Performance Insights

MONTHLY REPORT - DECEMBER 2023 | USD EDITION

FOR PROFESSIONAL INVESTORS ONLY

Markets recover amid easing inflation and falling long yields

Stocks and bonds recovered globally in November in a return of risk-on sentiment. Market expectations shifted toward major central banks holding or cutting policy rates in 2024. Inflation eased and long yields fell in major developed markets, buoying long-duration assets. The US dollar retreated, while crude oil extended losses.

Global asset classes - Widespread cross-asset recovery

The November recovery was broad-based across asset classes and regions. Declining inflation and falling long yields buoyed longduration assets. The USD retreated and oil extended its October loss. (page 3)

Global equities – Europe tops returns

Developed Europe and Asia Pacific led the global rally, with US large-caps just edging out the FTSE All-World index. The UK and Emerging index posted the smallest gains. YTD, US equities retained leadership. (page 4)

Industry returns - Technology, real estate and industrials shone; energy lagged most

Technology, real estate and industrials led the November rebound, while energy and staples lagged or fell. (page 5)

Alternative indices – REITs rebounded strongly in UK and Europe

Rate-sensitive REITs strongly outperformed in the UK and Europe; less so in the US and EM. Most Core Infrastructure and FTSE4Good indices underperformed their benchmarks, while most Environmental Opportunities indices extended their outperformance for the year. (page 8)

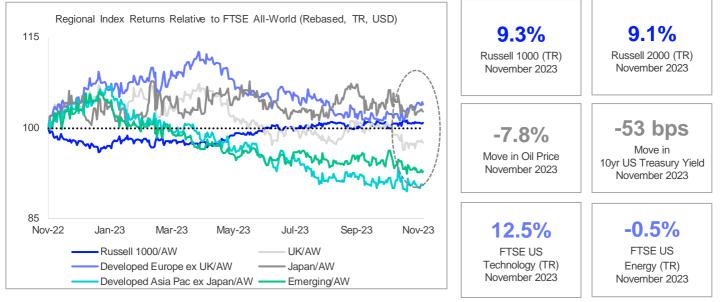
Factor performance – Size made a comeback

(Small) Size and Momentum outperformed in most markets, while Value, Low Vol and Dividend Yield lagged their benchmarks. (page 9)

Foreign exchange – US dollar retreated

The US dollar weakened broadly as investors rebalanced toward risk assets. The USD's losses were steepest versus most commodity-sensitive currencies. (page 10)

Appendix - Asset Class Risk/Returns (1-Year and 5-Year Annualised), Correlation, Regional Performance and Country Exposures.



Source: FTSE Russell and LSEG. Data as of November 30, 2023. Past performance is no guarantee of future results. Please see the end for important legal disclosures.

Highlights

Equities rebounded globally in a reversal from October, with the return of risk-on sentiment. In an easing of the higher-for-longer outlook, market expectations shifted toward major central banks holding or cutting policy rates in 2024, as inflation eased in most major economies.

Global bond markets also broadly recovered, pushing longdated yields lower across major developed markets and buoying long-duration assets. Long-dated inflation-linked bonds made a strong comeback. Investment grade bonds outpaced high yield credit, except in the Eurozone.

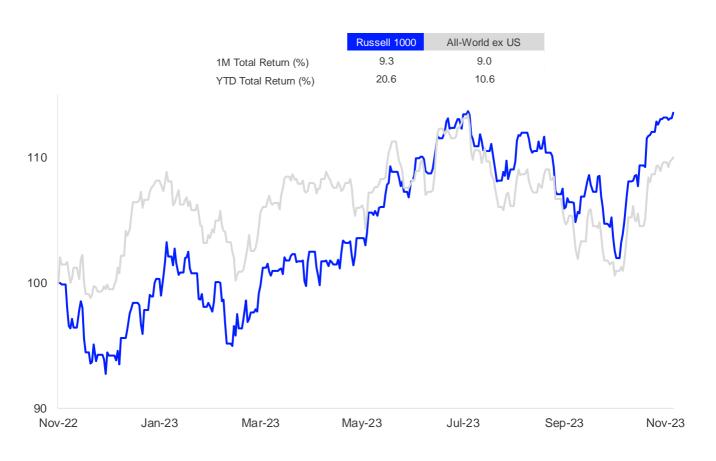
The US dollar weakened versus most currencies, ending the rally that began in mid-July. November's losses were steepest versus most commodity-sensitive currencies.

Oil extended its October loss, even as copper and the FTSE Commodity index rose in November. Gold continued to rally but to a much lesser extent than in October.

Main Market-Moving Events

- Fed keeps rates on hold at 5.25-5.50%, highest level in 22 years.
- US Q3 GDP revised up to 5.2% from first estimate of 4.9%.
- November FOMC meeting notes suggest policymakers agree to "proceed carefully" with rates and no cuts any time soon, while also expecting Q4 GDP to cool "markedly" vs 5.2% gain in Q3.
- US jobless rate rises to 3.9% (Oct) vs 3.8% (Sept); avg hourly wage growth eases to 4.1% YoY vs 4.3%.
- BoE policy rates unchanged for second consecutive month.
- US CPI falls to 3.2% YoY (Oct) vs 3.7% (Sept), exceeding expectations; core dips to 4.0% vs 4.1%; PCE declines to 3% vs 3.4%.
- US President Biden signs two-part stopgap spending bill, averting looming gov't shutdown and pushing funding debate into 2024.
- In Gaza, a days-long pause in fighting briefly stems fear of broader contagion, even as the conflict continues.
- US home sales drop 5.6% MoM (Nov).
- UK CPI falls sharply to 4.6% (Oct) vs 6.7% (Sept), a two-year low; core slips to 5.7% vs 6.1%.
- Eurozone CPI falls to 2.9% YoY (Oct) vs 4.3% (Sept); core drops to 4.2% vs 4.5%. EZ economy contracts 0.1% in Q3 vs growth of 0.2% in Q2. ECB President Lagarde and other policymakers signal no rate cuts likely any time soon.
- November flash PMI composite output holds at 50.7 MoM in the US, improves to 50.1 vs 48.7 in the UK, rises to 47.1 vs 46.5 in the Eurozone and slips to 50.0 vs 50.5 in Japan.

