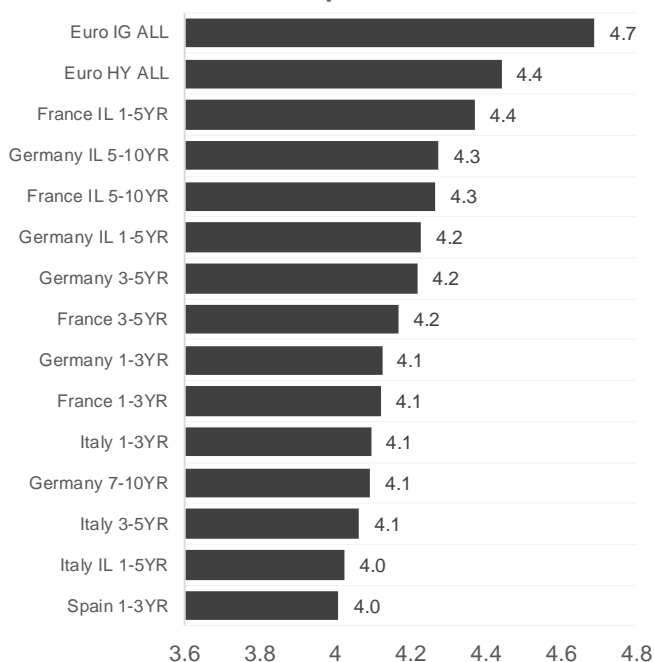
Euro credits and shorter European bonds performed best in April, led by Euro IG & HY, and French short inflation-linked bonds, with 4-5% returns in yen terms, and long UK IL and JGBs the worst returns. EM inflation-linked remain best performers on 12M. All bottom 15 performers on 12M are long-dated government bonds, with losses of up to 36%.

Short to medium maturity bonds consolidated March gains in April, and HY credits and peripheral Eurozone bonds benefitted from risk appetite, as banking crisis contagion was limited. The stronger Euro was the main driver in boosting Eurozone returns in JPY.

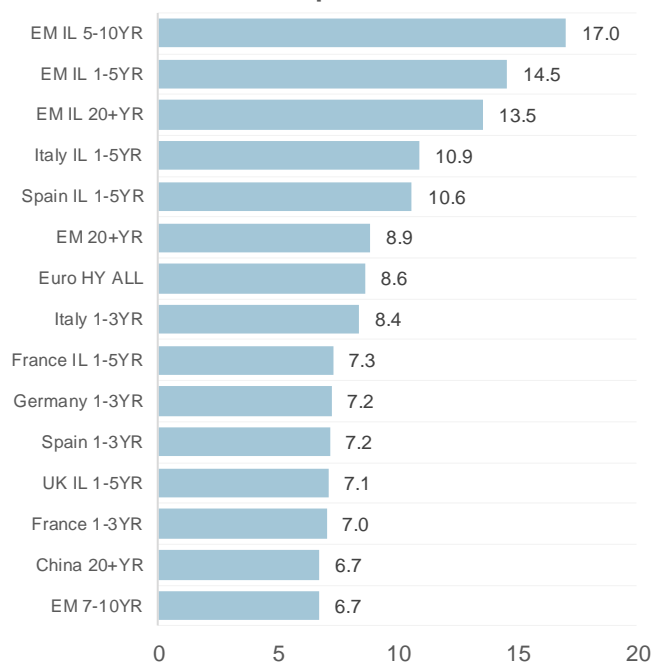
Ultra-long duration in long gilts and inflation-linked caused substantial losses in the 20+ year maturities, on 12M, as rates rose, with losses of up to 36%. Long conventional bonds of WGBI and Eurozone also lost 8-16% in yen terms.

