GLOBAL INVESTMENT RESEARCH

MARKET MAPS

FTSE Russell

An LSEG Business

# Asset Allocation Insights

QUARTERLY REPORT: **MARCH 2023** FOR PROFESSIONAL INVESTORS ONLY

## Policy rate uncertainty and reduced liquidity take center stage, while stabilizing growth and anchored long yields provide offset

The key question for markets is whether a higher-for-longer trajectory for policy rates will continue and reverse the soft-landing narrative. The risk/return of different asset classes and their correlations are changing, opening new opportunities (and risks) for asset allocators.

## Highlights

### Will the risk-on rally resume after the recent pause?

Stabilization in global growth and inflation expectations suggest long bond yields may be near a peak. Reduced growth and rate differentials could portend a weaker US dollar and a more supportive environment for risky assets. Monetary-tightening lag effects, shrinking liquidity, the US debt-ceiling impasse and increased US-China polarization are key risks to this outlook.

### New cycle in equity leadership may be brewing

Still-high valuations and falling earnings growth are likely to continue weighing on equities, particularly in the US. The valuation premium of US equities to the rest of the world has shrunk. Equity flows data suggest investors are eyeing bargains in the Eurozone, Japan and EM, while decreasing allocations to the US.

### Is investor favor poised for reversal?

Can last year's laggards among faster-growing stocks regain the edge from value, and can small caps continue to outperform large caps in 2023? High industry-return dispersion improves the opportunity set for industry allocators.

### Worst of duration risk may be over; still low but increasing credit risks

With the potential peak in long rates, duration risk may be more muted going forward. Slowing growth and tightening liquidity may increase credit risk, though indicators suggest medium-term credit losses may be moderate.

### Investment-grade credit gains appeal

With yields north of 5% and volatility less than half that of equities, global and US investment-grade corporates look attractive on a risk-adjusted basis. Interestingly, for investors with a higher risk budget, note that high yield has offered better risk-adjusted returns than IG over the past five years. Stock/bond diversification benefits could stage a comeback if inflation continues to slow.

### Infrastructure and commodities for diversification

Listed infrastructure has outperformed real estate over the past year and offer earnings yields similar to those of fixed income. With low correlations to other asset classes, commodities could provide appealing diversification opportunities over time.

Chart 1: In January, IMF revised higher the 2023 growth projections for most major economies (UK is an exception).

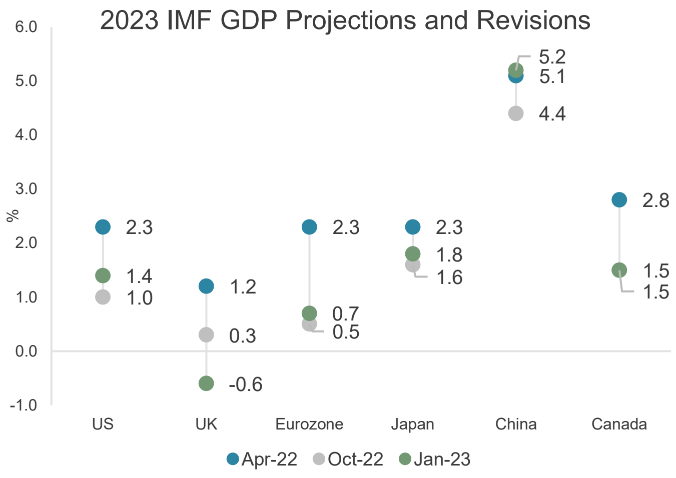
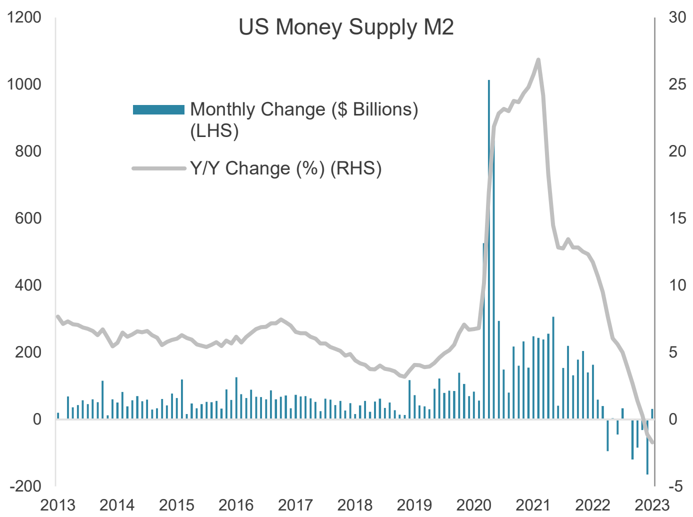



Chart 2: Money supply growth has turned negative amid Fed balance-sheet reductions. Impact of QT remains uncertain.

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## Financial Markets Overview

- Normalizing global supply chains and easing consensus inflation expectations (with breakevens below 3%) suggest US inflation has probably peaked, despite recent signs that the pace of declines has slowed. Recent statements by Fed officials and futures data indicate US policy rates may go higher than earlier expected. However, long yields have failed to consistently hold above 4%, underpinned by recent macro indicators. Global growth in 2023 is expected to be positive but lower than in 2022. **Lower but positive growth and stabilizing long yields could be supportive for risk assets**. **Fund flows have risen over the past three months after significant outflows in the middle of last year, a sign of improving investor conviction.**
- (Higher duration) investment-grade credit lagged high-yield corporates over the past three- and 12-month periods. Credit spreads have tightened more in Eurozone and EM than in the US in recent months, resulting in IG and HY Euro bonds outperforming US equivalents in USD terms over the past three months. Yields remain much higher in the US. Declining market-implied probability of default implies credit risk remains low, thanks largely to the plentiful cash on corporate balance sheets. HY credit spreads are likely to increase as economic growth weakens, and bank tightening makes liquidity more scarce. **Yields north of 5% and volatility less than half that of equities make World IG bonds interesting for investors.** Earnings yields for fixed income almost equal that offering on infrastructure. Increased capital flows into bonds indicate increased investor interest. **HY has provided higher volatility-adjusted returns than investment grade corporates over the past one– to five-year periods.**
- Rising rates have weighed on equity valuations, which have contracted to pre-pandemic levels in most markets. While most of the compression in equity valuations is probably behind us, **historical precedent and cross-asset comparisons indicate that equity valuations are more likely to contract than expand.** Earnings growth expectations continue to drop, particularly in developed markets. **US equities have continued to lag global peers this year, in a sharp reversal from the previous decade**, compressing the US equity premium over other markets. Over the last year, investor preferences see-sawed between the earnings resilience of large caps and the more domestic-oriented advantage of small caps amid a soaring US dollar — with small caps taking the lead since Q4 2022. The decisive rotation from growth into value last year has reversed YTD.
- The US dollar hit a multi-decade high in 2022, before reversing significantly since last November. **Tightening interest-rate and growth differentials could further weaken support for the US dollar, thereby easing financial conditions.**
- Most emerging bond markets held up well last year, with far lower credit spreads against G7 bonds than in past crises. EM equity volatility has been in line with that of DMs, though the returns were far lower than that of DM. **Correlations between EM and DM equities steadily lessened over the past two decades,** a trend that could accelerate as US-China polarization continues.
- **Listed real estate underperformed equities last year**, with the most acute underperformance in countries with the highest inflation. The **long-run underperformance of commodities relative to equities appears to have rolled over**. With currency markets (FX returns of commodity exporters vs importers) signalling expectations for commodity prices to stabilize, **this may indicate more downside risk in equities than upside in commodities**.
- **US equities are more correlated with global sovereign bond yields than domestic rates**, not surprising for the largest economy with the world's reserve currency. High-yield bonds are highly correlated to equities, and **stock/bond diversification comes from investment-grade and inflation-linked bonds. Commodities have low correlation to equities**, and have provided diversification benefits even in low-return periods. In the past year, high inflation and rising rates hurt both stocks and bonds, and stock/bond correlations increased to unprecedented highs. This implies a sustained inflation slowdown could bring back the advantages of the 60/40 portfolio.