Russell 1000 vs All-World ex US Indexes (USD, TR, Rebased)



Source: FTSE Russell. Data as of November 30, 2023. Past performance is no guarantee of future results. Please see the end for important legal disclosures.

Asset Class Returns - 1M & YTD (USD, TR %)

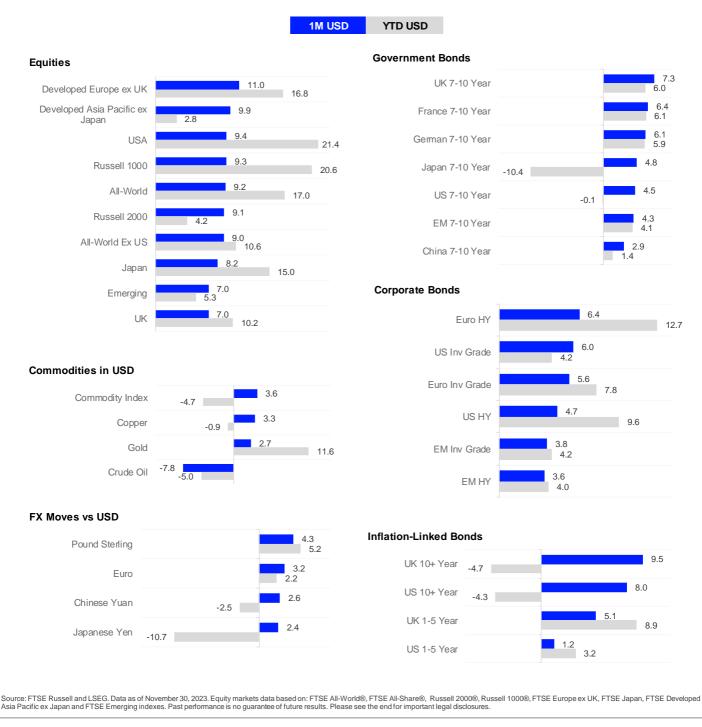
Key Observations – November 2023

Equities recovered globally in November with the return of risk-on sentiment. Developed Europe, Asia Pacific and the US led the global rally, while the UK posted the smallest gains. The Russell 1000 slightly outperformed its small-cap counterpart. The FTSE Emerging index performance was fueled by robust gains in Brazil, Taiwan and India, while China lagged most of its peers. YTD, US equities retained leadership (page 4).

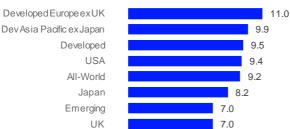
Government 7-10yr bonds also broadly rallied, led by the UK and the Eurozone, while Chinese and EM equivalents saw the smallest gains. Investment grade corporate bonds outperformed high yield credit, except in the Eurozone. In a major U-turn, long-dated (10yr+) inflation-linked bonds in the US and UK strongly outperformed their short-dated counterparts as real yields fell.

The US dollar lost ground to most major currencies, particularly against the commodity-sensitive New Zealand and Australian dollars but gained modestly vs the South African rand and Indian rupee. The sterling and euro extended their YTD gains versus the USD (page 10).

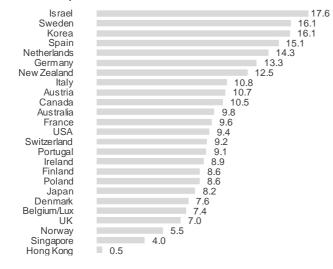
Oil extended its October loss, even as copper and the FTSE Commodity index rose in November. Gold continued to rally but to a much lesser extent than in October. YTD, gold remained a strong performer.



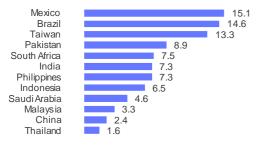




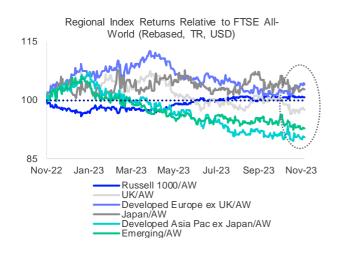
FTSE Developed 1M USD



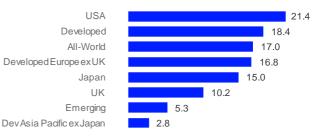
FTSE Emerging 1M USD



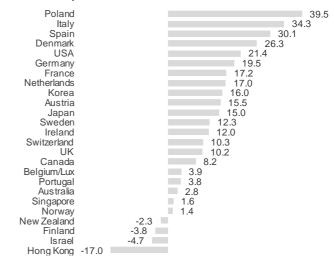
Europe, Asia Pac & the US outpaced the global index and peers in November; the UK lagged most. Europe regained the 12M lead.



