Fixed Income Insights

MONTHLY REPORT – **DECEMBER 2023 | JAPAN EDITION** FOR PROFESSIONAL INVESTORS ONLY

JGBs join the November rally, aided by BoJ caution on exiting curve control

The BoJ remains firmly on hold, after weaker Q3 growth, as it seeks to achieve its price and wage inflation targets sustainably. But balance sheet expansion decelerated, as JGBs rallied in November, led by longs, and the Japanese yield curve bull flattened. The yen recovered vs the US dollar, but not as much as sterling or Euro.

Macro and policy backdrop – Japan holds inflation well above target of 2%, but Q3 growth fell sharply
Weaker private demand dragged Q3 growth lower in Japan, after a strong H1 performance. Global inflation forecasts for 2024 show less dispersion, with Japan's inflation forecast having improved more than peers. (pages 2-3)

Yields, curves and spreads – Yield curves re-inverted as markets anticipate policy easing. US spreads tightened
A bull inversion in November reversed the bear steepening of October. US spreads remain pro-cyclical. (pages 4-5)

Credit and MBS analysis – IG credit spreads narrowed in the November rally. RMBS spreads also ticked down
Having underperformed during the period of rising yields, IG attracted investors in November, and spreads narrowed. (page 6)

Sovereign and climate bonds – Green corporate spreads tightened further, continuing recent outperformance
The "greenium" in green bond spreads has been restored in 2023. Adjusted-Climate WGBI outperformance lessened. (page 7)

Performance – Long dated gilts, Treasuries and Bunds led November rally, in reversal of the Q3 & October sell-off
G7 govt markets enjoyed strongest month since tightening began, led by longs. Both IG and HY credits rallied. (pages 8-9)

Appendix (from page 10)
Global bond market returns, historical bond yields, bond market durations and market values and foreign exchange returns.

Chart 1: Increased divergence in nominal and real yields has been notable in 2023, particularly in Bunds vs Treasuries and gilts. Breakevens have moved little, apart from the increase in Japan.

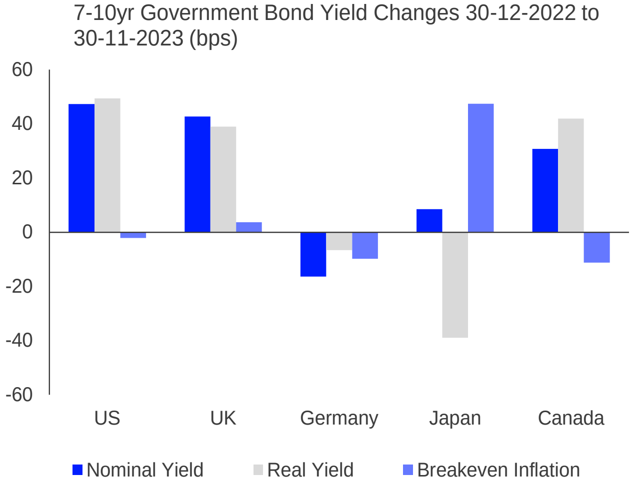
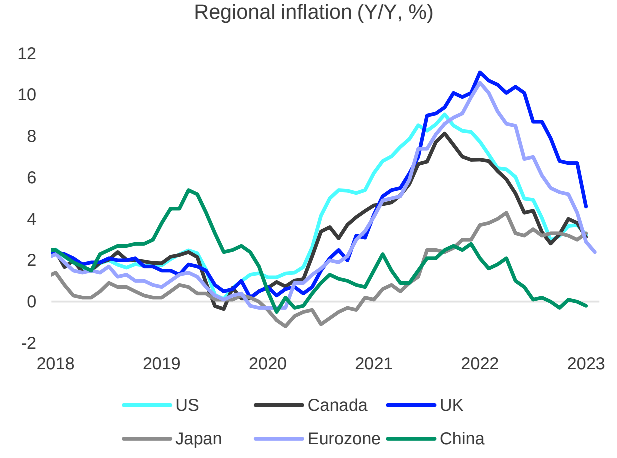


Chart 2: There is less dispersion in G7 inflation after the latest data. But output costs of disinflation tend to be higher at lower inflation, so squeezing inflation down to 2% targets remains a policy challenge.



Source: FTSE Russell. All data as of November 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 Indexes. See Appendix for list of indexes used for each market.

Macroeconomic Backdrop – Growth and Inflation Expectations

Despite the scale of policy tightening, consensus growth forecasts show no G7 recessions in 2024. A marked narrowing in the US growth differential over Europe is forecast , and oddly, higher growth for Europe in 2024, than in 2023. Inflation dispersion is forecast to decline in 2024, with inflation rising towards 2% in China and holding up above 2% in Japan. Inflation outpacing wage growth is now a feature in Japan, and labour shortages are helping sustain wage growth.

Consensus 2024 forecasts show faster US growth than European, but with the differential narrowing (Chart 1). There are no outright contractions forecast, despite growth flat-lining in Europe in Q3. Uncertainties surrounding Chinese forecasts are also high, though the Chinese authorities do have scope to reflate demand further. Japan's 2024 forecast bodes well, despite annualised growth falling to -2.1% in Q3, the biggest contraction since Q1 2022, driven by weaker private demand and business spending.

Japan's inflation has stayed at 2.8-4% this year, well above the target of 2%, due to stronger domestic demand, accommodative policies, and rising tourism, despite lower energy prices recently. Chart 2 shows less dispersion in 2024 inflation forecasts, even if dispersion remains high by pre-Covid levels. Japan's inflation forecasts for 2023-24 were upgraded through the year, helped by easy policies, the weak yen and forward guidance from the BoJ on maintaining inflation at 2% or above in the longer term.

Despite a tight labour market in Japan, with unemployment falling to 2.6%, cash earnings y/y growth slowed to 0.6% in September (Chart 3), though this is partly a base effect. Negative growth in real wages (as inflation outpaced nominal wages), combined with GDP contraction in Q3, has sustained pressure on the BoJ to retain curve control (with some flexibility).

Chart 4 shows the 2022-23 increase in US yields has taken both nominal and real 10-year yields back to pre-GFC, Goldilocks levels of the early 2000s. A higher share of fixed rate mortgages, and high levels of corporate borrowing at low rates in 2020-21 may have also reduced the impact of Fed tightening and the interest rate sensitivity of the economy. AI-driven productivity gains would also be consistent with a higher marginal product of capital and higher real yields, though it is too early to see that in the data.

Chart 1: Consensus growth forecasts for 2024 show a continuation of US exceeding European growth, but by less than in 2023, as Fed tightening squeezes employment and demand. China remains most unpredictable.

Latest Consensus Real GDP Forecasts (%, November 2023)			
	2022	**2023**	**2024**
US	2.1	**2.4**	**1.1**
UK	4.1	**0.5**	**0.4**
Eurozone	3.3	**0.5**	**0.6**
Japan	1.6	**1.6**	**0.9**
China	3.0	**5.0**	**4.5**
Canada	3.5	**1.1**	**0.7**

Chart 2: Consensus inflation forecasts show notable revisions higher to both UK, US and Japanese inflation, for 2023 and 2024, but sizeable revisions lower to Chinese and Eurozone inflation in 2023.

Consensus Inflation Forecasts (%, November 2023)				
	2023	*Change Since Jan-23 (Bps)*	**2024**	*Change Since Jan-23 (Bps)*
US	**4.2**	*50*	**2.7**	*20*
UK	**7.4**	*40*	**3.0**	*50*
Eurozone	**5.6**	*-40*	**2.7**	*20*
Japan	**2.9**	*110*	**2.2**	*90*
China	**0.5**	*-180*	**1.8**	*-50*
Canada	**3.9**	*20*	**2.5**	*30*

Chart 3: Japan's labour market remains tight, but faster inflations kept real wage growth negative. Both slower-than-expected wage growth and Q3 contractions weighed on exiting ultra-easy policy by the BoJ.

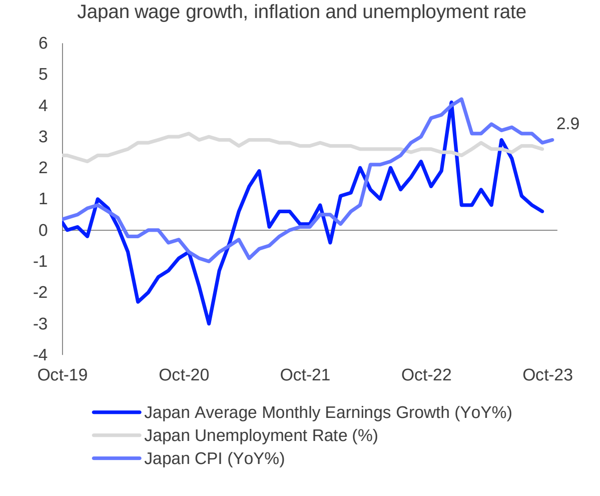
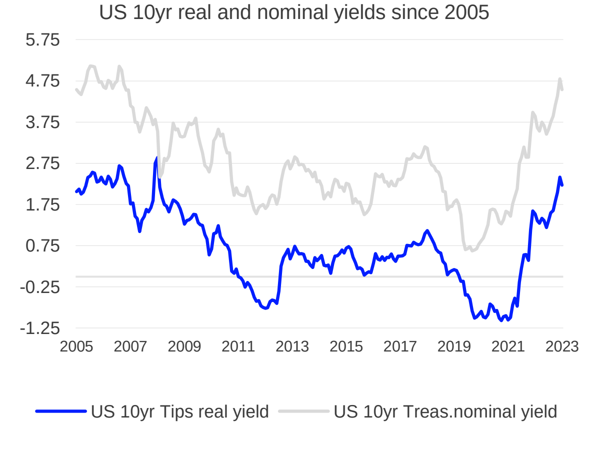


Chart 4: US nominal and real yields have returned to levels last seen in the Goldilocks period, notwithstanding the October/November rally, with little evidence to date the US economy cannot sustain higher real yields.