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# Macroeconomic Backdrop

## Recession or slowdown? Conflicting signs of strength and weakness in the global economy

Coordinated central bank tightening in the last 12 months is having an impact, despite the recent resilience in recent economic data. Leading indicators in US manufacturing are in contractionary territory (Chart 1). Inflation expectations are falling globally from 2022 peaks (Chart 3), most sharply in the US. The slowing US housing market and normalizing global supply chains (Chart 5) are expected to contribute to further decreases.

China's post-Covid reopening & easing supply-chain disruptions have been recent tailwinds. The IMF upgraded its 2023 GDP growth forecasts for most major economies in January (Chart 2). Financial conditions till February-end have eased (Chart 4).

The impact of monetary tightening has long and variable lags, and we had unprecedentedly rapid rate hikes across DMs this past year, along with a sustained bout of quantitative tightening via balance-sheet reductions and a negative turn in money supply growth (page 1, Chart 2). Whether this results in a global recession or soft-landing scenario remains to be seen.

Chart 1: Forward-looking indicators shows economic activity is contracting, though readings improved in February

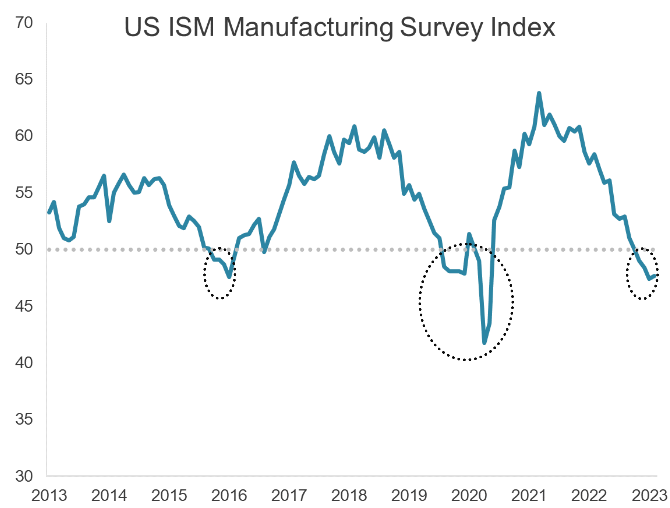



Chart 2: China, Japan & EM GDP growth expected to strengthen year-over-year in 2023; US & Eurozone expected to slow

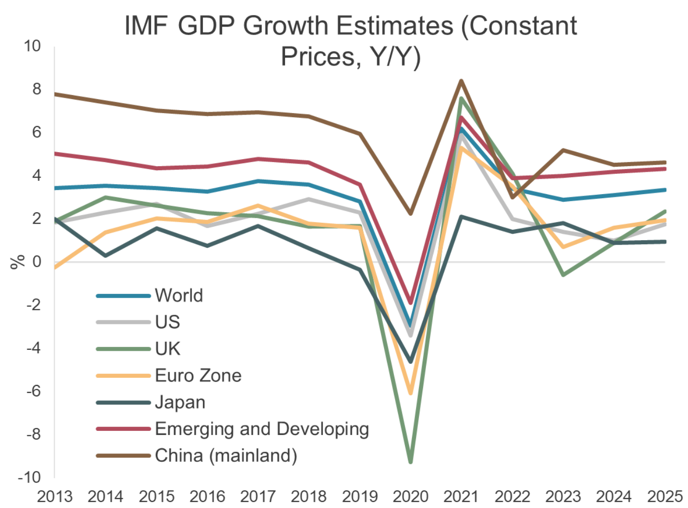



Chart 3: Fairly sharp drop in inflation expected in 2023, led by the US

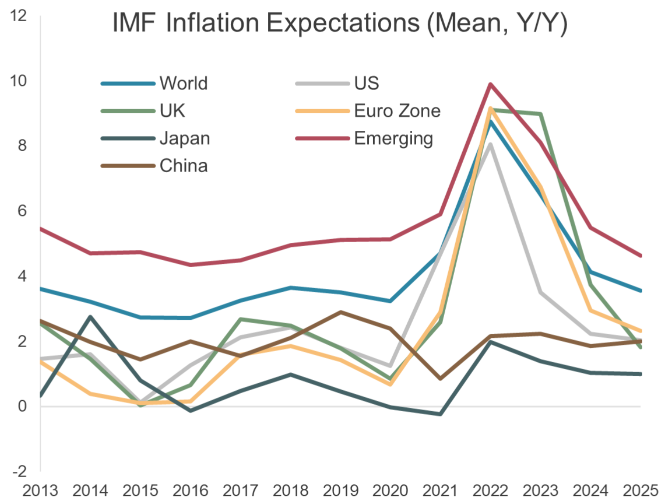



Chart 4: Despite Fed rate hikes and balance-sheet reduction, US financial conditions have eased

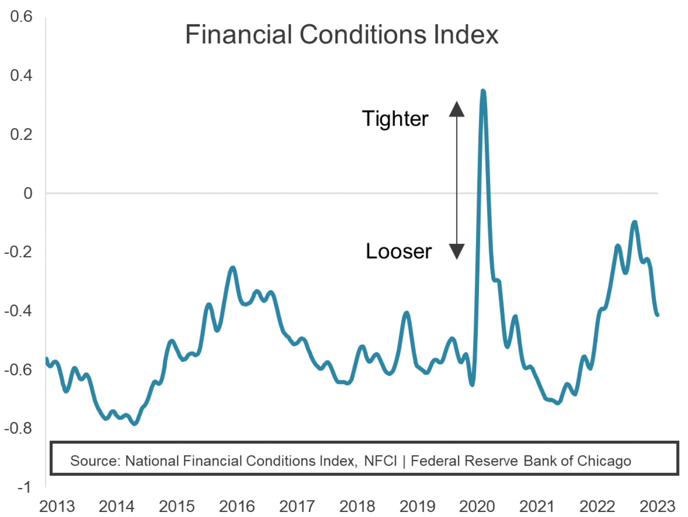
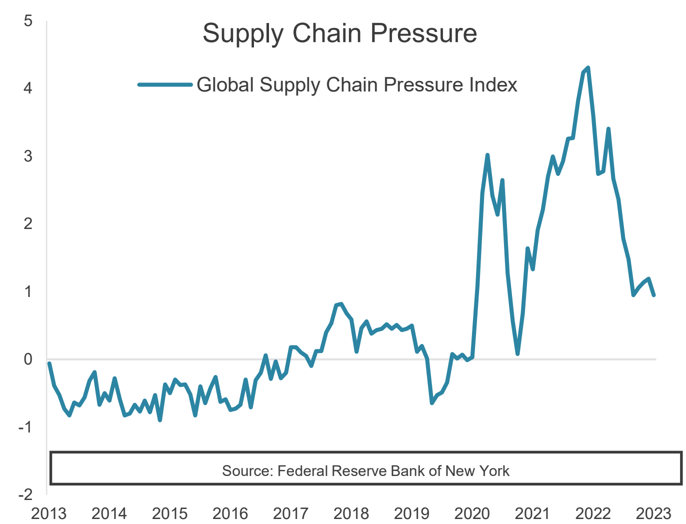