1M JPY 12M JPY

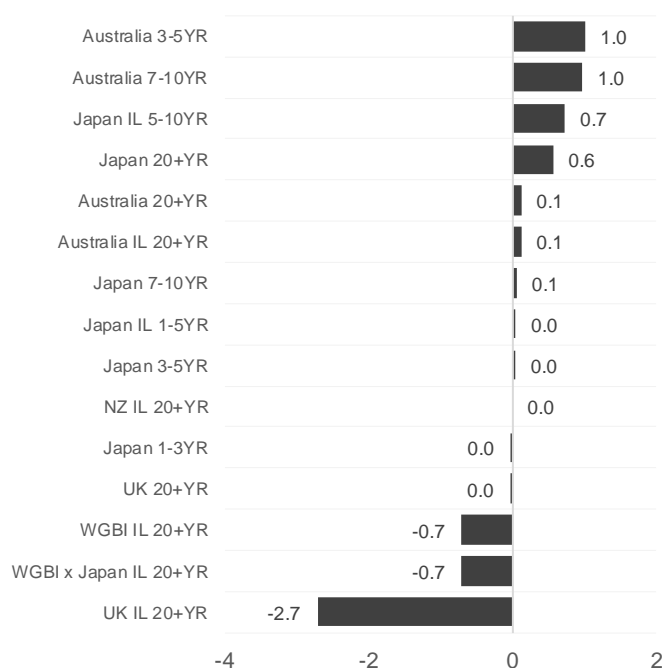
Top 15



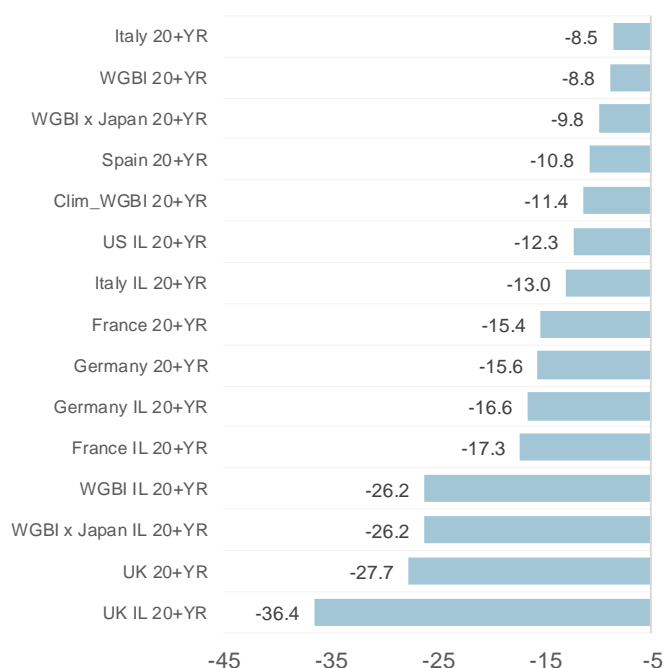
Top 15



Bottom 15



Bottom 15



Source: FTSE Russell. All data as of April 30, 2023. This analysis is taken from 100+ FTSE Russell sub-indices. Past performance is no guarantee of future results. Please see the end for important legal disclosures. Bond market data is derived from FTSE Fixed Income Indices. See Appendix Glossary for list of Indices used for each market. For professional investors only.

Appendix – Global Bond Market Returns % (JPY & LC, TR) – April 30, 2023

Government Bond Returns

Top 15% Bottom 15%

Green highlight indicates highest 15%, red indicates lowest 15%.