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Financial Conditions and Monetary Policy Settings

Financial market sentiment shifted sharply in November, as risk appetite recovered, and financial conditions eased, but the robust US economy suggests no early Fed easing, even if markets are front-running policy easing, with 10s/2s re-inverting. The dollar also fell versus the yen on US easing expectations. Divergent economies suggest less co-ordinated policy cycles in 2023-24. Pressure for fiscal policy activism may increase in 2024, but debt/GDP ratios impose important constraints.

Yield levels in the US are close to Goldilocks levels (see Chart 4 on page 2), but a key difference for policy-makers is the higher level of public debt to GDP in 2023, as Chart 1 shows. Debt service costs have already become a major element in public deficits, given low real growth, though BOJ curve control has restrained Japan's. Japan's substantial debt-to-GDP ratio of above 250% is also offset by the BoJ's holdings of JGBs, resulting in a net liability position on the public sector balance sheet close to the US.

The US dollar fell sharply in November, as markets priced in Fed easing by mid-2024, after lower US inflation and signs of weaker growth in Q4 (Chart 2). The risk rally also favoured the pound and Euro. Some easing in interest rate differentials helped the yen recover a little from Y150 level vs the US dollar. Some easing in rate differentials also helped the renminbi.

The Fed, BoE and ECB were given a little more room for manoeuvre by lower October inflation data, signs labour markets are cooling, and inflation expectations remaining anchored (Chart 5 on page 4). This would suggest more extended policy pauses until Q1 2024 at least (Chart 3). Despite flexing yield curve control in 2023, the BoJ has retained its Quantitative and Qualitative Easing (QQE), where needed, awaiting more convincing signs of a virtuous cycle between higher wages and prices (see Chart 4).

The Bank of Japan's holdings of JGBs continue to rise due to QQE, in stark contrast to other G7 central banks' QT since 2022 (Chart 4). But the pace of increase decelerated in November, as JGBs joined the global bond rally, reducing pressure on the BoJ to increase JGB purchases to protect the 1% yield ceiling on JGB 10 year yields.

Chart 1: Although there are similarities with the Goldilocks era in 2023 - yield levels, policy rates and a possible IT driven productivity surge - a key difference for policy-makers is the level of public sector debt to GDP.

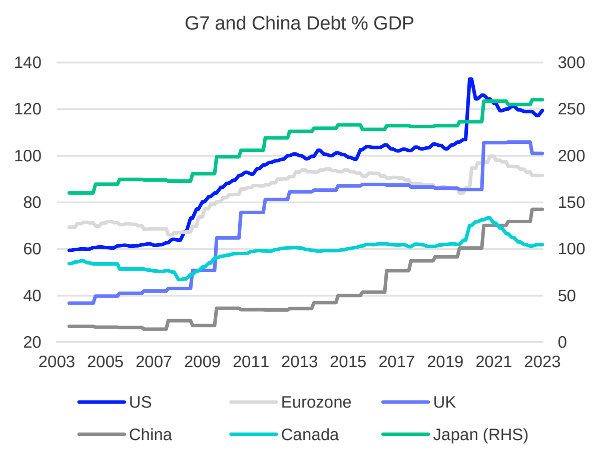


Chart 2: The US dollar retreated in November, as markets rallied and brought forward Fed easing expectations to mid-2024. Even the yen recovered as interest rate differentials improved for the yen.

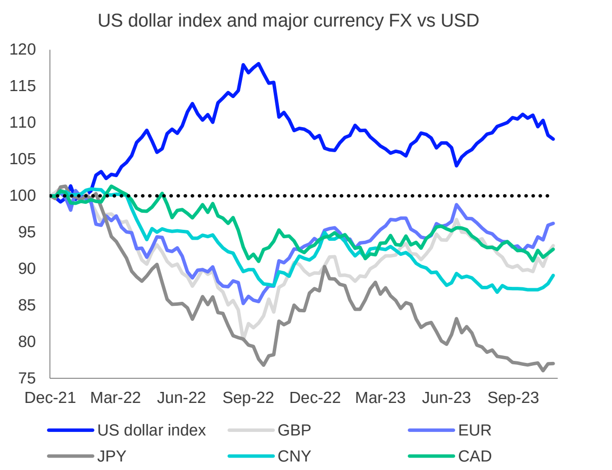


Chart 3: After lower October inflation numbers, and GDP growth near zero in Europe in Q3, G7 central banks are more firmly on hold, led by the US Fed. The PBoC faces a different deflationary challenge.

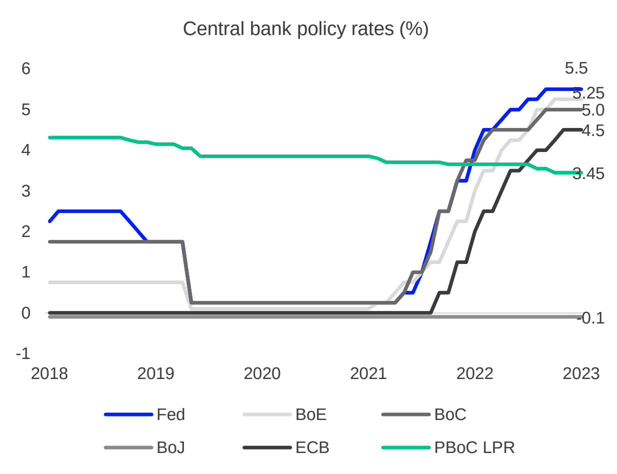
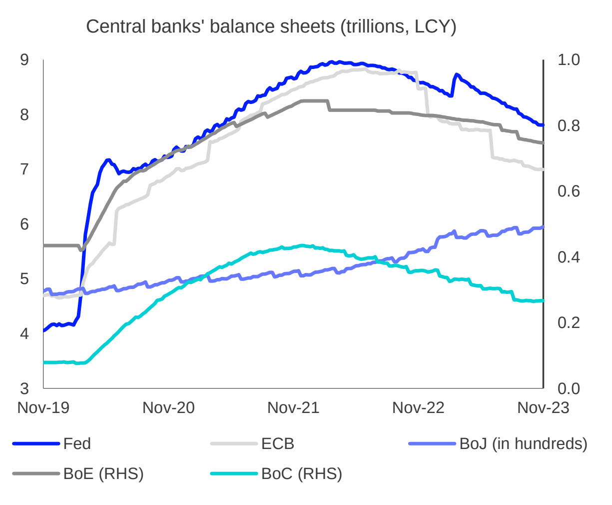


Chart 4: The BoJ's holdings of JGBs keep rising, but at a slower pace in November, after flexing YCC and the JGB rally. Other G7 central banks continue to run down their balance sheets to pre-COVID levels.



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Global Yields, Curves and Breakevens

Chart 1: 7-10yr yields fell by similar amounts across the G7 in November, after US yields rose a little more in October. All markets joined the November rally after lower inflation data and central bank policy pauses.

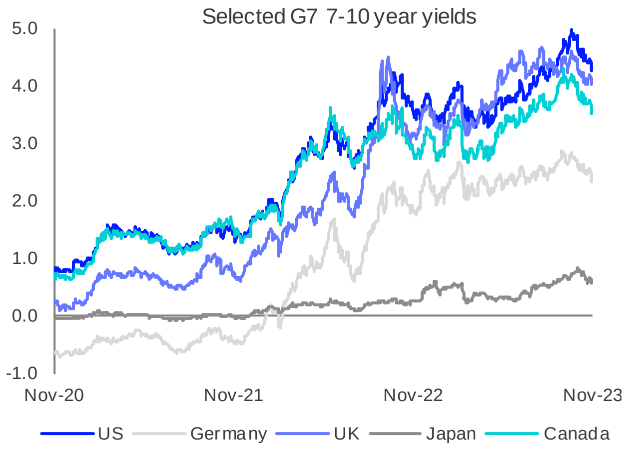


Chart 2: Real yields fell on linkers, as investors modestly revised down rate expectations for central bank policy rates in 2024. Lower inflation and weak growth in Europe helped keep real yields below Tips levels.

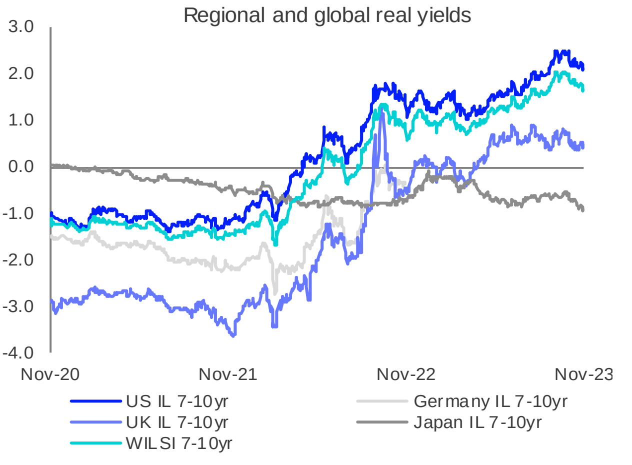


Chart 3: Yield curves re-inverted as 7-10yr yields fell sharply in the rally, and 1-3yr yields were constrained by central bank policy rates. The JGB curve flattened after several months of testing the BoJ 1% yield ceiling.