Chart 5: Global supply chain pressures (a key driver of inflation spike in 2022) have significantly normalized to end-2017 levels

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# Sovereign Yield Curves

**Despite broadly resilient economic data and the resulting signaling for 'higher-for-longer' policy rates from DM central banks, sovereign bond markets are pricing in expectations of inflation mean-reverting to pre-Covid levels soon. Long-end rates and futures data still indicate potential rate peaks this year, particularly at the long end.**

Key portions of the US and most G7 countries' yield curves have been inverted since last summer. Recent economic signals have been mixed, with recent data on inflation, job growth, consumer spending and manufacturing improving — yet activity and pricing in key sectors such as housing and construction are decelerating, and manufacturing remains in contraction. **Since yield-curve inversions have almost always been followed by a recession 12-18 months later, the risk of a recession later this year remains high. This also indicates that the worst of duration risk may be behind us.**

Recent Fed statements have suggested the projected 2023 peak for the fed funds rate may be raised from the December dot plot median forecast of just above 5%. Futures market-implied expectations also now show a higher peak of almost 5.5%. However, the term premium, an important contributor to moves in long yields, has stabilized after increasing in recent years. This suggests the 10-year US Treasury yield may be near a peak, and trends in long rates are more important to financial markets.

Chart 1: The pace of yield increases has slowed after months of sharp gains. Yield curves remain inverted

| | YTM | YTM Change - 3M | YTM Change - 12M |
|---|---|---|---|
| World 1-3YR | 4.03 | 0.48 | 3.16 |
| World 7-10YR | 3.22 | 0.54 | 2.14 |
| US 1-3YR | 4.90 | 0.43 | 3.52 |
| US 7-10YR | 3.93 | 0.29 | 2.10 |
| Germany 1-3YR | 3.09 | 1.05 | 3.66 |
| Germany 7-10YR | 2.59 | 0.67 | 2.56 |
| | Current | 3M Back | 12M Back |
| Slope of World Yield Curve | -0.81 | -0.87 | 0.21 |
| Slope of US Yield Curve | -0.97 | -0.83 | 0.44 |
| Slope of Germany Yield Curve | -0.50 | -0.12 | 0.60 |

Chart 2: Sovereign bond returns have been fairly flat in past 3M, after a deeply negative 2022, as yield increases stabilized

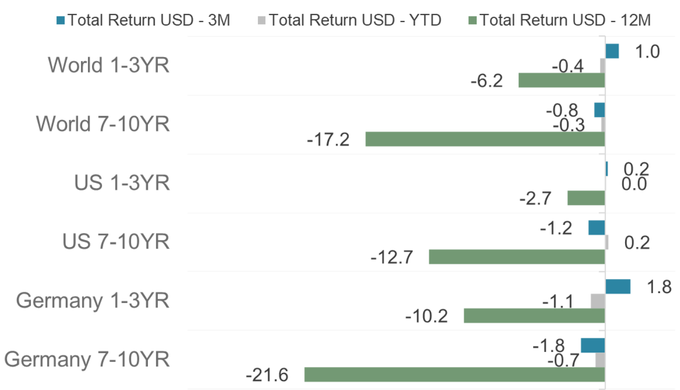



Chart 3: The US & German yield curves are deeply inverted, portending slowing growth in both economies and in most DMs

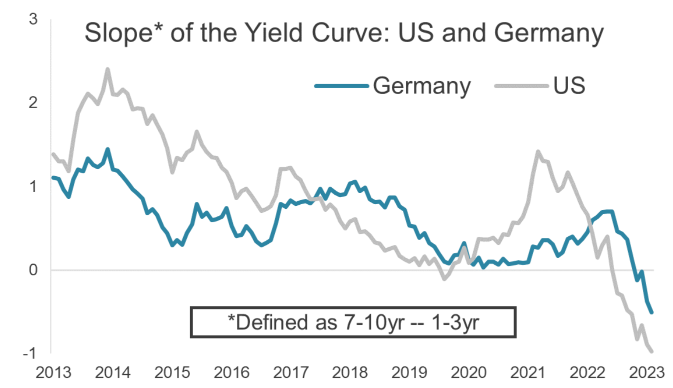



Chart 4: Sovereign bond yields are as high as they have been in a decade, particularly in Germany

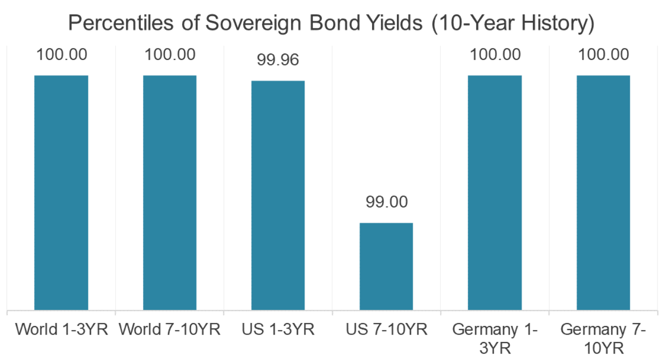



Chart 5: The US 10-year term premium appears to have plateaued, another sign that rates may be near a peak

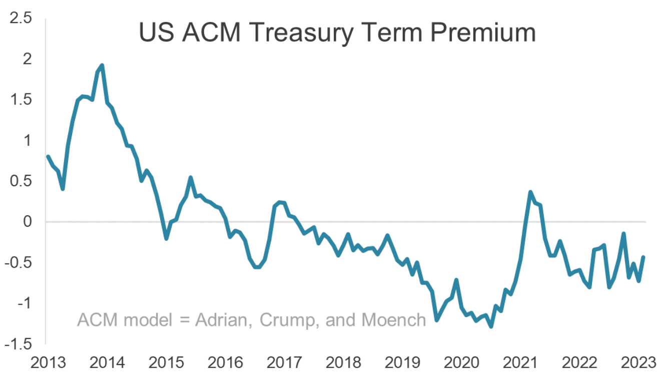
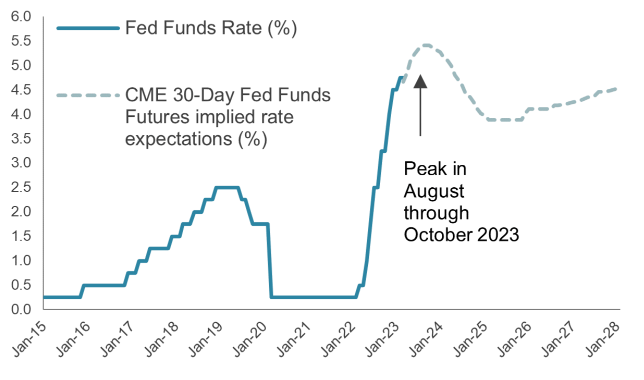



Chart 6: CME futures are pricing in expectations for US policy rates to peak at (higher-than-earlier-expected) 5.4% in 2H 2023

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# Credit

**Credit spreads have tightened broadly with the resurgence in risk appetite since Q4 2022. HY outperformed IG.**

Over the last three and 12 months, investment-grade credit lagged high yield credit in the US, Europe, EM and World indices. According to the NY Fed's Corporate Bond Market Distress Index (time-series measure of bond market functioning), stress is much higher in IG than HY, likely a consequence of IG's higher duration (thus higher duration risk) in a rising-rate environment. Relatively healthy corporate cash balances and longer maturities due to refinancings in recent years have also helped to cushion HY losses (Chart 1 and 3).