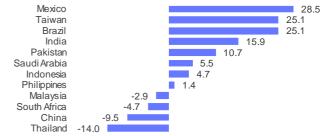
FTSE Regions YTD USD

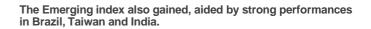


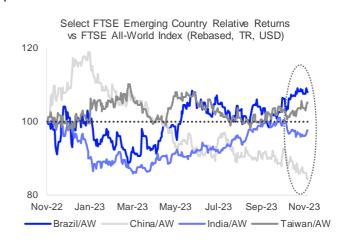
FTSE Developed YTD USD



FTSE Emerging YTD USD



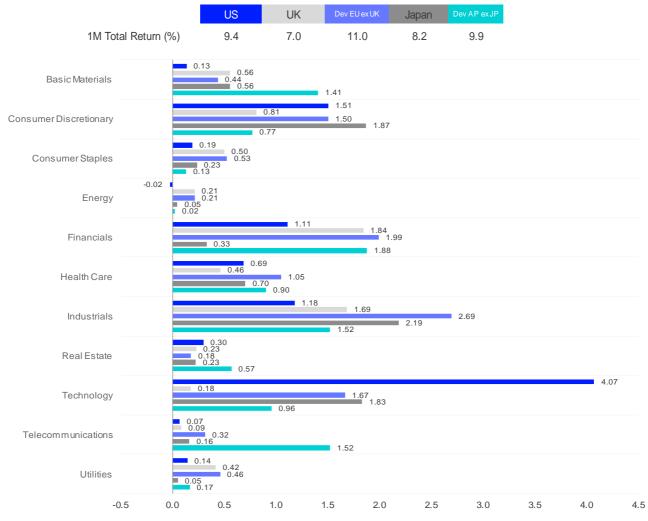




Source: FTSE Russell and LSEG. Data as of November 30, 2023. Equity markets data based on: FTSE All-World®, FTSE All-Share®, Russell 2000®, Russell 1000®, FTSE Europe ex UK, FTSE Japan, FTSE Developed Asia Pacific ex Japan and FTSE Emerging indexes. Past performance is no guarantee of future results. Please see the end for important legal disclosures.

Key Observations – November 2023

- Industry contributions were broadly positive in a reversal from October, led by technology, industrials, discretionary and financials in most markets. Although rate-sensitive real estate posted strong returns, its smaller benchmark weights muted its contribution.
- In the US, technology led, contributing nearly half the benchmark's return, followed by discretionary, industrials and financials. .
- In the UK, financials and industrials were the biggest contributors. In Europe, industrials led contributions, followed by financials, technology and discretionary.
- In Japan, industrials, technology and discretionary were the top three contributors. In Asia Pacific, all industries contributed, led by financials.



Technology, real estate and industrials led the November rebound in most markets; energy and staples lagged or fell.

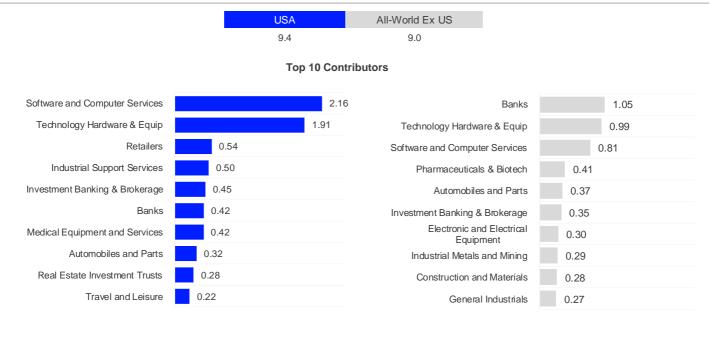
	1M Regional Industry Returns (TR, USD)											
	US	UK	Dev EU ex UK	Japan	Dev AP ex JP							
Basic Materials	7.6	6.9	9.5	10.9	11.5							
Consumer Disc.	10.7	7.3	11.4	8.1	8.8							
Consumer Staples	3.7	3.0	5.9	3.5	3.6							
Energy	- 0.5	1.5	4.6	5.6	0.7							
Financials	11.0	10.7	11.2	2.7	6.7							
Health Care	5.4	3.6	6.3	9.0	15.6							
Industrials	10.1	13.2	16.0	9.0	14.0							
Real Estate	12.6	19.3	18.4	6.1	8.3							
Technology	12.5	21.6	18.3	17.5	18.2							
Telecoms	2.9	6.5	10.2	3.9	12.7							
Utilities	5.3	10.3	11.1	3.5	5.7							

Tech dominates in the US; financials are largest in the UK, Europe and Asia Pacific and industrials is tops in Japan.

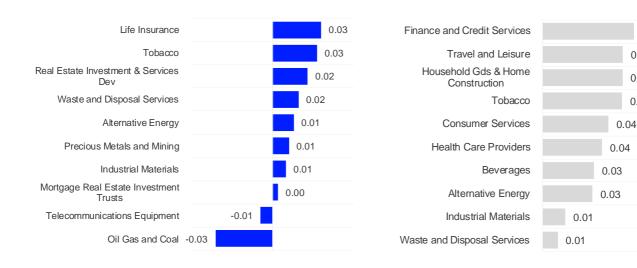
		Industry Expo	try Exposures (%)					
	US	UK	Dev EU ex UK	Japan	Dev AP ex JP			
Basic Materials	1.8	8.1	4.6	5.2	12.4			
Consumer Disc.	14.2	11.2	13.2	23.1	8.7			
Consumer Staples	5.0	16.0	8.5	6.3	3.5			
Energy	4.1	13.0	4.3	0.8	3.4			
Financials	10.2	17.8	17.8	11.7	27.1			
Health Care	12.2	12.6	16.0	7.9	6.1			
Industrials	11.7	13.6	17.6	24.5	11.3			
Real Estate	2.4	1.3	1.0	3.6	6.7			
Technology	33.5	0.9	9.7	11.4	5.7			
Telecoms	2.3	1.3	3.1	4.0	12.3			
Utilities	2.6	4.2	4.1	1.4	2.8			

Source: FTSE Russell. All data as of November 30, 2023. Equity markets data based on: FTSE USA, FTSE UK, FTSE Europe ex UK, FTSE Japan and FTSE Developed Asia Pacific ex Japan Indexes and Industry Classification Benchmark (ICB®) industry groups. Past performance is no guarantee of future results. Please see the end for important legal disclosures.

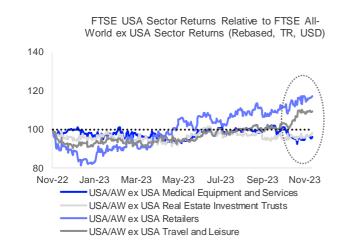
FTSE USA vs AW ex US: Sector-Weighted Return Contributions – 1M (USD, TR %)







The US outperformed the non-US index, led by retail, travel, medical equipment and real estate stocks.