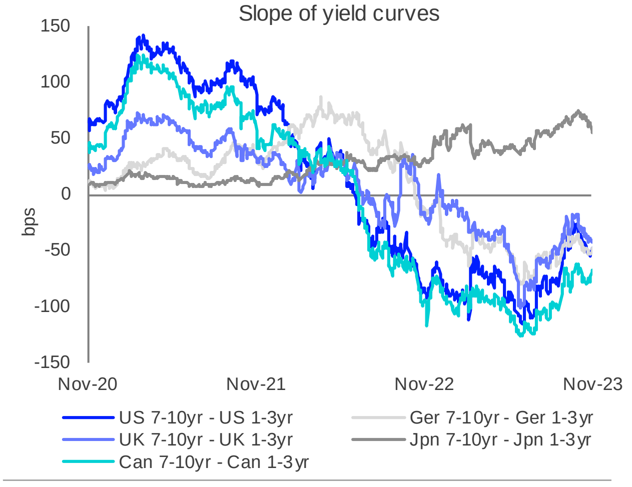


Chart 4: Long maturities also rallied, unwinding some of the recent dis-inversion, as investors began to re-focus on re-investment risks. The Canadian curve remains the most inverted in 20+yrs versus 1-3yrs.

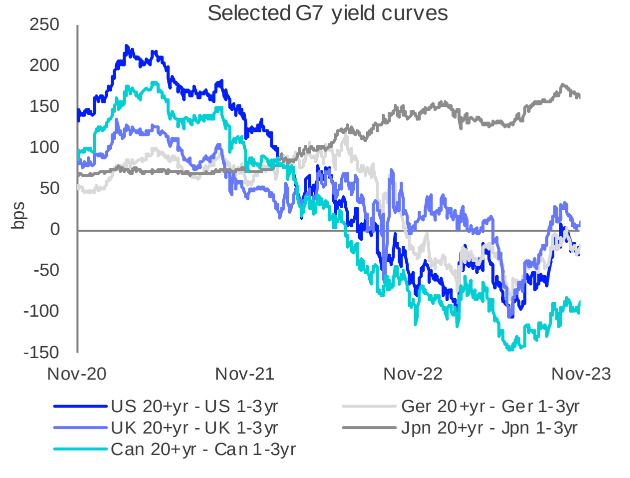


Chart 5: JGB breakevens continue to increase, relative to other G7 breakevens. US 7-10yr breakevens fell in November as nominal yields dropped relative to real yields, after lower inflation data, as in the UK.

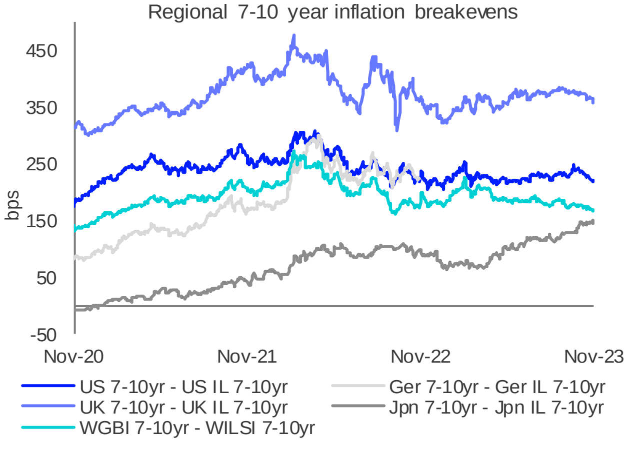
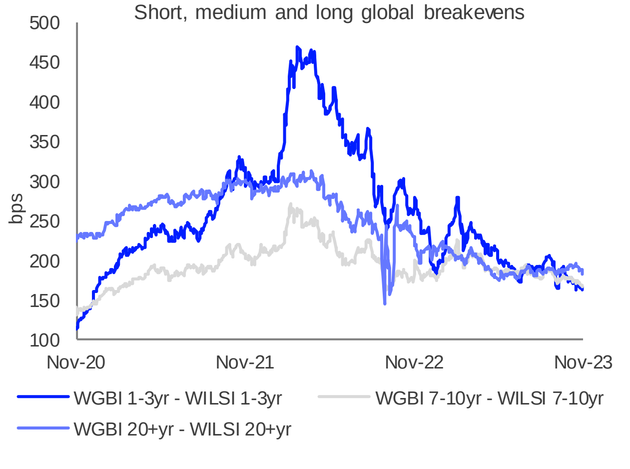


Chart 6: Short dated inflation breakevens fell sharply in November, after lower-than-expected inflation data, showing the normal strong correlation with spot inflation rates. 7-10yr breakevens also fell, to lows for the year.



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Yield Spread and Credit Spread Analysis

Chart 1: US sovereign spreads narrowed in November, and repeated the normal pro-cyclical pattern, rising during periods of rising yields, and falling when yields decline. The biggest moves were versus Bunds and gilts.

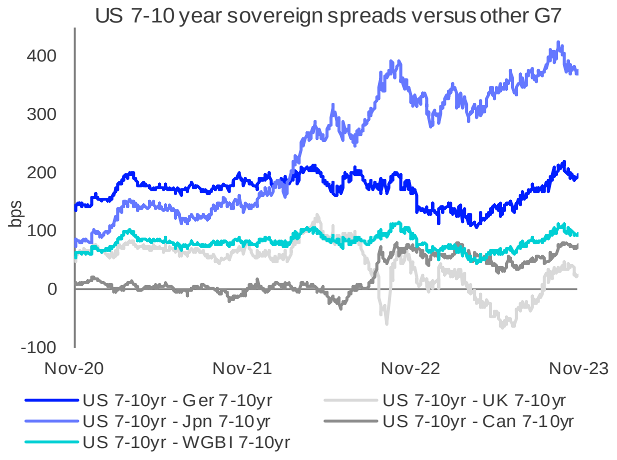

Chart 2: Italian sovereign spreads fell sharply in November, after the sharp decline in Eurozone inflation, though spreads barely moved versus the US, as US Treasury yields fell significantly in the month.

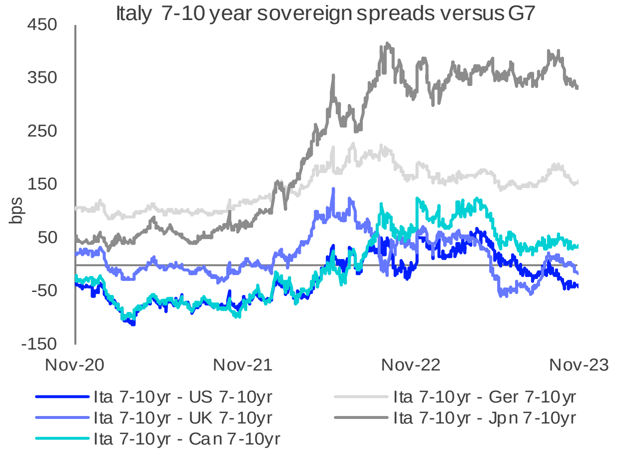

Chart 3: EM sovereign spreads widened a little in the 7-10 year area, mainly because G7 yields fell sharply in the November rally, though this follows general spread tightening since 2021, apart from versus Japan.

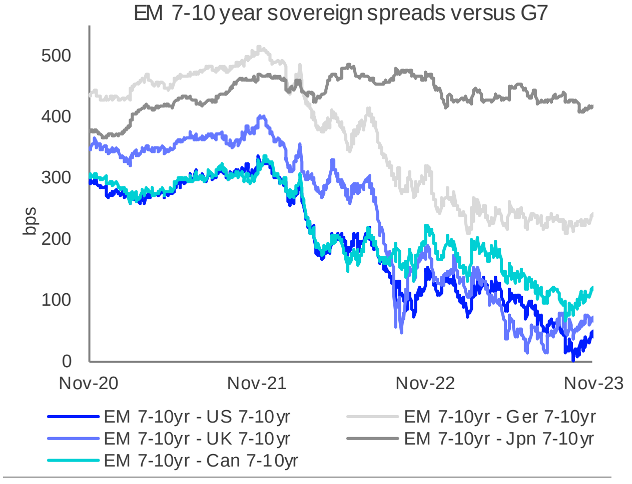

Chart 4: It is a similar story in China on sovereign spreads, which widened versus the G7 in November, following protracted tightening in 2023. Moves were limited versus Bunds, since yields fell less in Germany.

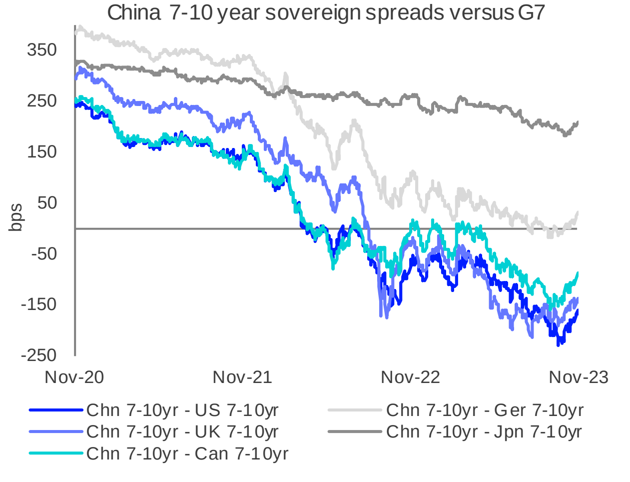

Chart 5: Credit spreads fell in November, despite the sharp drop in govt bond yields in the 7-10 year area. High yield joined the rally, reflecting a recovery in risk appetite, strong stock markets and correlation with HY.