Credit spreads have tightened across markets in the last three months, more so in EM and Europe than in the US (Chart 2). China's reopening has been a tailwind, particularly for EM.

With the exception of EM HY, credit spreads were generally lower during the 2022 drawdown than during the China growth crisis of 2015-2016. **A fall in inflation from 2022 highs, recent signs of a growth acceleration and the China reopening have spurred risk-on sentiment and tighter spreads. Credit markets are pricing in expectations of fairly benign market conditions.**

Chart 1: Credit spreads have tightened sharpy as risk appetite revived. Markets are pricing in fairly benign business conditions

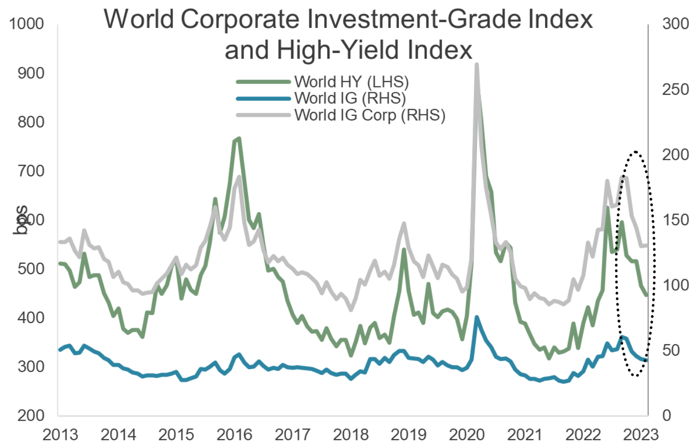



Chart 2: In both IG and HY, spreads have narrowed the most in EM, followed by Europe. China reopening has helped EMs a lot

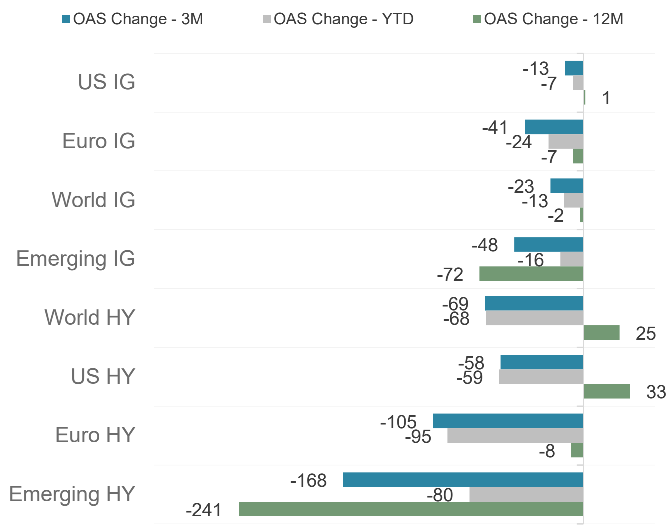



Chart 3: Over the last 3M, IG & HY Euro bonds performed best, followed by EM. HY outperformed IG

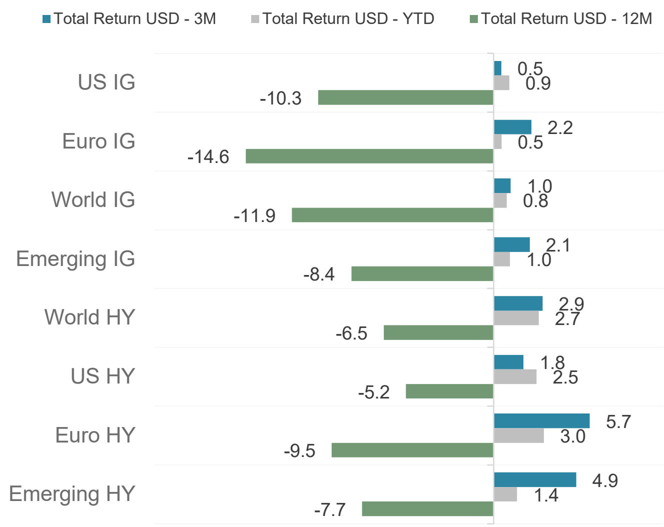



Chart 4: IG corporate credit spreads have been tightening across major markets since last October, with Euro & EM leading the US

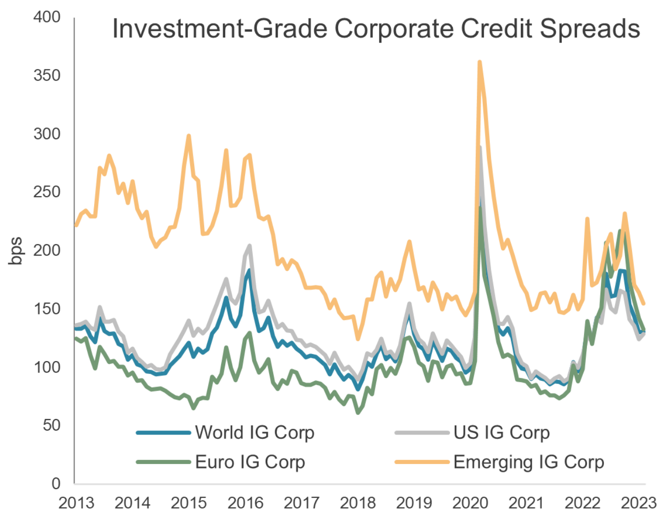
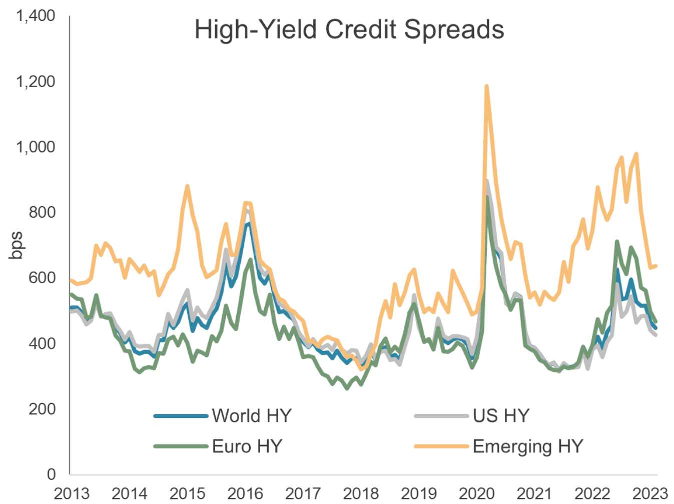



Chart 5: EM HY credit spreads have contracted most sharply of late, after rising the most since the Covid outbreak

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## Credit (Continued)

**Corporate bonds seem to be pricing in expectations for fairly benign credit conditions this year, despite the outlook for weaker global growth. IG spreads are almost back to their long-term averages, while the upgrade-downgrade ratio for HY remains benign.**

After hitting extreme stress levels in 2022, global IG spreads have tightened significantly since the Q4 risk rally and are now almost back to their 10-year averages (Chart 1).