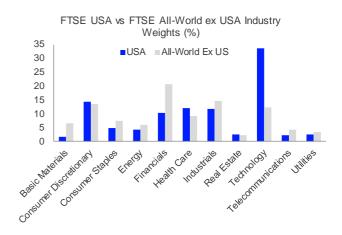
The US is tilted more to tech and health care than peers, and less to financials, materials, staples and energy.

0.06

0.05

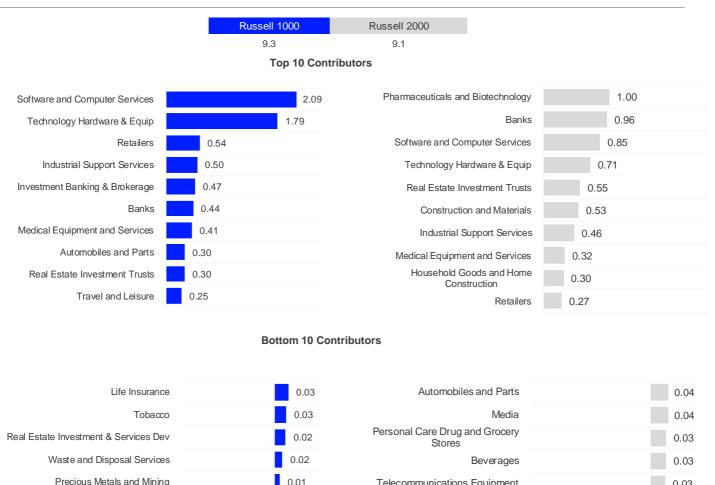
0.05

0.05



Source: FTSE Russell and LSEG. Equity markets data based on: FTSE USA, FTSE UK, FTSE Europe ex UK, FTSE Japan and FTSE Developed Asia Pacific ex Japan Indexes and Industry Classification Benchmark (ICB®) industry groups. All data as of November 30, 2023. Past performance is no guarantee of future results. Please see the end for important legal disclosures.

Russell 1000 vs 2000: Sector-Weighted Return Contributions – 1M (USD, TR %)



0.01

0.01

0.01

0.00

-0.05

Russell 1000 marginally outperformed Russell 2000, helped by a bias for larger players within software, autos and industrials.

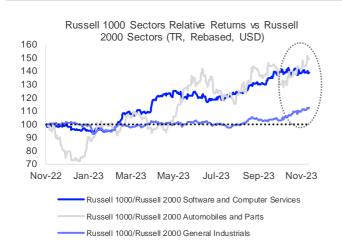
Industrial Materials

Alternative Energy

Oil Gas and Coal

Mortgage Real Estate Investment Trusts

Telecommunications Equipment



Russell 1000 is more tilted to tech, staples & discretionary than Russell 2000, less so to industrials, financials & energy.

-0.18

Tobacco

Telecommunications Equipment

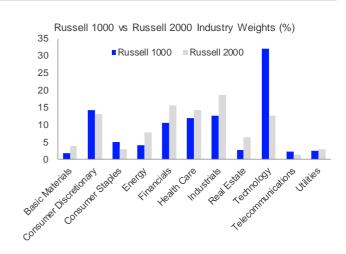
Telecommunications Service

Providers

Waste and Disposal Services

Alternative Energy

Oil Gas and Coal



Source: FTSE Russell and LSEG. Based on FTSE Russell Industry Classification Benchmark (ICB®) industry and sector groups. All data as of November 30, 2023. Past performance is no guarantee of future results Please see the end for important legal disclosures