		3M		6M		YTD		12M	
		Local	JPY	Local	JPY	Local	JPY	Local	JPY
WGBI	1-3YR	0.83	5.46	1.76	-3.09	1.44	5.45	0.15	5.72
	7-10YR	0.93	5.45	2.93	0.46	3.62	8.05	-3.21	1.92
	20+YR	0.91	5.01	5.06	1.64	5.80	9.70	-12.89	-8.81
WGBI x Japan	1-3YR	0.93	6.08	2.86	-1.59	2.45	7.10	-0.84	5.54
	7-10YR	0.76	5.89	3.47	0.31	3.95	9.00	-3.98	2.16
	20+YR	-1.22	3.96	5.35	1.06	5.15	10.16	-15.09	-9.83
US	1-3YR	1.12	5.88	2.68	-5.93	1.88	5.14	0.96	6.11
	7-10YR	1.23	5.99	7.00	-1.98	4.82	8.17	-0.81	4.25
	20+YR	0.09	4.80	12.59	3.14	7.72	11.16	-8.92	-4.28
	IG All	0.32	5.04	9.17	0.01	4.49	7.83	0.62	5.75
	HY All	0.77	5.51	5.33	-3.51	4.68	8.02	1.14	6.30
UK	1-3YR	-0.28	6.60	0.62	0.63	0.35	8.20	-1.19	3.97
	7-10YR	-1.43	5.38	1.19	1.20	1.64	9.60	-10.23	-5.55
	20+YR	-5.24	1.30	-6.30	-6.29	-1.10	6.65	-31.26	-27.67
EUR	IG All	0.31	6.76	3.49	5.90	2.57	9.49	-4.28	5.27
	HY All	0.17	6.67	6.71	8.94	3.53	10.64	-0.79	8.63
Japan	1-3YR	0.09	0.09	0.05	0.05	0.19	0.19	0.03	0.03
	7-10YR	2.06	2.06	-0.01	-0.01	1.82	1.82	-0.18	-0.18
	20+YR	8.86	8.86	3.71	3.71	8.13	8.13	-5.15	-5.15
China	1-3YR	0.67	2.80	0.69	-2.82	0.81	4.39	2.46	2.38
	7-10YR	1.39	3.54	0.76	-2.75	1.47	5.07	3.49	3.41
	20+YR	3.16	5.35	1.13	-2.40	2.58	6.22	6.81	6.73
EM	1-3YR	0.82	3.92	1.82	-0.86	1.14	5.80	3.40	5.44
	7-10YR	1.30	4.64	4.78	1.42	2.82	7.26	5.55	6.71
	20+YR	2.45	4.99	4.27	0.69	3.16	6.84	7.85	8.86
	IG All	0.77	5.52	9.26	0.10	3.36	6.66	0.96	6.11
	HY All	-2.74	1.83	11.93	2.54	0.88	4.11	-2.35	2.62
Germany	1-3YR	0.44	6.91	-0.12	2.21	0.67	7.46	-2.50	7.23
	7-10YR	0.32	6.78	-0.22	2.11	3.03	9.99	-8.72	0.39
	20+YR	-2.66	3.60	-2.15	0.13	3.65	10.65	-23.26	-15.60
Italy	1-3YR	0.54	7.01	0.82	3.17	1.19	8.02	-1.45	8.39
	7-10YR	0.94	7.44	2.54	4.93	4.95	12.04	-6.11	3.26
	20+YR	-1.29	5.06	0.94	3.29	6.20	13.37	-16.85	-8.54
France	1-3YR	0.47	6.94	-0.04	2.29	0.99	7.80	-2.69	7.02
	7-10YR	0.00	6.43	-0.54	1.78	2.94	9.89	-8.45	0.69
	20+YR	-3.77	2.43	-2.82	-0.55	2.43	9.34	-23.04	-15.36
Australia	1-3YR	0.88	-0.94	1.83	-3.59	1.73	2.31	1.97	-0.34
	7-10YR	2.51	0.66	5.07	-0.53	7.00	7.60	1.99	-0.32
	20+YR	2.34	0.50	6.08	0.43	10.60	11.22	-3.73	-5.92
NZ	1-3YR	0.88	0.95	1.43	-1.21	1.88	2.67	1.43	1.45
	7-10YR	1.23	1.31	2.88	0.21	4.45	5.27	0.47	0.49

Source: FTSE Russell. All data as of April 30, 2023. Past performance is no guarantee of future results. Please see the end for important legal disclosures. Bond market data is derived from FTSE Fixed Income Indices. See Appendix Glossary for list of indices used for each market. For professional investors only.

Appendix – Historical Bond Yields % as of April 30, 2023

Global Bond Yields

Top 15% Bottom 15%

Green highlight indicates top 15%, red indicates bottom 15%.