Both IG and HY Euro bond spreads are at the higher end of their range over the past decade (Chart 2), indicating higher relative value for future returns. Duration-risk-adjusted yields are higher for Euro and EM bonds than for US equivalents (Chart 3). As EM credit risk usually exceeds that of the Eurozone**,** the implication would be that **Euro bonds currently offer higher risk-adjusted returns than both US and EM equivalents.**

Default risk remains low (CDS-implied probability of defaults remains low), thanks to the ample cash on corporate balance sheets today. However, given the **deteriorating corporate-earnings outlook, the slight pick-up in downgrades** (Chart 4) **and tightening liquidity from stricter lending** (Chart 5), **HY spreads could expand.**

Chart 1: Global IG corporate spreads are almost back to their long-term average

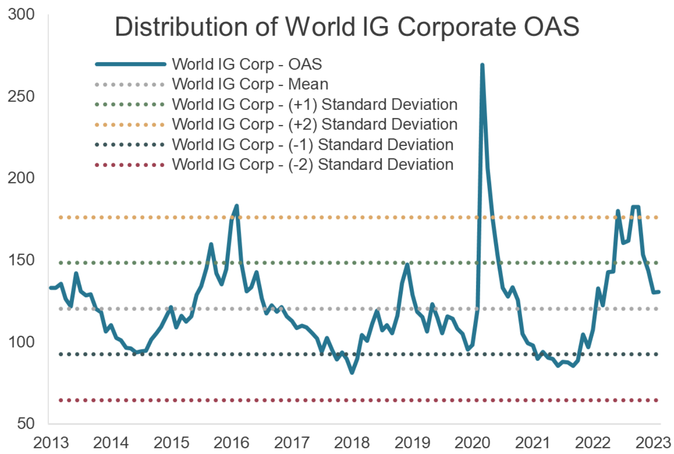



Chart 2: IG and HY Euro bonds are currently the most attractively valued in historical terms. EM IG spreads are very tight

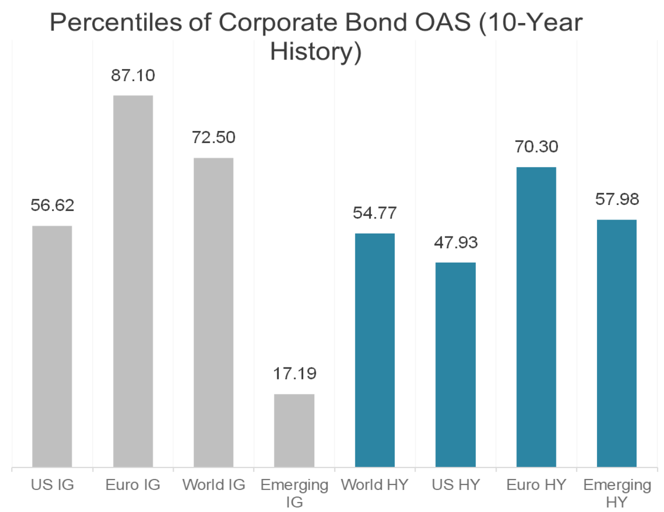



Chart 3: Return per unit of duration risk is highest in emerging markets (for both IG & HY) and higher in Europe than the US

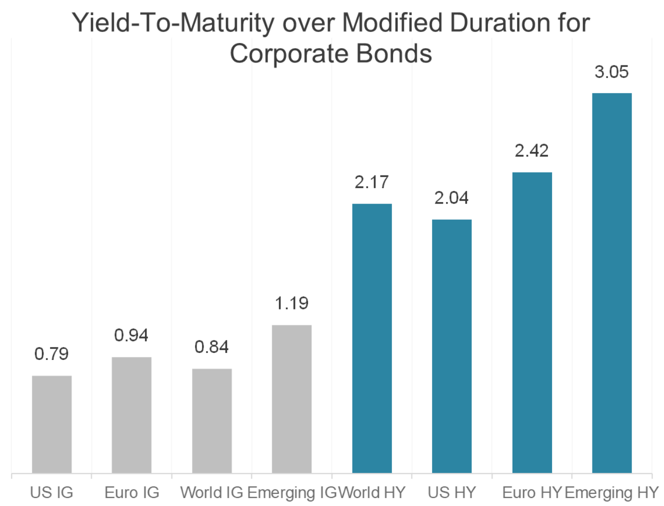



Chart 4: Downgrades remain low, indicating low default risk for next few months. Upgrade-downgrade ratio has deteriorated

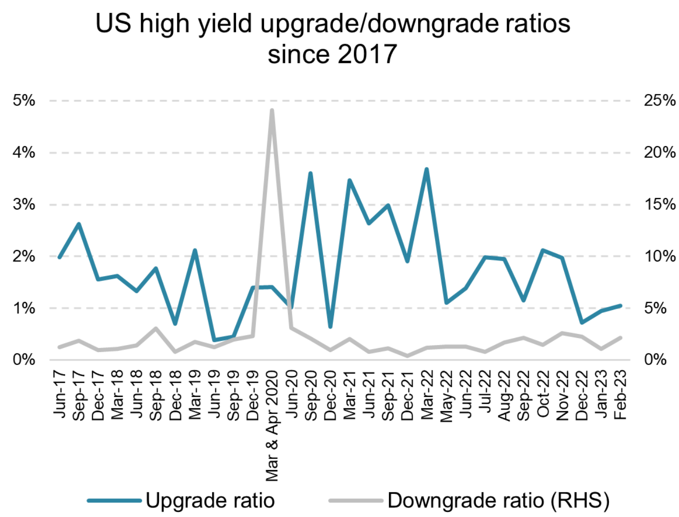
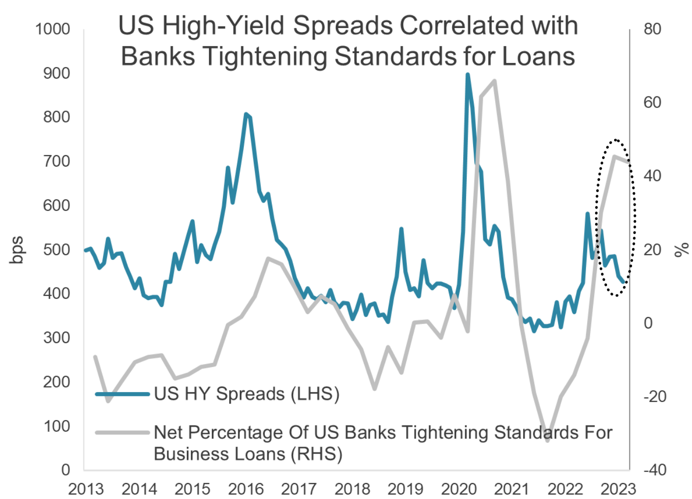



Chart 5: A disconnect has emerged between stricter lending standards and tight credit spreads. Which is right?

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# Equities

**Equities have rallied since late last year, led by the value-tilted Developed Europe and UK.**

In a striking reversal from its long-running winning streak, US equities trailed most developed markets over the past year, particularly versus the UK (Chart 1). The global rotation from growth into value and defensive stocks since 2021 was a boon for the UK but hurt the tech-heavy US market (Chart 2 and 3). Emerging markets significantly lagged the All-World and developed markets last year, and continued to do so in the rally that began late last year.

In other notable leadership shifts in recent months, small caps have reclaimed the edge over large caps, particularly in EM (Chart 5), while dynamic (cyclical) industries have been doing better than defensives YTD.

Small-cap outperformance is typically a sign of an improving macroeconomic outlook. The trend towards deglobalization, precipitated by the pandemic and Russia/Ukraine war, may also erode the advantage large caps have had over their more domestically oriented small-cap peers in recent years.