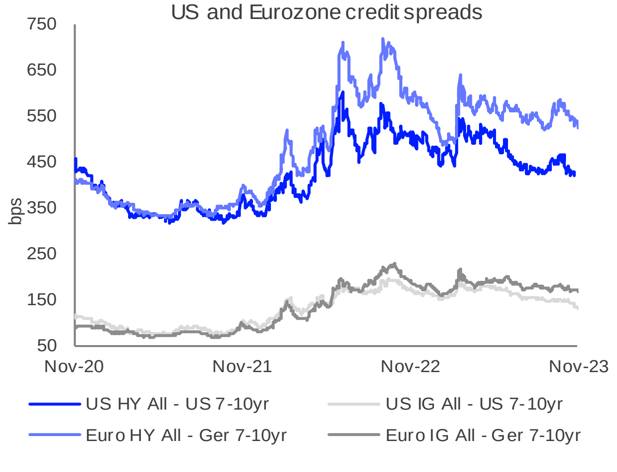

Chart 6: The HY rally extended to Chinese $ HY spreads, which eased to 4800bps in November, as regulators mulled supportive measures for property sector finance from the banking system..

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Credit sectors and RMBS analysis

Chart 1: US real estate spreads tightened in recent months, after widening in 2022 on concerns over office space, and higher rates. This may reflect re-assessment of the sector with yields at post-GFC highs.

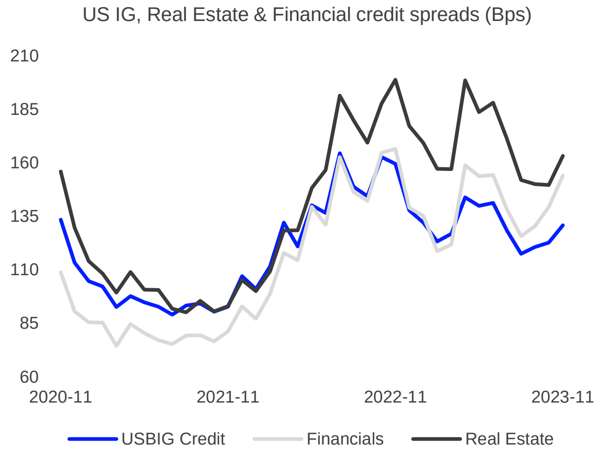


Chart 2: Energy spreads continue to show high volatility but tightened in November, with gas utilities. The level of yields on high quality IG credits proved attractive to investors, back at pre-GFC levels.

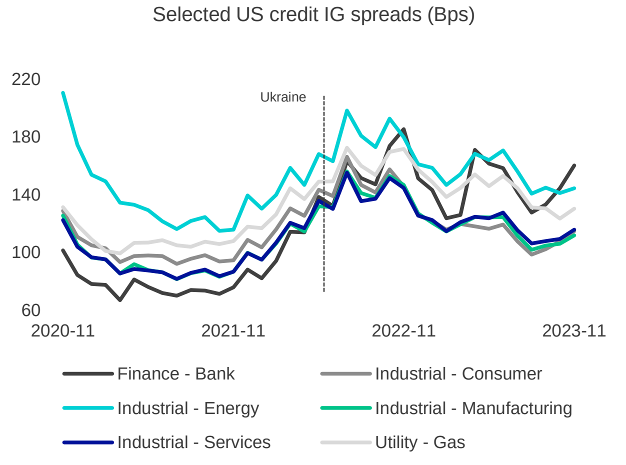


Chart 3: Eurozone credit spreads show some unwinding of the spike in insurance spreads after the Ukraine war shock.in 2022. But IG spreads are still above pre-Ukraine war levels, unlike high yield spreads.

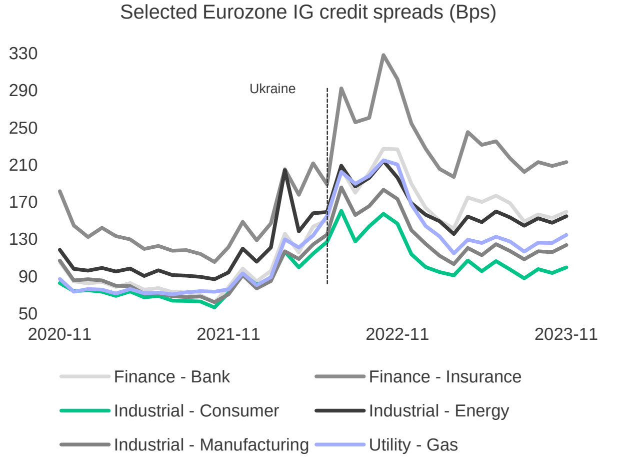


Chart 4: RMBS spreads have widened relative to IG spreads, as the Fed reduced its RMBS holdings by allowing balance sheet run-offs. RMBS's negative convexity has been an issue during the period of rising yields.

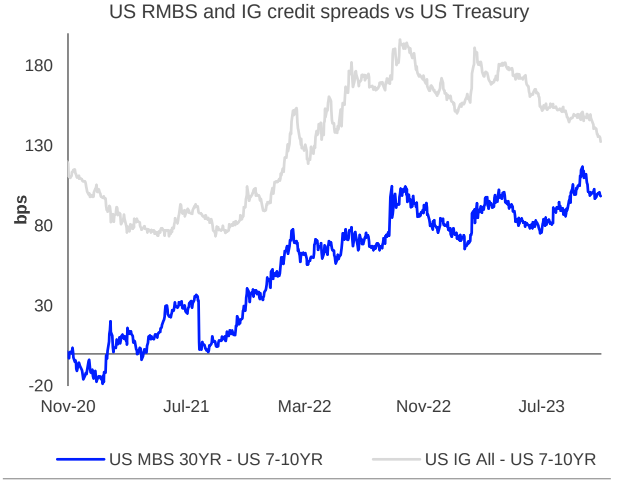


Chart 5: Mortgage refinancings remain depressed by high mortgage rates, as homeowners sit tight with low coupon mortgages from 2020-21. Thus, prepayment rate estimates remain very low for mortgage pools.

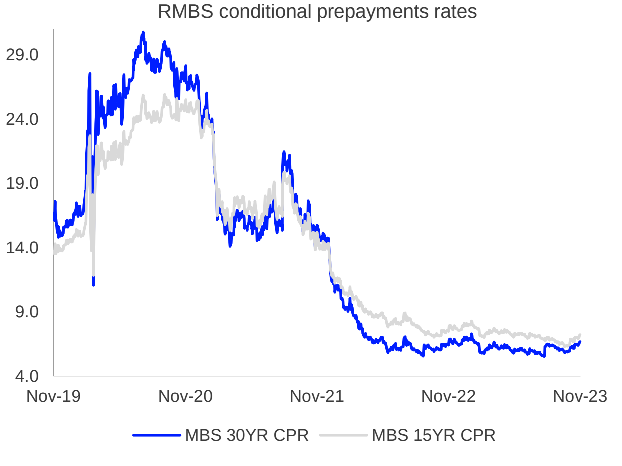
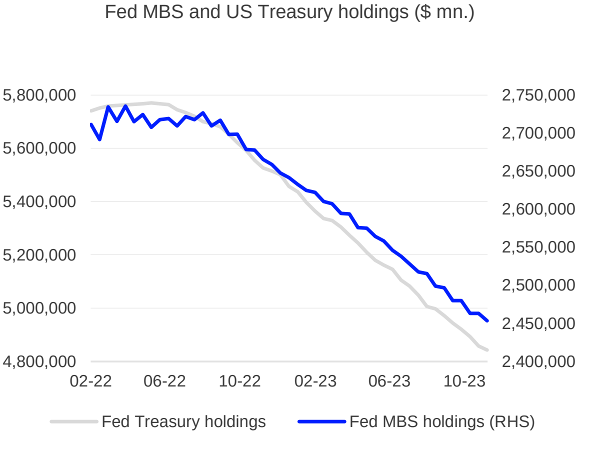


Chart 6: The Fed had projected faster reduction of its US Treasury holdings, relative to MBS holdings when QT began. Lower RMBS prepayments have also slowed the pace of RMBS run-offs.



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Sovereign and Climate Bonds Analysis

Chart 1: Sustainable fixed income investment has evolved into a multiple index methodology asset class. A wide range of benchmarks in ESG, climate and carbon, show different performance characteristics.

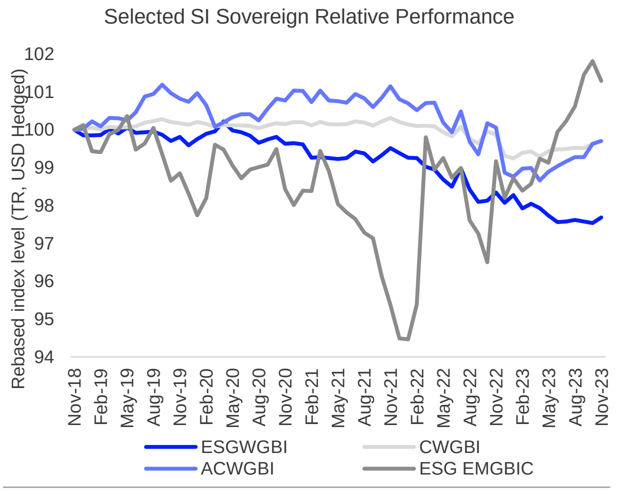


Chart 2: ESG WGBI has a higher US weighting, and big underweight in China, reflected in its underperformance in 2022-23. Adjusted Climate WGBI outperformed WGBI in 2023 after a re-weighting towards Europe.