		Conventional government bonds				Inflation-linked bonds			Inv Grade	High Yld
		1-3YR	3-5YR	7-10YR	20+YR	1-5YR	5-10YR	20+YR	All Mat	All Mat
WGBI	Current	3.57	3.09	2.90	3.13	1.22	0.98	1.19		
	3M Ago	3.54	3.12	2.83	3.11	1.34	1.01	0.93		
	6M Ago	3.63	3.40	2.92	3.34	0.93	1.03	0.97		
	12M Ago	1.85	2.08	1.88	2.25	-1.98	-0.89	-0.77		
WGBI x Japan	Current	3.84	3.34	3.22	3.65	1.30	1.02	1.19	0.00	0.00
	3M Ago	3.83	3.40	3.21	3.54	1.42	1.05	0.93	0.00	0.00
	6M Ago	3.92	3.70	3.46	3.90	1.00	1.09	0.97	0.00	0.00
	12M Ago	2.02	2.37	2.45	2.77	-1.64	-0.70	-0.62	0.00	0.00
US	Current	4.24	3.62	3.41	3.75	1.68	1.23	1.58	5.15	8.50
	3M Ago	4.35	3.74	3.46	3.71	1.85	1.32	1.54	5.01	8.23
	6M Ago	4.58	4.37	4.05	4.34	1.76	1.65	1.84	5.97	8.97
	12M Ago	2.60	2.88	2.91	3.18	-0.79	0.11	0.64	4.33	6.98
UK	Current	4.05	3.77	3.64	4.02	0.39	0.14	0.63	0.00	0.00
	3M Ago	3.42	3.26	3.33	3.70	0.31	0.00	0.30	0.00	0.00
	6M Ago	3.38	3.55	3.56	3.62	-2.33	-0.13	0.24	0.00	0.00
	12M Ago	1.63	1.53	1.78	2.06	-4.76	-2.94	-1.57	0.00	0.00
Japan	Current	-0.07	0.02	0.30	1.20	-1.31	-0.63			
	3M Ago	-0.02	0.11	0.52	1.55	-1.33	-0.34			
	6M Ago	-0.06	0.02	0.24	1.31	-1.37	-0.81			
	12M Ago	-0.06	-0.02	0.19	0.92	-1.43	-0.79			
EM	Current	3.74	4.37	4.66	4.46	3.84	4.04	5.15	5.61	11.71
	3M Ago	3.59	4.30	4.76	4.57	3.11	3.37	5.25	5.52	10.25
	6M Ago	3.67	4.37	5.03	4.77	1.66	3.00	5.23	6.70	13.96
	12M Ago	3.49	4.32	5.00	4.92	1.94	2.72	4.95	4.58	10.52
Germany	Current	2.72	2.35	2.25	2.37	0.16	-0.06	-0.11		
	3M Ago	2.59	2.31	2.21	2.22	0.38	0.13	-0.09		
	6M Ago	1.94	1.95	2.07	2.22	-0.76	-0.35	-0.17		
	12M Ago	0.15	0.95	1.25	1.53	-2.10	-1.39	-0.90		
Italy	Current	3.36	3.49	3.97	4.45	0.80	1.65	1.83	0.00	0.00
	3M Ago	3.17	3.42	3.92	4.29	1.18	1.87	1.85	0.00	0.00
	6M Ago	2.82	3.30	3.95	4.36	0.25	1.64	1.84	0.00	0.00
	12M Ago	0.82	3.12	3.86	4.18	-1.18	1.42	2.07	0.00	0.00
France	Current	2.84	2.66	2.73	3.23	-0.06	0.17	0.58	0.00	0.00
	3M Ago	2.71	2.58	2.64	3.01	0.24	0.30	0.52	0.00	0.00
	6M Ago	2.15	2.20	2.44	3.02	-0.91	-0.16	0.46	0.00	0.00
	12M Ago	0.32	1.68	2.11	2.72	-2.45	-0.49	0.41	0.00	0.00
Australia	Current	3.13	3.05	3.30	3.88	0.09	0.84	1.50		
	3M Ago	3.17	3.24	3.51	3.96	0.23	0.92	1.37		
	6M Ago	3.21	3.35	3.70	4.10	-0.01	1.05	1.67		
	12M Ago	2.31	3.38	3.69	3.88	-0.41	0.99	1.63		
NZ	Current	4.89	4.15	4.08	4.23	0.95	1.61	0.00	0.00	0.00
	3M Ago	4.67	4.18	4.11	4.41	1.28	1.79	0.00	0.00	0.00
	6M Ago	4.31	4.28	4.18	4.44	1.43	2.04	0.00	0.00	0.00
	12M Ago	3.11	3.67	3.87	4.17	0.81	1.78	0.00	0.00	0.00