Chart 1: Global equity markets have rebounded strongly since Q4 2022; Developed Europe & UK performed best in last 3M

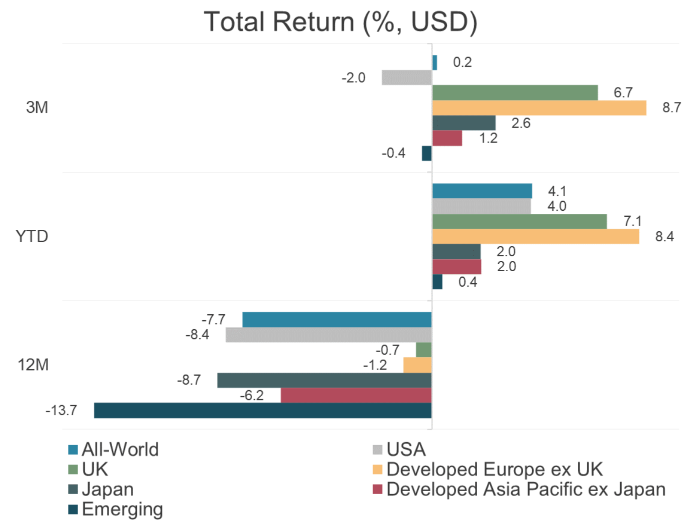



Chart 2: The protracted winning streak of growth over value has unraveled since the news of Covid vaccines in November 2020

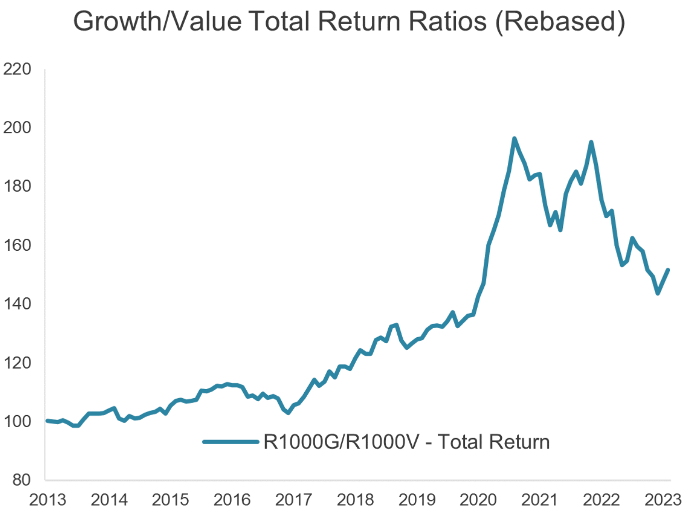



Chart 3: Cyclicals have outpaced defensives this year but with no clear preference, as recession fears remain high

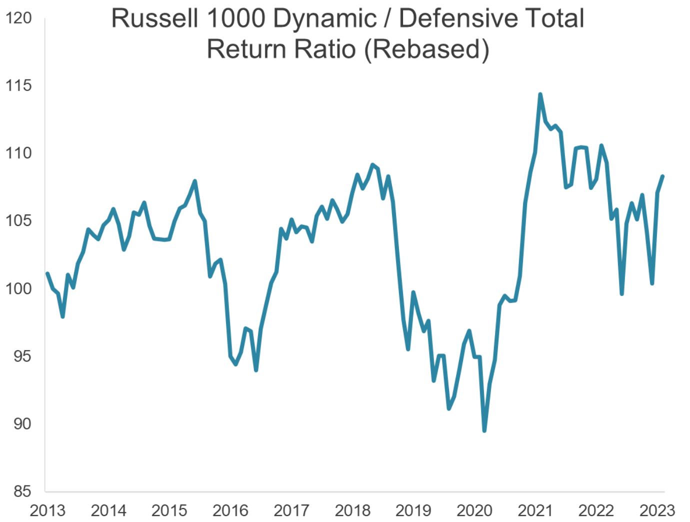



Chart 4: Is the long-running outperformance of developing markets over emerging counterparts poised for reversal?

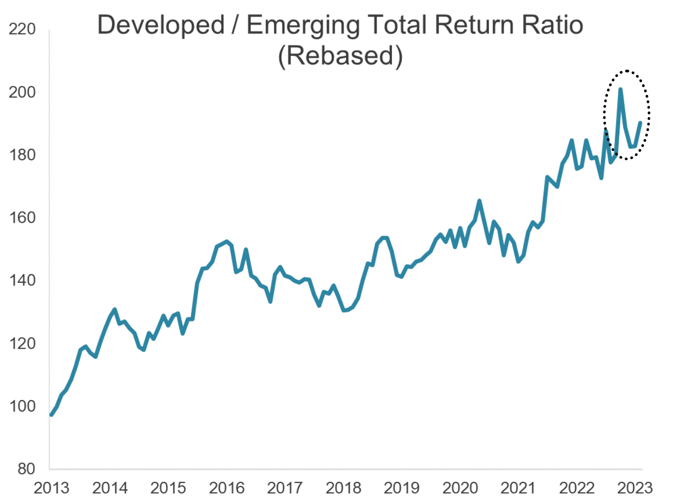
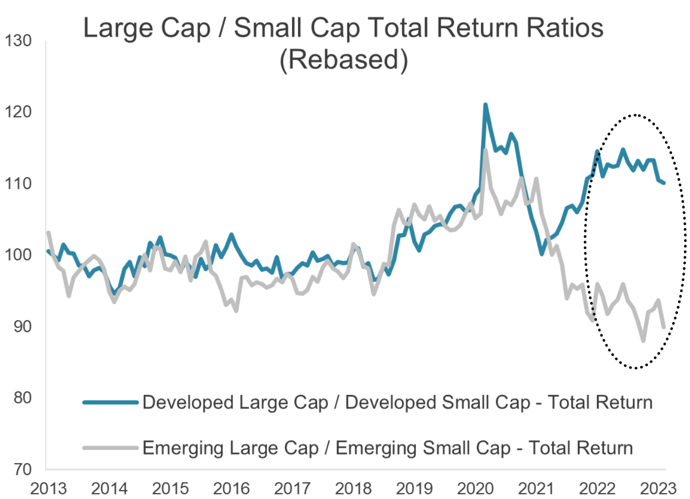



Chart 5: Tug-of-war between stress-resistant large caps and smaller beneficiaries of cyclical recovery is likely to continue

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# Equities (continued)

**Increased pressures on earnings growth are likely to weigh on equities in the months ahead. However, varying industry exposures and the recent spike in industry return dispersion may improve return potential for industry selection.**

The high market volatility and drawdowns of the past year have widened divergences in industry returns (Chart 1), with the spreads between the best- and worst-performing industries over the last three months reaching more than 20% for the UK and Japan, and 17.5% for EM. Also noteworthy is the significant variance in industry exposures across geographies (Chart 2). The All-World and US indices are heavily weighted toward technology and other growth segments, as is EM (although EM also has significant exposure to Financials). Developed Europe is tilted to Financials and Industrials. These differences underlie the differing betas and macro exposures to global growth across markets, with Developed Europe and Japan having the highest beta to global growth and trade.

Earnings growth and forecast revisions are on a downtrend across regional benchmarks and style indices (Chart 3 and 4). Valuations contracted significantly in 2022. Even after declining to their 10-year average, US forward P/Es continue to trade at a premium to the non-US index. Valuations are lowest in the UK, Japan and EM. Some of this multiple compression has unwound with the recent risk-on rally (particularly in the US and UK). Still-high valuations, coupled with the deteriorating earnings outlook, point to potential downside risk for equities.