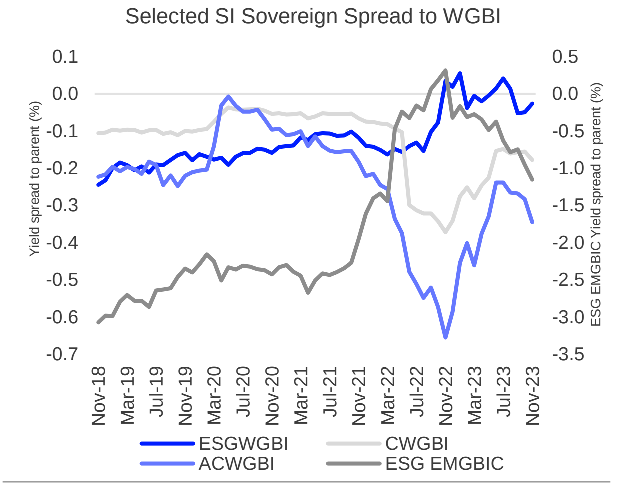


Chart 3: The Paris-aligned benchmark index (PAB Corp), with its heavy tilt away from carbon, outperformed strongly in the early Covid period, but underperformed since as energy recovered.

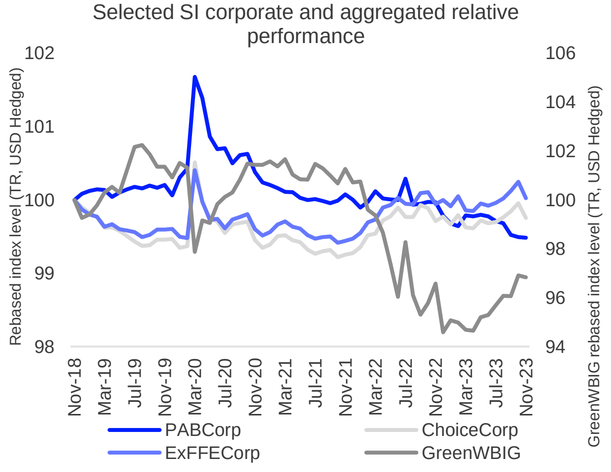


Chart 4: The "greenium" largely disappeared in Green corporates in 2022, after heavy issuance, as yields rose, as the Green WBIG spread move shows vs WBIG. But this has been restored in 2023.

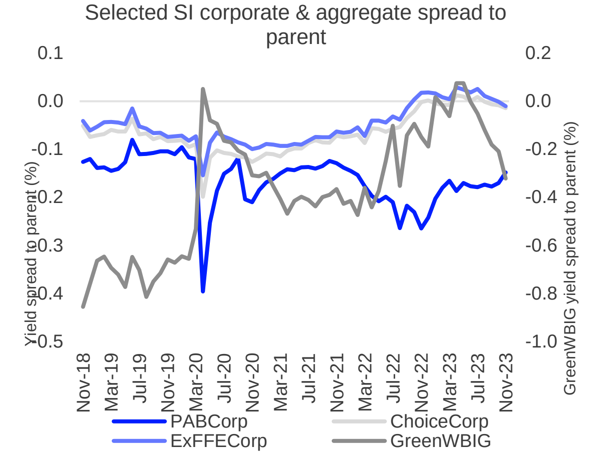


Chart 5: The November rally in govt bonds, and yield declines, favoured climate WGBI over WGBI, due to the extra duration in lower yielding Bunds and JGBs, though the moves were modest.

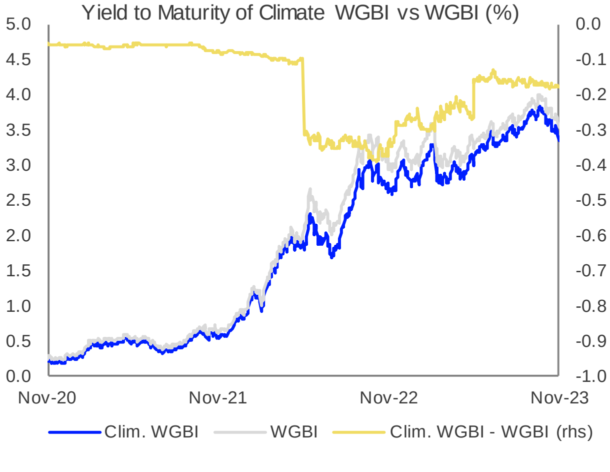
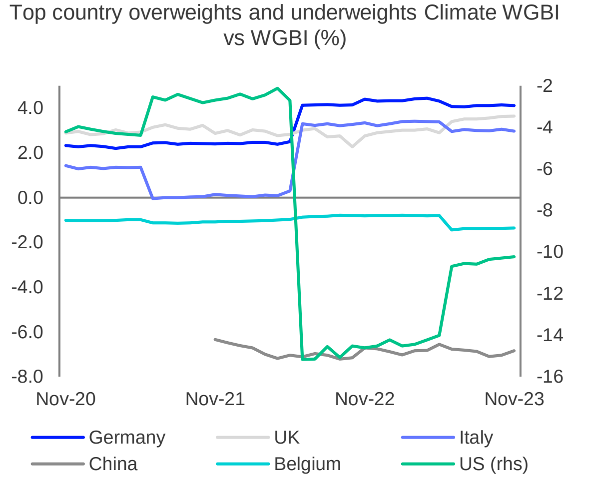


Chart 6: Changes in country weights in Climate WGBI impacted performance accordingly. The underweight in China, overweight in Europe caused the underperformance of Climate WGBI vs WGBI in 2022-23.



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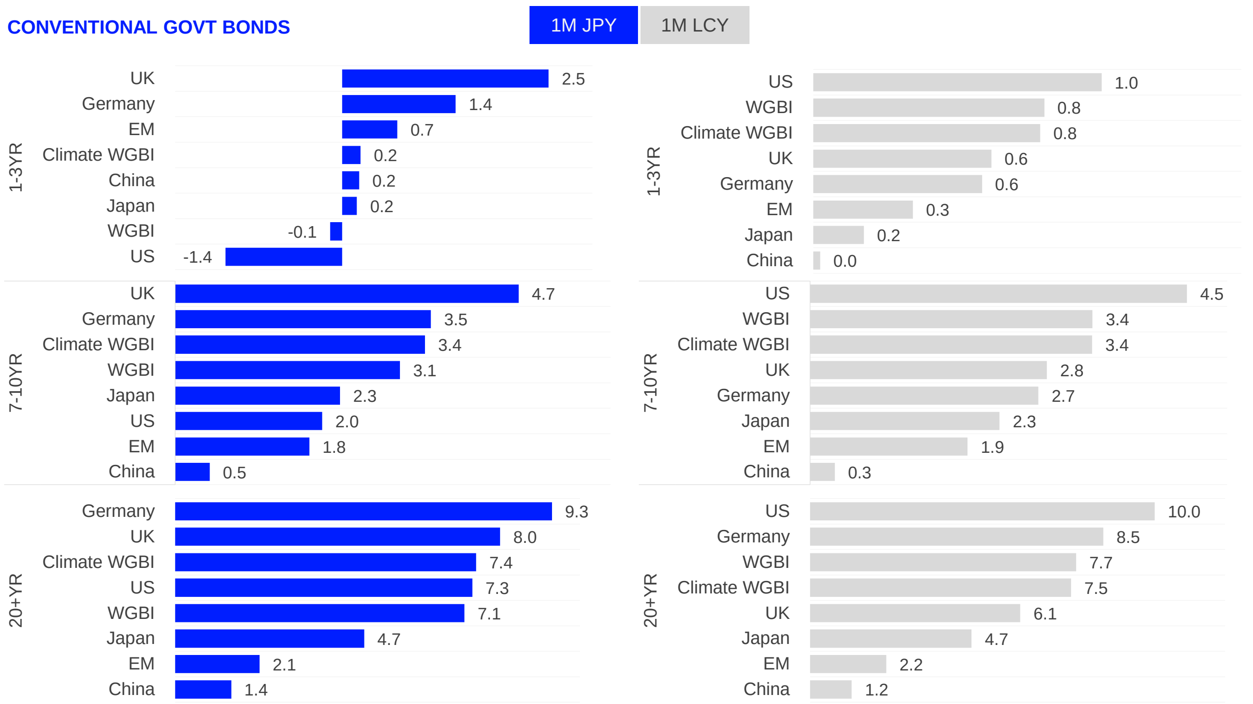
Global Sovereign Bond Returns − 1M and YTD % (JPY & LC, TR)