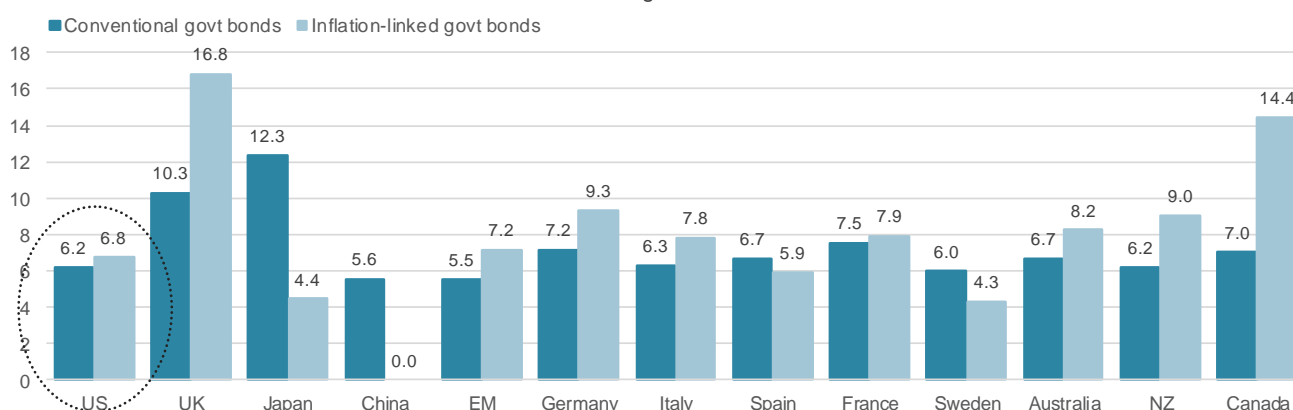
Source: FTSE Russell. All data as of April 30, 2023. Past performance is no guarantee of future results. Please see the end for important legal disclosures. Bond market data is derived from FTSE Fixed Income Indices. See Appendix Glossary for list of indices used for each market. For professional investors only.

Appendix – Duration and Market Value (USD, Bn) as of April 30, 2023

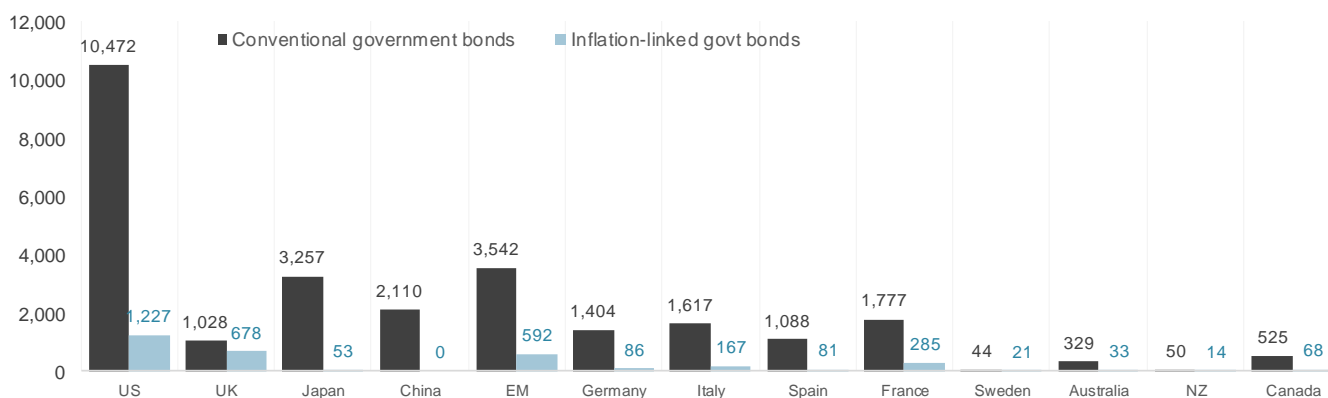
	Conventional government bonds								Inflation-linked government bonds					
	Duration				Market Value				Duration			Market Value		
	3-5YR	7-10YR	20+YR	Overall	3-5YR	7-10YR	20+YR	Total	5-10YR	20+YR	Overall	5-10YR	20+YR	Total
US	3.7	7.6	17.6	6.2	2,276.4	1,094.8	1,326.9	10,472.5	7.0	21.9	6.8	412.7	125.8	1227.4
UK	3.7	7.6	19.1	10.3	128.4	144.8	297.9	1,027.9	6.8	28.6	16.8	130.2	262.4	678.3
Japan	4.0	7.9	24.0	12.3	351.4	365.7	725.9	3,256.9	7.4		4.4	19.1		53.1
China	3.6	7.4	17.6	5.6	445.8	352.3	242.9	2,110.3						
EM	3.5	6.9	15.9	5.5	716.19	633.09	338.43	3,541.6	5.6	13.6	7.2	123.5	149.6	591.9
Germany	3.8	7.8	20.6	7.2	301.47	213.64	152.49	1,403.7	6.7	22.1	9.3	31.0	19.2	86.2
Italy	3.7	7.3	16.4	6.3	317.51	248.17	146.35	1,617.4	6.6	26.6	7.8	55.9	5.5	167.4
Spain	3.6	7.4	17.4	6.7	211.49	192.08	104.18	1,087.8	7.1		5.9	22.7		81.2
France	3.6	7.6	20.1	7.5	342.31	355.24	214.42	1,776.7	6.9	24.6	7.9	103.0	20.7	285.4
Sweden	3.4	7.9		6.0	7.78	9.28		44.3	6.1		4.3	9.9		21.3
Australia	3.5	7.7	18.1	6.7	55.88	90.14	16.22	329.4	7.4	22.8	8.2	9.7	2.8	33.2
NZ	3.3	7.2	17.6	6.2	9.03	9.31	2.48	50.0	6.5		9.0	3.2		14.2
Canada		7.3	16.9	7.0		166.20	111.10	524.5		14.4	14.4		68.4	68.4