Chart 1: Industry performances have diverged widely across and within global equity markets since last November

3M Regional Industry Returns (TR, USD)

| | All-World | US | UK | Dev Eur ex UK | Japan | Dev AP ex JP | Emerging |
|---|---|---|---|---|---|---|---|
| Index Return | 0.2 | -2.0 | 6.7 | 8.7 | 2.6 | 1.2 | -0.4 |
| Basic Materials | 1.0 | 1.7 | -5.3 | 6.6 | 9.9 | 1.0 | -3.3 |
| Consumer Disc. | 2.3 | -0.1 | 12.3 | 13.1 | 1.5 | 5.8 | 1.3 |
| Consumer Staples | -3.0 | -6.5 | -0.4 | 2.0 | 1.0 | 3.0 | 0.8 |
| Energy | -4.9 | -7.8 | 8.6 | 0.2 | 0.2 | -2.9 | -6.6 |
| Financials | 2.9 | -1.2 | 17.2 | 16.2 | 18.1 | 1.1 | -2.7 |
| Health Care | -5.3 | -7.6 | 2.6 | 1.2 | -5.6 | -2.1 | -1.7 |
| Industrials | 1.6 | -0.8 | 11.0 | 12.2 | 1.8 | -0.1 | -3.8 |
| Real Estate | -0.9 | -1.7 | 9.1 | 10.3 | -5.9 | 5.5 | -4.8 |
| Technology | 2.5 | 1.6 | 1.9 | 9.1 | 0.9 | 0.0 | 7.1 |
| Telecoms | 1.0 | -1.2 | 12.2 | 10.0 | 0.7 | -2.6 | -0.2 |
| Utilities | -5.1 | -8.4 | 5.1 | 5.0 | 4.4 | 2.8 | -10.4 |

Chart 2: Varying industry exposures underlie big differences in betas and macro sensitivities across markets

Regional Industry Exposures (%)

| | All-World | US | UK | Dev Eur ex UK | Japan | Dev AP ex JP | Emerging |
|---|---|---|---|---|---|---|---|
| Basic Materials | 4.1 | 2.0 | 8.9 | 4.7 | 5.3 | 13.1 | 7.5 |
| Consumer Disc. | 13.9 | 14.2 | 10.8 | 13.6 | 22.9 | 8.9 | 12.8 |
| Consumer Staples | 6.6 | 5.8 | 17.2 | 8.9 | 5.7 | 4.1 | 6.7 |
| Energy | 5.3 | 4.8 | 13.4 | 4.4 | 0.7 | 3.6 | 5.9 |
| Financials | 15.4 | 11.5 | 18.0 | 18.0 | 11.7 | 28.2 | 22.3 |
| Health Care | 11.9 | 13.7 | 12.2 | 15.4 | 9.0 | 6.4 | 3.9 |
| Industrials | 13.3 | 12.6 | 11.9 | 17.6 | 25.3 | 9.6 | 7.8 |
| Real Estate | 2.7 | 2.8 | 1.4 | 1.1 | 3.8 | 7.6 | 2.6 |
| Technology | 20.9 | 27.0 | 0.6 | 9.0 | 10.2 | 14.6 | 23.1 |
| Telecoms | 2.9 | 2.6 | 1.7 | 3.3 | 4.2 | 1.5 | 4.3 |
| Utilities | 3.1 | 3.0 | 3.8 | 4.0 | 1.3 | 2.5 | 3.1 |

Chart 3: Earnings growth forecasts (%) have deteriorated markedly across the major equity markets, particularly for the US

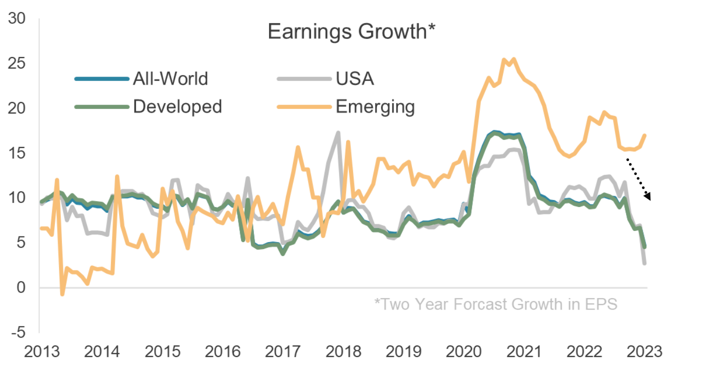



Chart 4: Downgrades to forward EPS estimates now outnumber upgrades for both US large- and small-cap indices

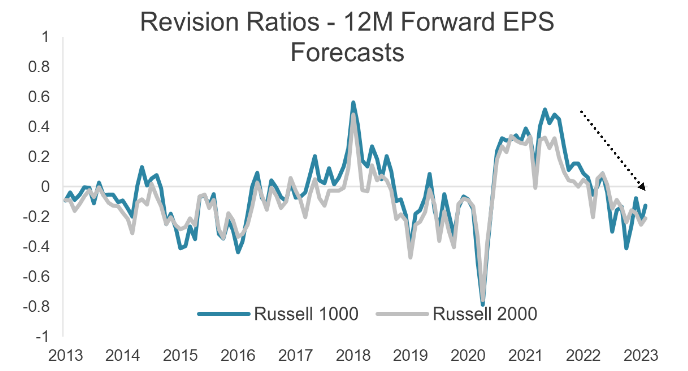



Chart 5: The US premium versus the rest of the world narrowed significantly with the US market's recent underperformance

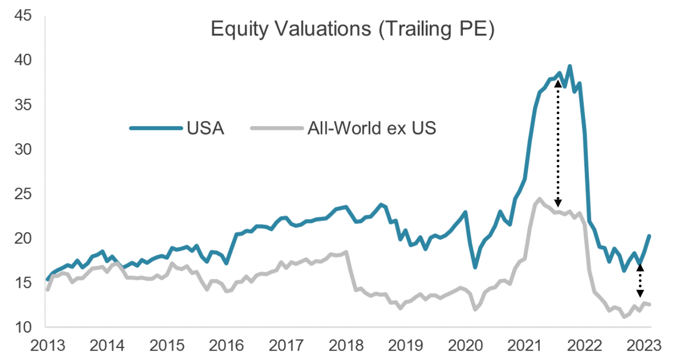
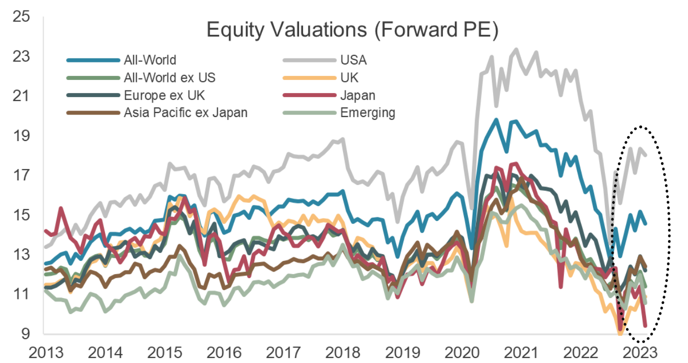



Chart 6: Forward multiples rebounded across markets with the rally that began late-2022, with reversals in Feb in Japan & EM

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## Commodities

**A weakening US dollar has historically benefited commodities, and its recent weakening could prove a tailwind for this asset class. Could the long-term underperformance of commodities relative to equities be poised for sustained reversal? FX markets are signaling expectations for stable commodity prices, implying more potential downside risk for equities.**

The historical negative correlation between moves in commodity prices and the US dollar has broken down since 2021 (Chart 2), reflecting the impact of the Russia/Ukraine conflict on oil prices and the surge in the US dollar to record highs last year. This relationship could revert to its long-term pattern as the US dollar weakens, boding well for commodities. Periods of under- or outperformance of commodities relative to equities tend to be long-lasting, suggesting the asset class may be in a new cycle.