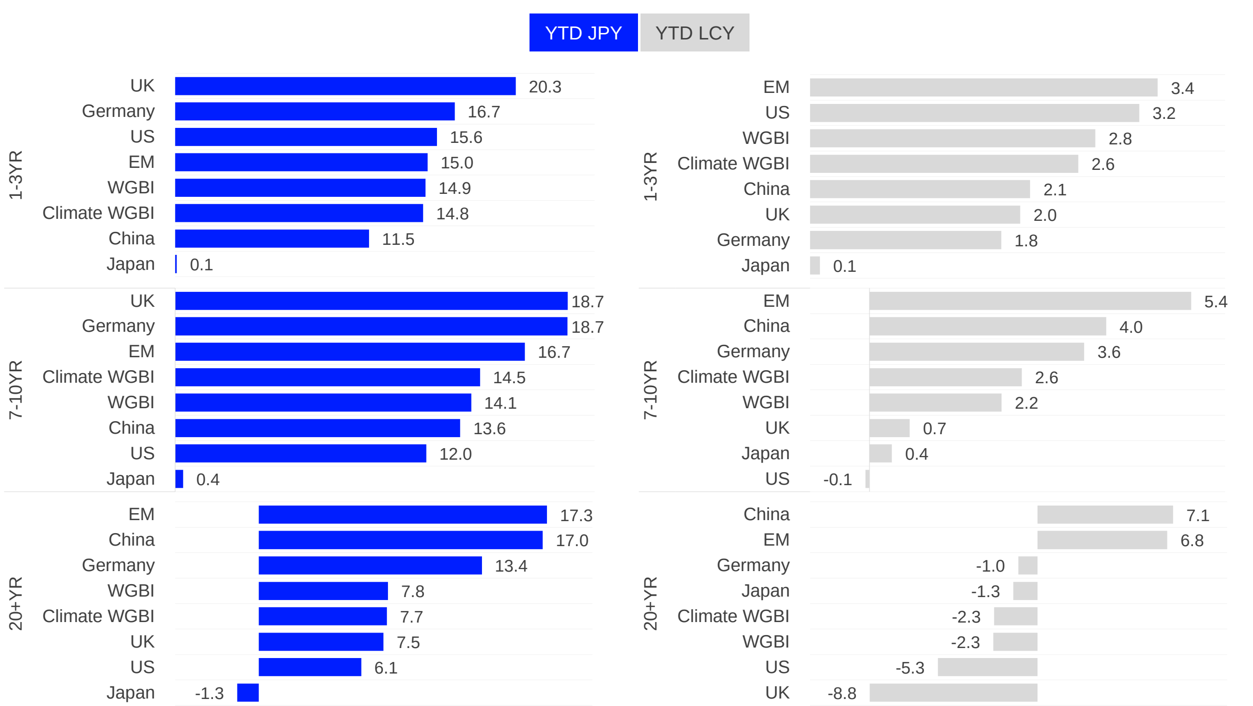
Long dated Bunds, Treasuries and gilts led a strong rally in November, in a complete reversal of the early-October sell-off. Yen weakness boosted returns in long gilts and Bunds for a yen-based investor. Longer China, JGB and EM bonds lagged behind in the rally but showed gains of up to 4.7%. YTD, short gilts and Bunds gained 16-20%, reflecting yen weakness.

The strength of the November rally in longs suggests the October sell-off may have cleared out stale long positions, leaving the market technically ready for a powerful rally. Improved inflation data and signs of weaker US growth helped drive the rally.

YTD, sterling gains helped boost returns in short gilts to 20.3% for a yen investor, though long gilts and Treasuries lost 5.3-8.8% in local currency terms, as policy tightening moves drove longer yields higher. JGB YTD returns are very modest, relative to returns of 6-20% in G7 peers, which are dominated by yen weakness.

CONVENTIONAL GOVT BONDS





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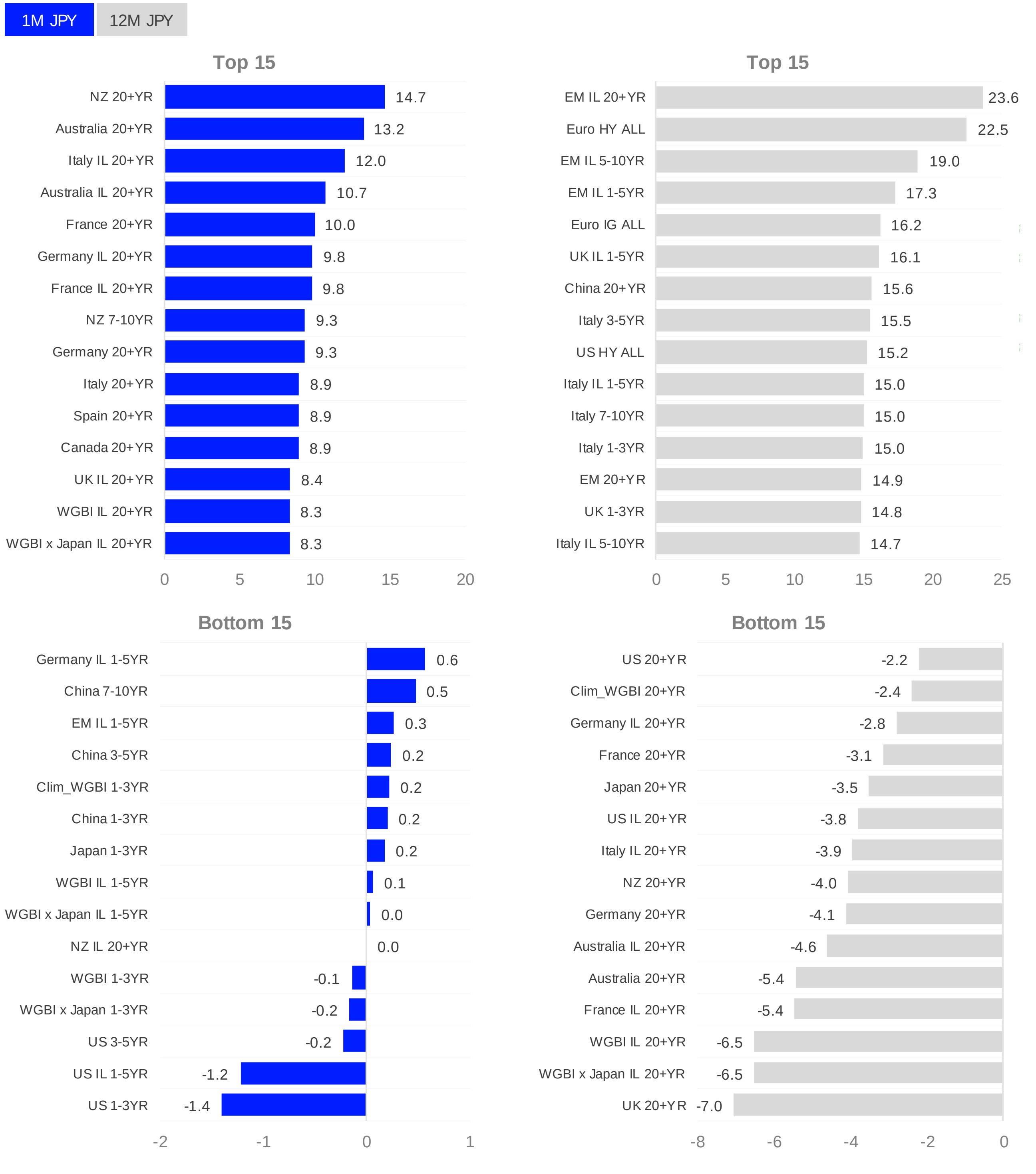
Top and Bottom Bond Returns – 1M & 12M % (JPY, TR)

Spread convergence and currency strength drove gains of 8-15% in long Australasian and Euro government bonds in November, for a yen investor, led by long New Zealand. Long EM linkers remain strongest on 12M, returning over 23%. 12M returns show the impact of duration when yields rise in long duration markets like UK gilts, and UK and Euro index linked.

The scale of the November rally reduced 12M losses significantly in longer maturity bonds, in yen terms, but the Bottom 15 returns are still completely dominated by long duration bonds. Conversely, short bonds pre-dominate in the Bottom 15 returns this month.

Credit features strongly in the Top 15 returns on 12M, led by Euro credits, with returns of 22.5% in Euro HY, and 16.2% in IG.