	Investment grade bonds					High Yield						
	Duration					Market Value					Duration	MktVal
	AAA	AA	A	BBB	Overall	AAA	AA	A	BBB	Overall		
US	11.2	8.7	7.3	6.9	7.2	75.7	454.0	2,530.7	3,387.0	6,447.5	4.1	1,148.6
Euro	6.1	5.0	4.7	4.3	4.5	10.6	186.9	1,135.3	1,487.3	2,820.0	3.1	432.9
EM		5.8	4.9	5.0	5.0		44.41	224.75	346.1	615.3	3.3	191.9

Average Duration



Total Market Value (USD Billions)

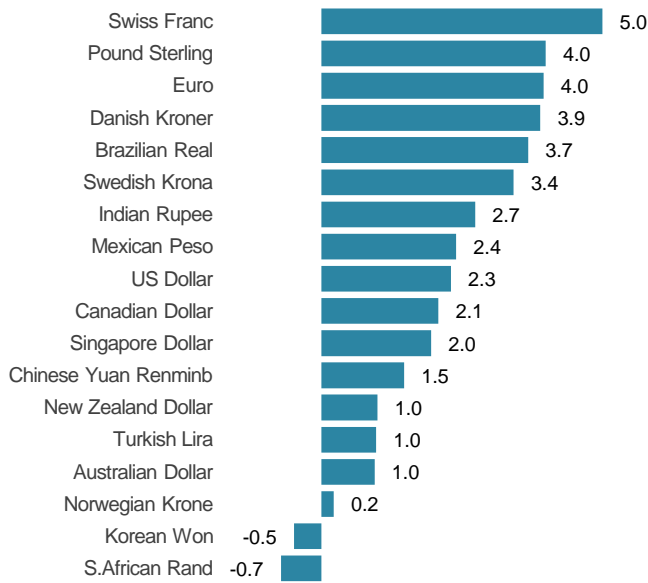


Data as of 2023-04-28

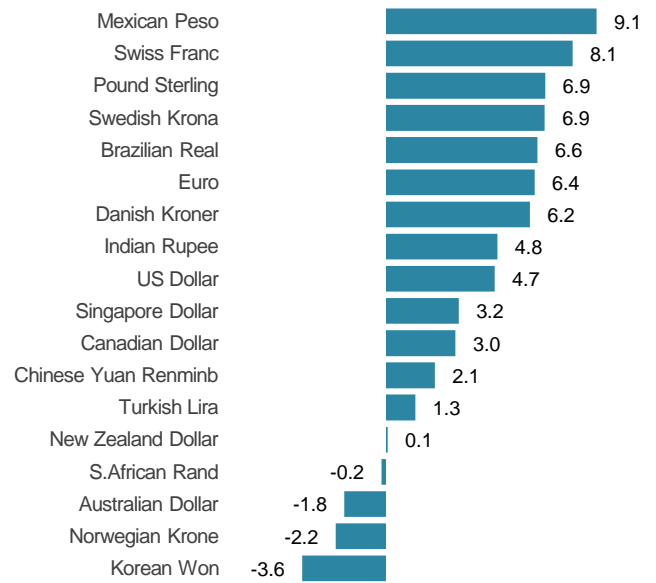
Source: FTSE Russell. All data as of April 30, 2023. Past performance is no guarantee of future results. Please see the end for important legal disclosures. Bond market data is derived from FTSE Fixed Income Indices. See Appendix Glossary for list of indices used for each market. For professional investors only.