0.03

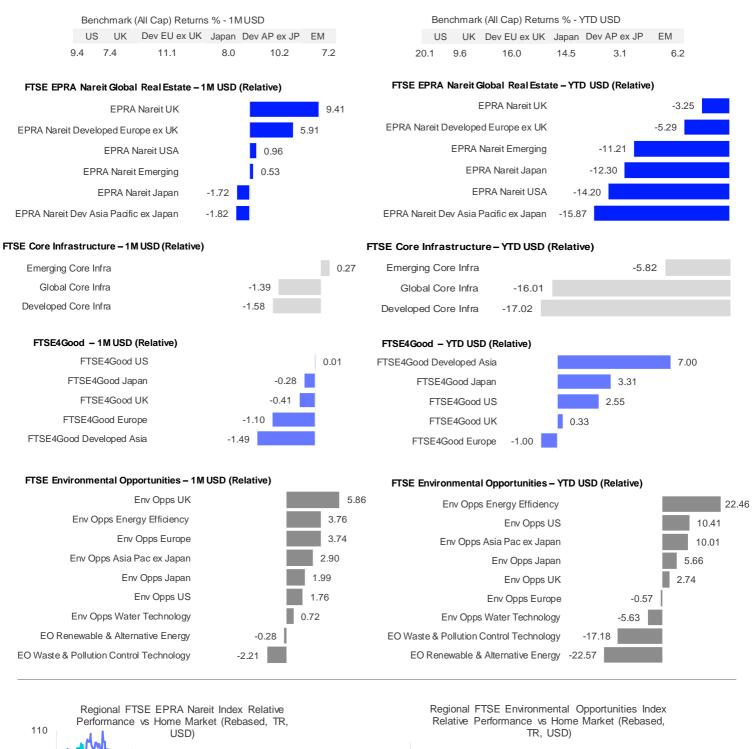
0.02

0.02

0.01

0.01

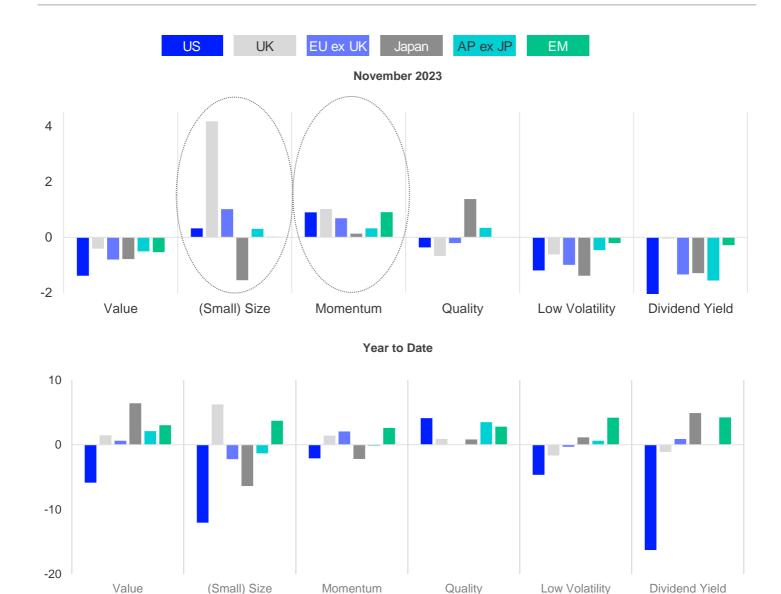
Alternative Indices – REITs, FTSE4Good, Environmental Opportunities, Infrastructure (USD)



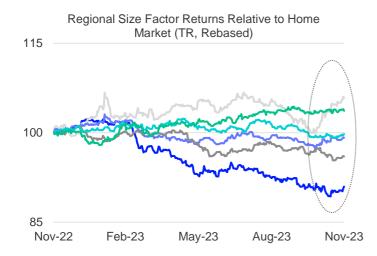




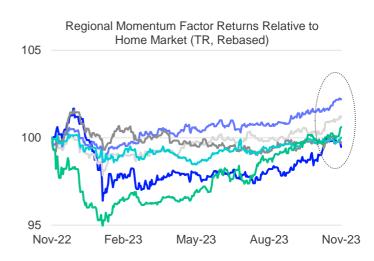
Source: FTSE Russell. All data as of November 30, 2023. Index data based on: FTSE USA, FTSE UK, FTSE Europe ex UK, FTSE Japan and FTSE Developed Asia Pacific ex Japan Indexes and Industry Classification Benchmark (ICB®) industry groups. Past performance is no guarantee of future results. Please see the end for important legal disclosures.



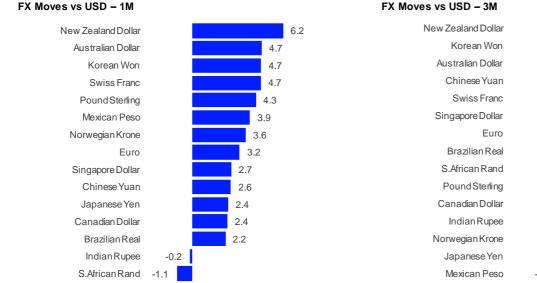
Size made a comeback in November across regions in a return of a market risk-on sentiment.



Momentum broadly outperformed in November, indicating strengthening in factor trends across markets.



Source: FTSE Russell. All data as of November 30, 2023. Index data based on: FTSE USA, FTSE UK, FTSE Europe ex UK, FTSE Japan and FTSE Developed Asia Pacific ex Japan indices and Industry Classification Benchmark (ICB®) industry groups. Past performance is no guarantee of future results. Please see the end for important legal disclosures.

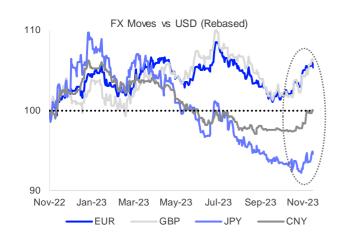


12.2

FX Moves vs USD - YTD

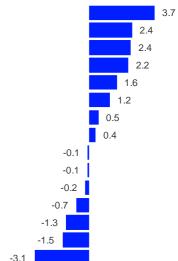


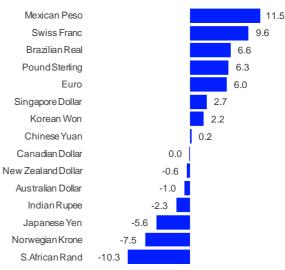
The US dollar retreated broadly in November, extending gains for the euro and sterling for the 12 months.



FX Moves vs USD - 3M

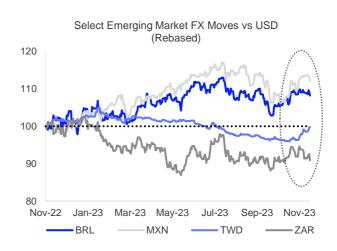
New Zealand Dollar
Korean Won
Australian Dollar
Chinese Yuan
Swiss Franc
Singapore Dollar
Euro
Brazilian Real
S.African Rand
Pound Sterling
Canadian Dollar
Indian Rupee
Norwegian Krone
Japanese Yen
Mexican Peso



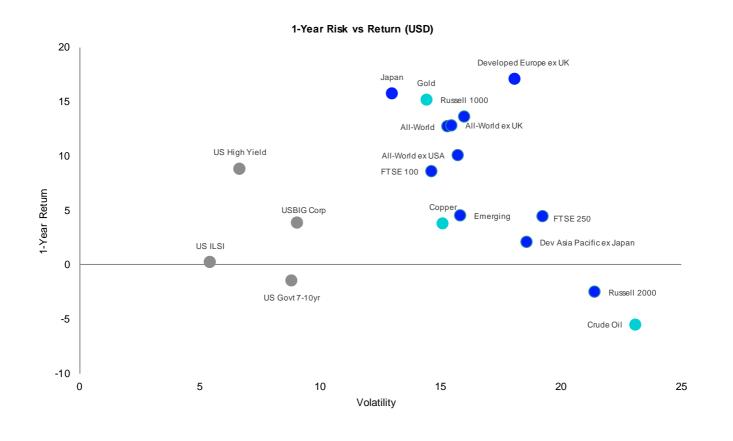


FX Moves vs USD - 12M

Most EM currencies gained vs USD in November, while the S. African rand depreciated. 12M performance vs USD remains mixed.