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

Government Bond Returns

Top 15% | Bottom 15%

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

		3M		6M		YTD		12M	
		Local	YEN	Local	YEN	Local	YEN	Local	YEN
US	1-3YR	1.35	2.92	1.61	7.52	3.17	15.60	3.34	9.48
	7-10YR	-0.68	0.85	-3.26	2.36	-0.06	11.97	-1.51	4.34
	20+YR	-4.27	-2.79	-9.41	-4.14	-5.26	6.15	-7.69	-2.20
	IG All	1.25	2.81	1.23	7.11	4.24	16.80	3.76	9.93
	HY All	2.08	3.66	5.67	11.81	9.62	22.82	8.78	15.25
UK	1-3YR	1.82	3.29	2.37	10.64	2.02	20.30	1.95	14.81
	7-10YR	2.65	4.14	2.19	10.44	0.68	18.72	-2.79	9.48
	20+YR	-0.21	1.24	-0.54	7.49	-8.85	7.48	-17.45	-7.04
EUR	IG All	1.87	3.99	2.65	11.17	5.45	20.79	3.51	16.21
	HY All	3.17	5.25	5.34	14.06	9.84	26.23	9.03	22.48
Japan	1-3YR	0.02	0.02	-0.10	-0.10	0.09	0.09	-0.02	-0.02
	7-10YR	0.02	0.02	-1.25	-1.25	0.38	0.38	-1.18	-1.18
	20+YR	-1.44	-1.44	-8.53	-8.53	-1.28	-1.28	-3.50	-3.50
China	1-3YR	0.07	3.89	0.78	6.24	2.12	11.54	2.34	8.60
	7-10YR	0.09	3.91	1.69	7.20	4.00	13.59	4.57	10.97
	20+YR	-0.83	2.96	3.50	9.11	7.14	17.03	8.94	15.61
EM	1-3YR	0.48	3.57	1.53	7.55	3.35	15.05	3.78	11.74
	7-10YR	0.30	2.78	1.45	7.17	5.43	16.67	6.17	13.17
	20+YR	-0.38	2.52	3.05	9.14	6.84	17.28	8.37	14.87
	IG All	1.28	2.85	1.16	7.04	4.21	16.76	5.42	11.69
	HY All	2.38	3.96	4.25	10.30	3.96	16.48	7.53	13.92
Germany	1-3YR	0.86	2.96	0.97	9.35	1.84	16.66	1.09	13.49
	7-10YR	0.75	2.85	-0.03	8.26	3.62	18.70	-1.10	11.04
	20+YR	-1.68	0.36	-4.22	3.72	-1.02	13.38	-14.57	-4.09
Italy	1-3YR	1.21	3.32	1.72	10.15	3.28	18.30	2.44	15.00
	7-10YR	0.70	2.80	1.85	10.29	8.01	23.72	2.45	15.02
	20+YR	-1.64	0.41	-0.05	8.24	6.75	22.27	-7.12	4.27
Spain	1-3YR	1.01	3.11	1.18	9.57	2.36	17.25	1.41	13.86
	7-10YR	1.06	3.17	0.90	9.26	4.69	19.92	-0.38	11.85
	20+YR	-0.48	1.59	-0.76	7.47	1.79	16.60	-10.23	0.78
France	1-3YR	0.94	3.05	1.02	9.40	2.27	17.14	1.23	13.65
	7-10YR	0.76	2.86	0.23	8.54	3.76	18.85	-1.58	10.49
	20+YR	-1.18	0.88	-2.69	5.38	-0.28	14.23	-13.71	-3.13
Sweden	1-3YR	1.07	7.25	1.05	11.05	1.90	13.53	1.32	9.24
	7-10YR	1.75	7.97	-1.09	8.71	0.31	11.75	-3.46	4.08
	20+YR				0.00	0.00	0.00	0.00	0.00
Australia	1-3YR	0.50	4.48	0.75	9.22	1.87	11.59	1.50	6.47
	7-10YR	-1.73	2.16	-3.78	4.31	1.15	10.81	-2.57	2.19
	20+YR	-4.30	-0.51	-8.34	-0.63	-2.50	6.81	-9.83	-5.42
NZ	1-3YR	1.71	7.13	1.51	10.69	3.56	13.31	3.40	8.94
	7-10YR	1.26	6.65	-2.19	6.65	1.04	10.56	-1.34	3.95
Canada	1-3YR	1.84	3.19	1.69	7.87	2.70	14.99	2.55	8.63
	7-10YR	1.20	2.55	-0.98	5.04	1.06	13.16	-1.30	4.55
	20+YR	0.93	2.27	-3.20	2.69	0.48	12.51	-4.44	1.23

Source: FTSE Russell and Refinitiv. All data as of November 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 Indexes. See Appendix Glossary for list of indexes used for each market. For professional investors only.

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

Global Bond Yields

Top 15% | Bottom 15%

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

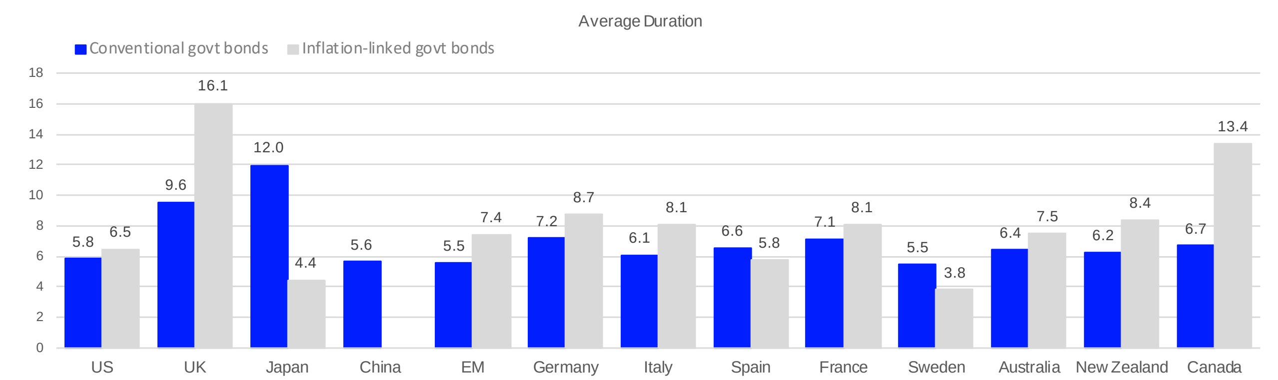
		Conventional government bonds				Inflation-linked bonds			Inv Grade	High Yld
		1-3YR	3-5YR	7-10YR	20+YR	1-5YR	5-10YR	20+YR	All Mat	All Mat
US	Current	4.82	4.39	4.35	4.63	2.57	2.14	2.27	5.64	8.47
	3M Ago	4.99	4.39	4.12	4.32	2.50	1.94	2.01	5.65	8.41
	6M Ago	4.61	3.92	3.65	3.94	2.08	1.52	1.68	5.43	8.84
	12M Ago	4.47	3.97	3.64	3.95	1.76	1.40	1.59	5.38	8.80
UK	Current	4.52	4.16	4.11	4.61	0.62	0.53	1.30		
	3M Ago	4.91	4.63	4.31	4.53	1.11	0.67	1.12		
	6M Ago	4.55	4.33	4.10	4.45	1.18	0.54	1.06		
	12M Ago	3.36	3.22	3.11	3.37	-1.47	-0.50	0.18		
Japan	Current	0.00	0.17	0.57	1.63	-2.08	-0.94			
	3M Ago	-0.02	0.14	0.53	1.55	-1.82	-0.76			
	6M Ago	-0.08	0.01	0.33	1.22	-1.51	-0.77			
	12M Ago	-0.04	0.06	0.27	1.34	-1.30	-0.66			
China	Current	2.37	2.47	2.66	3.02					
	3M Ago	2.06	2.28	2.59	2.93					
	6M Ago	2.13	2.36	2.70	3.14					
	12M Ago	2.26	2.59	2.88	3.32					
EM	Current	3.66	4.22	4.76	4.46	4.42	4.45	5.10	6.08	10.41
	3M Ago	3.50	4.22	4.80	4.34	2.84	4.28	5.01	6.14	11.41
	6M Ago	3.74	4.16	4.62	4.44	4.34	4.24	5.00	5.78	12.12
	12M Ago	3.72	4.38	4.93	4.60	2.92	3.14	5.28	6.08	12.18
Germany	Current	2.86	2.41	2.37	2.67	1.16	0.34	0.28		
	3M Ago	3.03	2.53	2.38	2.55	0.64	0.13	0.11		
	6M Ago	2.71	2.30	2.20	2.40	0.37	-0.04	-0.13		
	12M Ago	2.04	2.44	2.44	2.39	0.31	0.23	0.02		
Italy	Current	3.39	3.40	3.93	4.59	1.60	1.97	2.15		
	3M Ago	3.56	3.53	3.87	4.41	1.37	1.72	1.86		
	6M Ago	3.35	3.42	3.89	4.43	1.11	1.62	1.80		
	12M Ago	2.73	3.48	4.07	4.43	1.14	1.98	2.00		
France	Current	3.01	2.73	2.87	3.46	0.84	0.63	0.95		
	3M Ago	3.09	2.85	2.87	3.36	0.48	0.37	0.71		
	6M Ago	2.83	2.63	2.68	3.24	0.22	0.20	0.53		
	12M Ago	2.25	2.53	2.55	2.89	0.28	0.24	0.44		
Sweden	Current	3.27	2.70	2.61		1.30	1.12			
	3M Ago	3.43	3.00	2.75		1.33	1.14			
	6M Ago	2.97	2.62	2.31		0.74	0.55			
	12M Ago	2.52	2.18	1.89		-0.30	-0.06			
Australia	Current	4.15	4.04	4.36	4.73	1.28	1.81	2.19		
	3M Ago	3.85	3.75	3.99	4.42	0.97	1.43	1.84		
	6M Ago	3.51	3.38	3.58	4.12	0.42	1.03	1.59		
	12M Ago	3.12	3.10	3.41	3.90	0.26	0.87	1.30		
NZ	Current	5.07	4.78	4.89	5.09	1.91	2.59			
	3M Ago	5.30	4.96	4.89	5.07	2.15	2.58			
	6M Ago	5.08	4.35	4.28	4.46	1.23	1.85			
	12M Ago	4.67	4.12	4.05	4.35	1.24	1.76			
Canada	Current	4.08		3.58	3.43			1.76	5.29	7.73
	3M Ago	4.50		3.65	3.44			1.88	5.55	7.70
	6M Ago	4.04		3.22	3.18			1.44	5.24	7.61
	12M Ago	3.70		2.96	3.02			1.20	5.07	7.37