Appendix – Foreign Exchange Returns % as of April 30, 2023

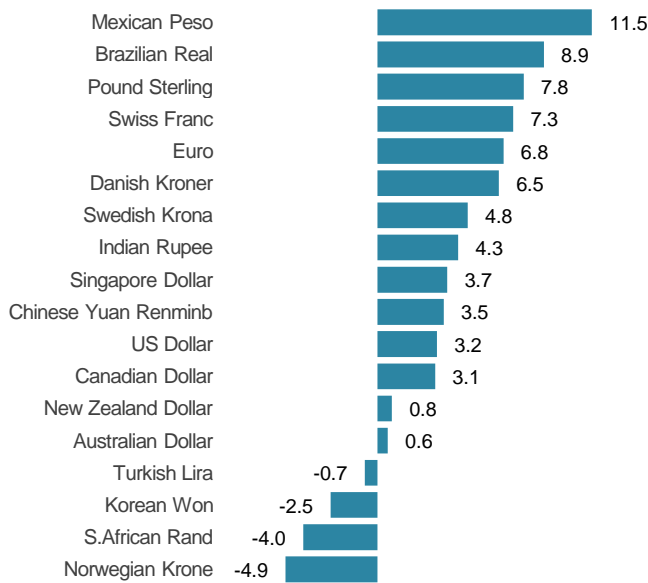
FX Moves vs JPY - 1M



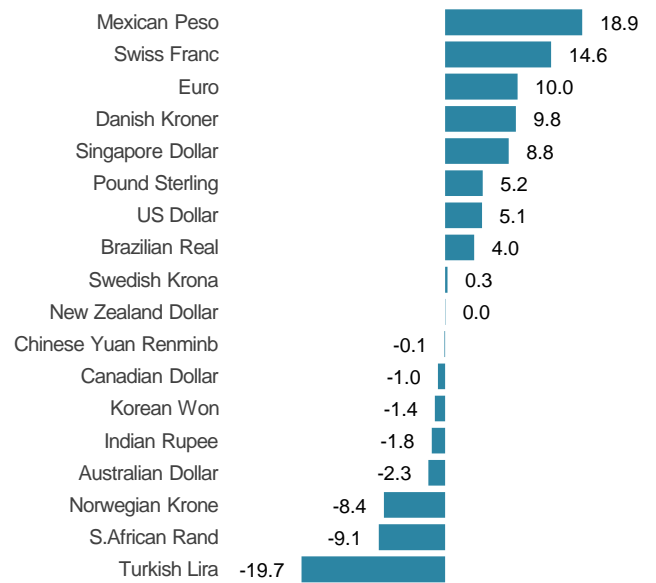
FX Moves vs JPY - 3M



FX Moves vs JPY - YTD



FX Moves vs JPY - 12M



Source: FTSE Russell and Refinitiv. All data as of April 30, 2023. Past performance is no guarantee of future results. Please see the end for important legal disclosures. Bond market data is derived from FTSE Fixed Income Indices. See Appendix Glossary for list of indices used for each market. For professional investors only.

Appendix – Glossary

Bond markets are based on the following indices:

FTSE World Government Bond Index (WGBI) for all global government bond markets

FTSE World Inflation-Linked Securities Index (WorldILSI) for all global inflation-linked bond markets

FTSE US Broad Investment-Grade Bond Index (USBIG®) for the US corporate bond market

FTSE US High-Yield Market Index for the US high yield bond market

FTSE Euro Broad Investment-Grade Bond Index (EuroBIG®) for the Euro-denominated corporate bond market

FTSE European High-Yield Market Index for the European high yield market

FTSE Chinese Government and Policy Bank Bond Index (CNGPBI) for the Chinese government bond market

FTSE Emerging Markets Inflation-Linked Securities Index (EMILSI) for the emerging markets inflation-linked bond market

FTSE Emerging Markets Government Bond Index (EMGBI) for the emerging markets government bond market. Please note that over 50% of this index is invested in China

FTSE Emerging Markets Broad Bond Index (EMUSDBBI) for the emerging markets corporate bond market

FTSE ESG World Government Bond Index for the global government bond markets with an ESG tilt

FTSE Climate Risk-Adjusted World Government Bond Index (Climate WGBI) and FTSE Advanced Climate Risk-Adjusted World Government Bond Index (Advanced Climate WGBI) for each country's relative exposure to climate risk, with respect to resilience and preparedness to the risks of climate change

List of Abbreviations used in charts:

IL = Inflation-linked bonds

IG = Investment-grade bonds

HY = High-yield bonds

BPS = Basis points

EM = Emerging market

LC = Local currency



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