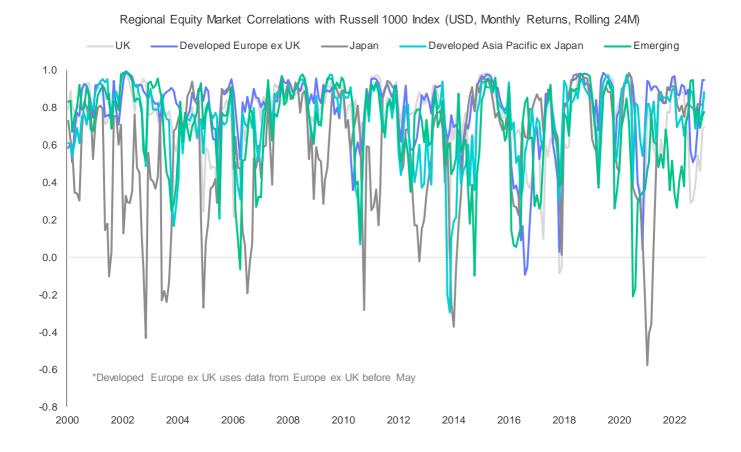
Source: FTSE Russell and LSEG. All data as of November 30, 2023. Past performance is no guarantee of future results. Please see the end for important legal disclosures.



5-Year Risk vs Return (USD) 14 Russell 1000 12 Gold All-World ex UK 10 All-World Developed Europe ex UK 8 5-Year Return Crude Oil All-World ex USA Copper 6 Russell 2000 Japan **FTSE 100** 4 US High Yield Dev Asia Pacific ex Japan US ILSI Emerging USBIG Corp FTSE 250 2 US Govt 7-10yr 0 0 5 10 15 20 25 30 35 40 45 50 Volatility

Source: FTSE Russell and LSEG. All data as of November 30, 2023. Equity market data based on: FTSE Regional, and FTSE Developed Indexes. Returns shown for UK, Europe ex UK, Japan, and Developed Asia Pacific ex Japan Factor Indicators represent hypothetical, historical performance. Past performance is no guarantee of future results. Please see the end for important legal disclosures.

Correlations



Russell 1000	-	0.88	0.98	0.87	0.80	0.90	0.79	0.83	0.64	0.60	0.76	0.88	0.75	0.17
Russell 2000	0.88	-	0.88	0.82	0.78	0.81	0.78	0.83	0.63	0.40		0.82	0.60	-0.01
All-World	0.98	0.88		0.95	0.88	0.95	0.87		0.75	0.63	0.76	0.88	0.80	0.24
All-World ex USA	0.87	0.82	0.95		0.94	0.96		0.96	0.88	0.62	0.69	0.82	0.80	0.32
UK	0.80	0.78	0.88	0.94		0.95	0.80	0.88	0.73		0.61	0.77	0.66	0.23
Developed Europe ex UK		0.81	0.95	0.96	0.95		0.84	0.89	0.73	0.61	0.70	0.84	0.78	0.30
Japan	0.79	0.78	0.87	0.91	0.80	0.84		0.88	0.78	0.63	0.68	0.84	0.81	0.22
Developed Asia Pacific ex Japan		0.83		0.96	0.88	0.89	0.88		0.86		0.66	0.78	0.74	0.35
Emerging	0.64	0.63	0.75	0.88	0.73	0.73	0.78	0.86		0.55			0.71	0.36
US Govt 7-10yr	0.60	0.40	0.63	0.62		0.61	0.63				0.83	0.64	0.93	0.47
US ILSI	0.76		0.76	0.69	0.61	0.70	0.68	0.66		0.83		0.79	0.82	0.44
US High Yield	0.88	0.82		0.82	0.77	0.84	0.84	0.78		0.64	0.79		0.79	0.16
USBIG Corp	0.75	0.60	0.80	0.80	0.66	0.78	0.81	0.74	0.71	0.93	0.82	0.79	-	0.38
Gold	0.17	-0.01	0.24	0.32	0.23	0.30	0.22	0.35	0.36	0.47		0.16	0.38	-
Name	Russell 1000	Russell 2000	All-World	All-World ex USA	UK	Developed Europe ex UK	Japan	Developed Asia Pacific ex Japan	Emerging	US Govt 7- 10yr	US ILSI	US High Yield	USBIG Corp	Gold

Three-Year Correlation Matrix (USD)

Source: FTSE Russell and LSEG. All data as of November 30, 2023. Equity market data based on: FTSE Regional, and FTSE Developed Indexes. Past performance is no guarantee of future results. Please see the end for important legal disclosures.

Appendix

	Wgt (%)	Mkt Cap		1	M			Y	ГD		12M				
-		(USD bn)	LOCAL	USD	GBP	EUR	LOCAL	USD	GBP	EUR	LOCAL	USD	GBP	EUR	
All-World	100.0	64,955	8.0	9.2	4.7	5.8	17.4	17.0	11.2	14.4	12.0	12.6	6.0	6.3	
Developed	90.2	58,583	8.3	9.5	4.9	6.0	18.7	18.4	12.5	15.8	12.8	13.6	6.9	7.2	
USA	61.1	39,697	9.4	9.4	4.8	5.9	21.4	21.4	15.4	18.8	14.4	14.4	7.6	7.9	
Developed Europe ex UK	12.2	7,920	7.0	11.0	6.4	7.6	13.7	16.8	10.9	14.2	10.3	17.1	10.1	10.5	
Emerging	9.8	6,372	5.8	7.0	2.6	3.6	6.0	5.3	0.1	3.0	5.2	4.5	-1.7	-1.4	
Japan	6.3	4,067	5.6	8.2	3.7	4.8	28.8	15.0	9.3	12.5	22.6	15.7	8.8	9.2	
Developed Asia Pacific ex Japan	4.3	2,773	5.7	9.9	5.3	6.4	4.4	2.8	-2.3	0.5	1.6	2.0	-4.0	-3.7	
UK	3.8	2,453	2.5	7.0	2.5	3.6	4.7	10.2	4.7	7.8	3.3	9.8	3.3	3.6	