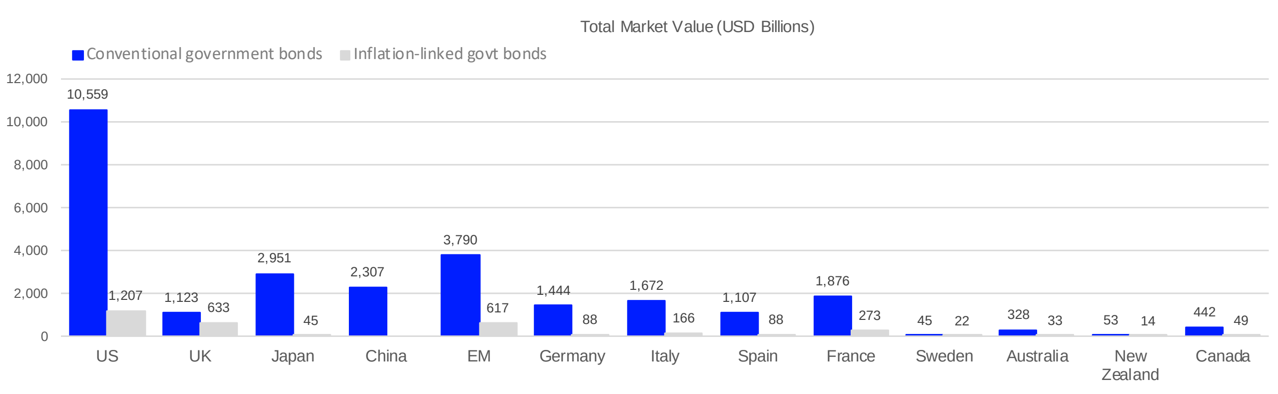
Source: FTSE Russell and Refinitiv. All data as of November 30, 2023. Past performance is no guarantee of future results. Please see the end for important legal disclosures. Bond market data is derived from FTSE Fixed Income Indexes. See Appendix Glossary for list of indexes used for each market. For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

Appendix – Duration and Market Value (USD, Bn) as of November 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	7.3	16.7	**5.8**	2,428.2	1,102.6	1,219.7	**10,559.2**	7.0	21.1	**6.5**	396.0	118.4	**1,207.2**
UK	3.6	7.5	18.2	**9.6**	128.7	179.5	309.5	**1,122.5**	6.8	27.1	**16.1**	101.8	238.1	**632.8**
Japan	3.9	8.0	23.7	**12.0**	354.7	348.3	632.9	**2,951.4**	7.1		**4.4**	18.4		**44.8**
China	3.7	7.5	17.6	**5.6**	548.0	387.3	260.5	**2,307.4**						
EM	3.6	6.9	15.8	**5.5**	836.6	695.8	361.2	**3,790.4**	5.8	13.6	**7.4**	112.3	169.9	**616.9**
Germany	3.8	7.5	20.5	**7.2**	317.4	235.3	163.8	**1,443.7**	7.0	21.5	**8.7**	44.2	18.6	**88.5**
Italy	3.6	7.1	16.1	**6.1**	312.9	273.5	139.2	**1,672.4**	7.6	26.1	**8.1**	61.1	5.2	**165.7**
Spain	3.6	7.4	17.6	**6.6**	210.4	189.8	96.9	**1,106.6**	6.6		**5.8**	23.2		**88.2**
France	3.6	7.5	19.7	**7.1**	297.5	327.4	214.9	**1,876.4**	6.4	24.2	**8.1**	106.3	20.2	**272.8**
Sweden	3.5	7.4		**5.5**	14.2	9.1		**45.3**	5.5		**3.8**	10.0		**21.6**
Australia	3.6	7.5	16.7	**6.4**	36.9	86.3	19.8	**327.5**	6.9	22.1	**7.5**	9.8	2.5	**33.3**
New Zealand	3.7	7.5	16.8	**6.2**	10.4	14.5	2.5	**52.5**	6.0		**8.4**	3.1		**13.8**
Canada	3.8	7.3	19.5	**6.7**	58.7	111.1	63.2	**442.0**	6.7	20.6	**13.4**	8.2	19.8	**48.7**

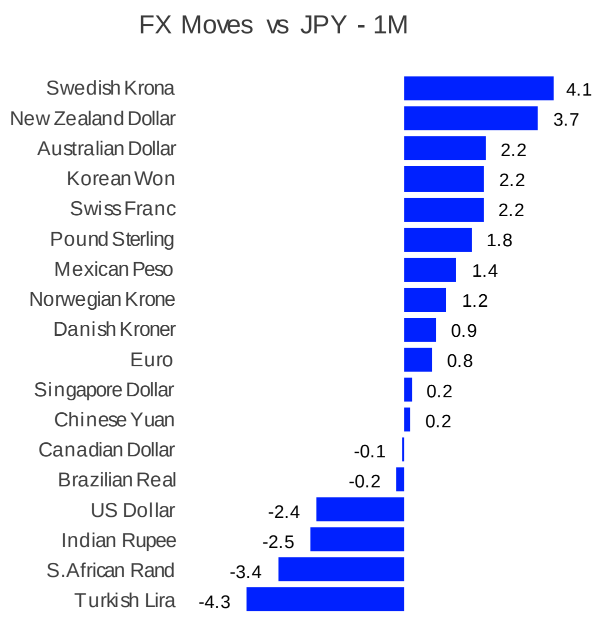
	Investment grade bonds										High Yield	
	Duration					Market Value					Duration	MktVal
	AAA	AA	A	BBB	Overall	AAA	AA	A	BBB	Overall		
US	10.4	8.3	7.1	6.5	6.9	71.5	445.0	2587.7	3328.5	6432.7	3.9	1029.3
Europe	5.7	4.8	4.6	4.2	4.4	10.8	195.0	1216.0	1472.0	2893.8		
EM		5.8	4.7	5.0	4.9		37.1	220.7	309.7	567.5	3.3	182.7

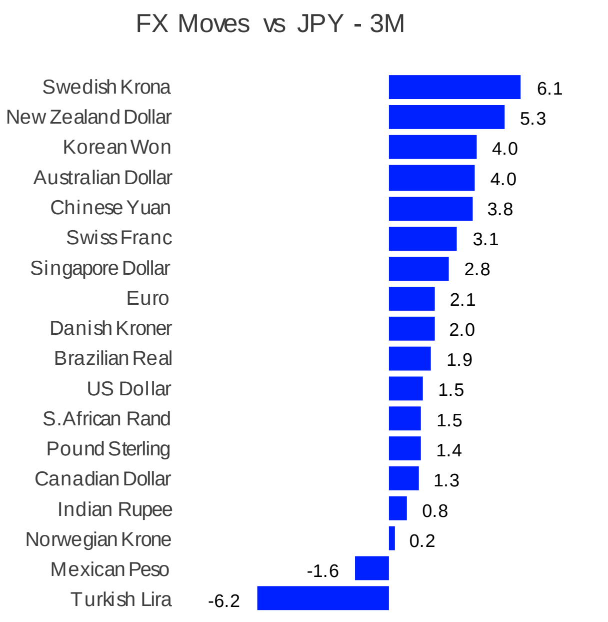


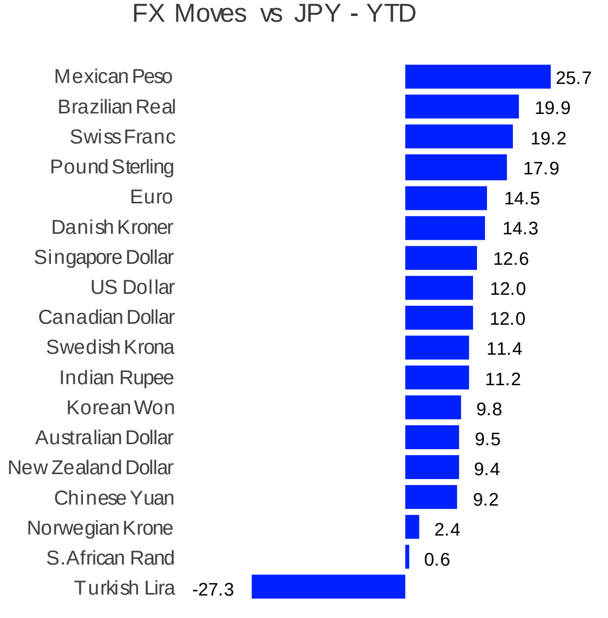


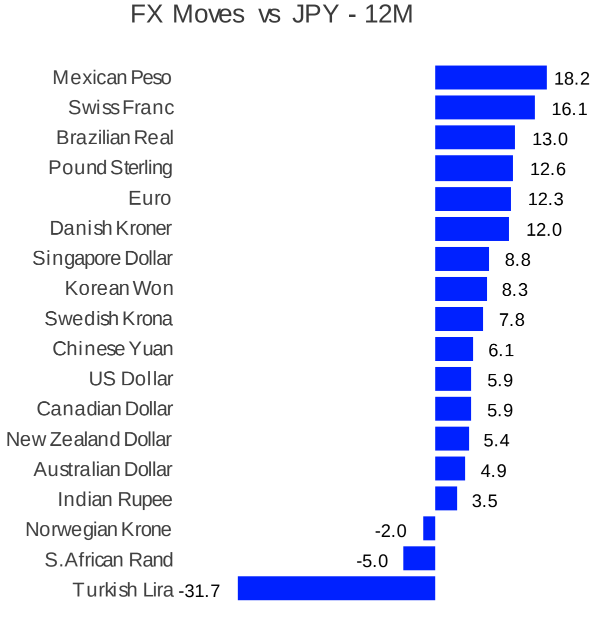
Source: FTSE Russell and Refinitiv. All data as of November 30, 2023. Past performance is no guarantee of future results. Please see the end for important legal disclosures. Bond market data is derived from FTSE Fixed Income Indexes. See Appendix Glossary for list of indexes used for each market. For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

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









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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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