Developed - Top 20 by % weight (TR)

,	,		1M				Y	TD		12M					
			LOCAL	USD	GBP	EUR	LOCAL	USD	GBP	EUR	LOCAL	USD	GBP	EUR	
Developed	100.0	58,583	8.3	9.5	4.9	6.0	18.7	18.4	12.5	15.8	12.8	13.6	6.9	7.2	
USA	67.8	39,697	9.4	9.4	4.8	5.9	21.4	21.4	15.4	18.8	14.4	14.4	7.6	7.9	
Japan	6.9	4,067	5.6	8.2	3.7	4.8	28.8	15.0	9.3	12.5	22.6	15.7	8.8	9.2	
UK	4.2	2,453	2.5	7.0	2.5	3.6	4.7	10.2	4.7	7.8	3.3	9.8	3.3	3.6	
France	3.1	1,835	6.2	9.6	5.0	6.2	14.7	17.2	11.4	14.7	10.6	17.2	10.3	10.6	
Canada	2.7	1,576	7.9	10.5	5.9	7.1	8.3	8.2	2.8	5.8	2.7	2.7	-3.4	-3.1	
Switzerland	2.6	1,519	4.3	9.2	4.7	5.8	3.7	10.3	4.8	7.9	0.0	9.6	3.1	3.4	
Germany	2.3	1,349	9.8	13.3	8.6	9.8	16.9	19.5	13.6	16.9	12.9	19.7	12.6	12.9	
Australia	2.1	1,245	4.8	9.8	5.2	6.4	5.2	2.8	-2.3	0.6	1.7	0.7	-5.3	-5.0	
Korea	1.5	882	10.9	16.1	11.3	12.5	18.3	16.0	10.2	13.5	8.5	10.9	4.4	4.7	
Netherlands	1.2	706	10.7	14.3	9.6	10.7	14.5	17.0	11.2	14.5	7.7	14.1	7.3	7.7	
Denmark	0.9	507	4.2	7.6	3.2	4.3	23.8	26.3	20.0	23.5	27.5	34.8	26.8	27.2	
Sweden	0.9	502	8.9	16.1	11.3	12.5	13.0	12.3	6.7	9.9	9.4	11.3	4.7	5.1	
Italy	0.8	451	7.4	10.8	6.2	7.4	31.4	34.3	27.6	31.4	26.8	34.4	26.4	26.8	
Spain	0.8	441	11.5	15.1	10.4	11.5	27.3	30.1	23.7	27.3	25.9	33.4	25.5	25.9	
Hong Kong	0.7	384	0.3	0.5	-3.7	-2.7	-16.9	-17.0	-21.1	-18.8	-9.8	-9.9	-15.2	-15.0	
Singapore	0.4	210	1.3	4.0	-0.3	0.8	1.1	1.6	-3.4	-0.6	-0.7	2.0	-4.0	-3.7	
Finland	0.3	175	5.2	8.6	4.1	5.2	-5.9	-3.8	-8.6	-5.9	-8.0	-2.5	-8.3	-8.0	
Belgium/Lux	0.3	155	4.1	7.4	3.0	4.1	1.6	3.9	-1.3	1.6	1.6	7.6	1.2	1.6	
Norway	0.2	115	1.8	5.5	1.2	2.2	10.9	1.4	-3.7	-0.8	7.8	-0.3	-6.2	-5.9	
Israel	0.2	97	8.3	17.6	12.8	14.0	0.6	-4.7	-9.4	-6.8	-1.9	-9.1	-14.5	-14.2	

Emerging - Top 10 by % weight (TR)

			1M					Y	TD		12M					
			LOCAL	USD	GBP	EUR	LOCAL	USD	GBP	EUR	LOCAL	USD	GBP	EUR		
Emerging	100.0	6,372	5.8	7.0	2.6	3.6	6.0	5.3	0.1	3.0	5.2	4.5	-1.7	-1.4		
China	31.0	1,977	2.2	2.4	-1.8	-0.8	-9.4	-9.5	-14.0	-11.5	-4.7	-4.8	-10.4	-10.2		
India	19.4	1,238	7.5	7.3	2.9	4.0	16.8	15.9	10.1	13.4	12.6	9.9	3.4	3.8		
Taiwan	17.5	1,116	9.1	13.3	8.6	9.7	27.2	25.1	18.9	22.4	19.7	18.4	11.4	11.8		
Brazil	6.8	432	12.1	14.6	9.8	11.0	16.9	25.1	18.9	22.4	14.0	21.5	14.3	14.7		
Saudi Arabia	4.5	289	4.6	4.6	0.3	1.4	5.3	5.5	0.2	3.2	1.8	2.0	-4.0	-3.7		
South Africa	3.4	215	8.7	7.5	3.1	4.2	6.2	-4.7	-9.4	-6.8	2.3	-8.2	-13.6	-13.4		
Mexico	3.2	206	10.7	15.1	10.3	11.5	14.5	28.5	22.1	25.7	8.2	20.6	13.5	13.8		
Thailand	2.2	142	-0.5	1.6	-2.6	-1.5	-12.6	-14.0	-18.3	-15.9	-11.0	-10.8	-16.1	-15.8		
Indonesia	2.2	138	4.0	6.5	2.1	3.2	4.3	4.7	-0.5	2.4	-1.7	-0.3	-6.2	-5.9		
UAE	1.9	121	5.7	5.7	1.3	2.4	-3.4	-3.4	-8.2	-5.5	-8.4	-8.4	-13.8	-13.5		

Source: FTSE Russell and LSEG. All data as of November 30, 2023. Equity market data based on: FTSE Regional, and FTSE Developed Indexes. Past performance is no guarantee of future results. Please see the end for important legal disclosures.



ABOUT FTSE RUSSELL

FTSE Russell is a leading global provider of index and benchmark solutions, spanning diverse asset classes and investment objectives. As a trusted investment partner, we help investors make better-informed investment decisions, manage risk, and seize opportunities.

Market participants look to us for our expertise in developing and managing global index solutions across asset classes. Asset owners, asset managers, ETF providers and investment banks choose FTSE Russell solutions to benchmark their investment performance and create investment funds, ETFs, structured products, and index-based derivatives. Our clients use our solutions for asset allocation, investment strategy analysis and risk management, and value us for our robust governance process and operational integrity.

For over 35 years we have been at the forefront of driving change for the investor, always innovating to shape the next generation of benchmarks and investment solutions that open up new opportunities for the global investment community.

CONTACT US

To learn more, visit lseg.com/ftse-russell; email info@ftserussell.com; or call your regional Client Service team office: EMEA +44 (0) 20 7866 1810 Asia-Pacific North America +1 877 503 6437 Hong Kong +852 2164 3333 Tokyo +81 3 6441 1430 Sydney +61 (0) 2 7228 5659

© 2023 London Stock Exchange Group plc and its applicable group undertakings (the "LSE Group"). The LSE Group includes (1) FTSE International Limited ("FTSE"), (2) Frank Russell Company ("Russell"), (3) FTSE Global Debt Capital Markets Inc. and FTSE Global Debt Capital Markets Limited (together, "FTSE Canada"), (4) FTSE Fixed Income Europe Limited ("FTSE FI Europe"), (5) FTSE Fixed Income LLC ("FTSE FI"), (6) The Yield Book Inc ("YB") and (7) Beyond Ratings S.A.S. ("BR"). All rights reserved.

FTSE Russell® is a trading name of FTSE, Russell, FTSE Canada, FTSE FI, FTSE FI Europe, YB and BR. "FTSE®", "Russell®", "FTSE Russell®", "FTSE4Good®", "ICB®", "The Yield Book®", "Beyond Ratings®" and all other trademarks and service marks used herein (whether registered or unregistered) are trademarks and/or service marks owned or licensed by the applicable member of the LSE Group or their respective licensors and are owned, or used under licence, by FTSE, Russell, FTSE Canada, FTSE FI, FTSE FI Europe, YB or BR. FTSE International Limited is authorised and regulated by the Financial Conduct Authority as a benchmark administrator.

All information is provided for information purposes only. All information and data contained in this publication is obtained by the LSE Group, from sources believed by it to be accurate and reliable. Because of the possibility of human and mechanical error as well as other factors, however, such information and data is provided "as is" without warranty of any kind. No member of the LSE Group nor their respective directors, officers, employees, partners or licensors make any claim, prediction, warranty or representation whatsoever, expressly or impliedly, either as to the accuracy, timeliness, completeness, merchantability of any information or of results to be obtained from the use of FTSE Russell products, including but not limited to indexes, data and analytics, or the fitness or suitability of the FTSE Russell products for any particular purpose to which they might be put. Any representation of historical data accessible through FTSE Russell products is provided for information purposes only and is not a reliable indicator of future performance.

No responsibility or liability can be accepted by any member of the LSE Group nor their respective directors, officers, employees, partners or licensors for (a) any loss or damage in whole or in part caused by, resulting from, or relating to any error (negligent or otherwise) or other circumstance involved in procuring, collecting, compiling, interpreting, analysing, editing, transcribing, transmitting, communicating or delivering any such information or data or from use of this document or links to this document or (b) any direct, indirect, special, consequential or incidental damages whatsoever, even if any member of the LSE Group is advised in advance of the possibility of such damages, resulting from the use of, or inability to use, such information.

No member of the LSE Group nor their respective directors, officers, employees, partners or licensors provide investment advice and nothing in this document should be taken as constituting financial or investment advice. No member of the LSE Group nor their respective directors, officers, employees, partners or licensors make any representation regarding the advisability of investing in any asset or whether such investment creates any legal or compliance risks for the investor. A decision to invest in any such asset should not be made in reliance on any information herein. Indexes cannot be invested in directly. Inclusion of an asset in an index is not a recommendation to buy, sell or hold that asset nor confirmation that any particular investor may lawfully buy, sell or hold the asset or an index containing the acted upon without obtaining specific legal, tax, and investment advice from a licensed professional.

The information contained in this report should not be considered "research" as defined in recital 28 of the Commission Delegated Directive (EU) 2017/593 of 7 April 2016 supplementing Directive 2014/65/EU of the European Parliament and of the Council ("MiFID II") and is provided for no fee. Past performance is no guarantee of future results. Charts and graphs are provided for illustrative purposes only. Index returns shown may not represent the results of the actual trading of investable assets. Certain returns shown may reflect back-tested performance. All performance presented prior to the index inception date is back-tested performance. Back-tested performance is not actual performance but is hypothetical. The back-test calculations are based on the same methodology that was in effect when the index was officially launched. However, back-tested data may reflect the application of the index methodology with the benefit of hindsight, and the historic calculations of an index may change from month to month based on revisions to the underlying economic data used in the calculation of the index.

This document may contain forward-looking assessments. These are based upon a number of assumptions concerning future conditions that ultimately may prove to be inaccurate. Such forward-looking assessments are subject to risks and uncertainties and may be affected by various factors that may cause actual results to differ materially. No member of the LSE Group nor their licensors assume any duty to and do not undertake to update forward-looking assessments.

No part of this information may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without prior written permission of the applicable member of the LSE Group. Use and distribution of the LSE Group data requires a licence from FTSE, Russell, FTSE Canada, FTSE FI, FTSE FI Europe, YB, BR and/or their respective licensors.

Refinitiv content is the intellectual property of Refinitiv. Any copying, republication or redistribution of Refinitiv content, including by caching, framing or similar means, is expressly prohibited without the prior written consent of Refinitiv. Refinitiv is not liable for any errors or delays in content, or for any actions taken in reliance on any content.