Commodity prices have fluctuated greatly with the deterioration in the macroeconomic outlook last year and subsequent signs of stabilization YTD. Oil prices have fallen significantly since last year, while gold has enjoyed a strong rebound as real yields stabilized. By contrast, prices of copper, which is a good proxy for economic growth, strengthened over the past three months, trimming 12-month losses. Could global growth in 2023 turn out to be stronger than markets are currently priced for?

With the currencies of commodity importers (blue bars) strengthening by an average 1.3% versus USD (Chart 4), exceeding the average 0.8% rise for commodity exporters (grey bars), currency markets seem to be expecting commodity prices to stabilize.

Chart 1: Commodity prices have fluctuated greatly over the past three months, with copper and gold rising and oil falling

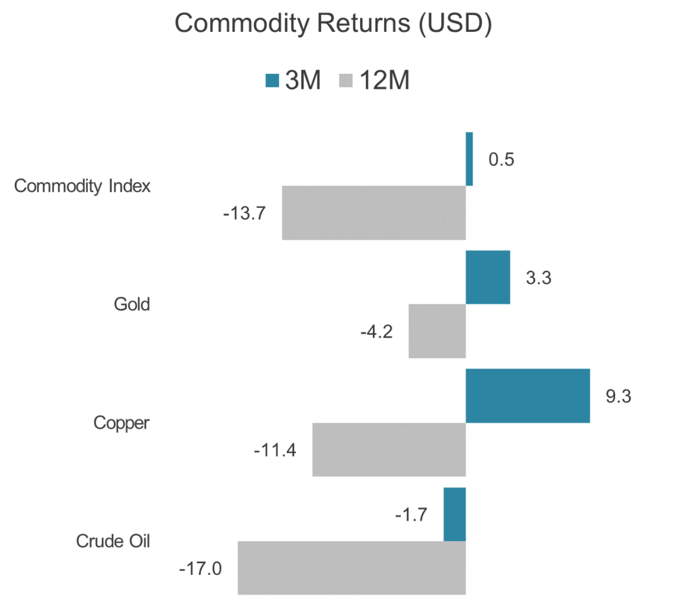



Chart 2: The typical negative correlation between commodities and the US dollar broke down with Russia/Ukraine war

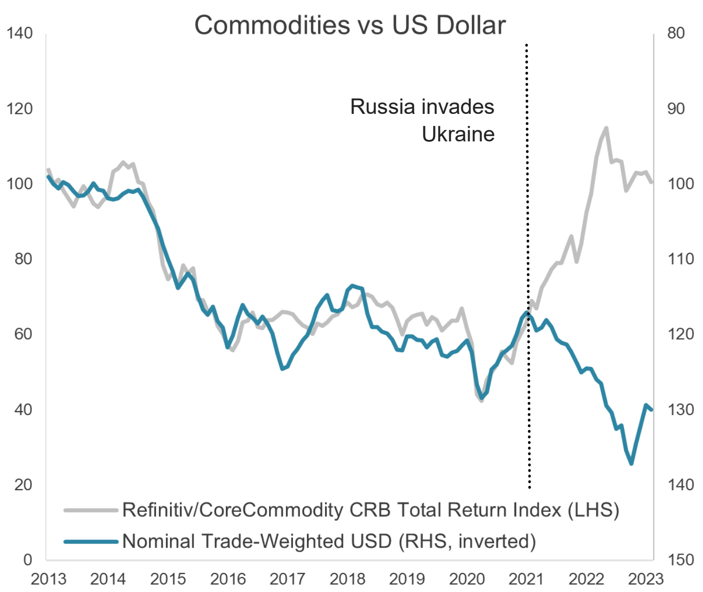



Chart 3: Commodity underperformance relative to equities may have bottomed in 2021

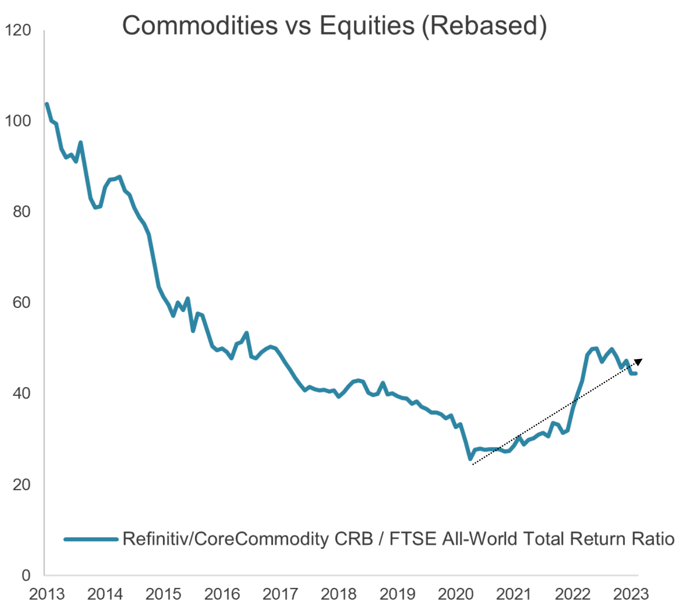
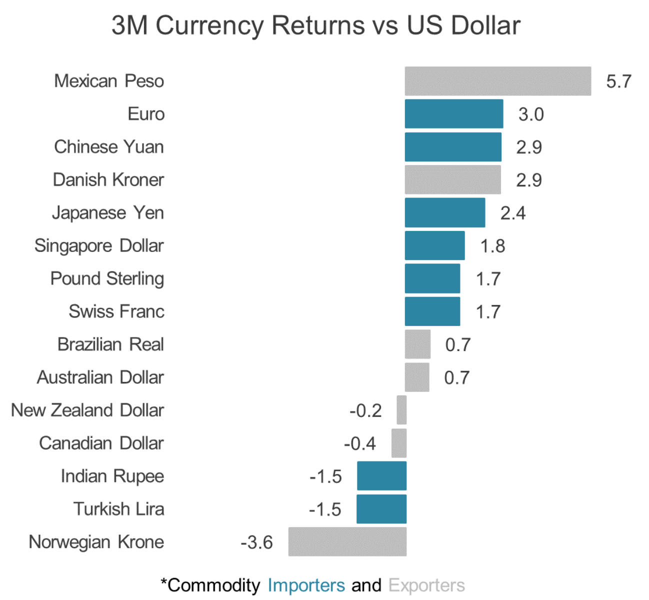



Chart 4: Flat commodity prices in last 3M led to higher average gains in the currencies of commodity importers vs exporters

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# Real Assets: Listed Real Estate and Infrastructure

**Infrastructure returns were broadly less negative and risk premiums were higher than those for real estate over the past year. Dispersion is higher for real estate than infrastructure across markets. Real estate has provided an inflation hedge only when inflation was moderate.**

Infrastructure outperformed real estate by a large margin over the last 12 months, though both suffered losses. The losses in real estate were particularly acute in countries with the highest inflation, such as the UK and Developed Europe. In the rally of the past three months, however, real estate outpaced infrastructure.

The risk premium (relative to equities) for infrastructure globally was 2.4% over the last 12 months, and was much higher in emerging than in developed markets. Over the same period, real estate only outperformed equities in the low-inflation markets such as Developed Asia Pacific ex Japan, while deeply underperforming equities in the high-inflation countries such as the UK and Europe. Real estate is commonly considered an inflation hedge, but the data show that this only tends to hold true during periods of low to medium inflation. The risk premium in listed real assets has been mostly negative over the last three months.

Chart 1: Despite their recent rebound, listed real estate suffered large losses in most markets over the last 12 months

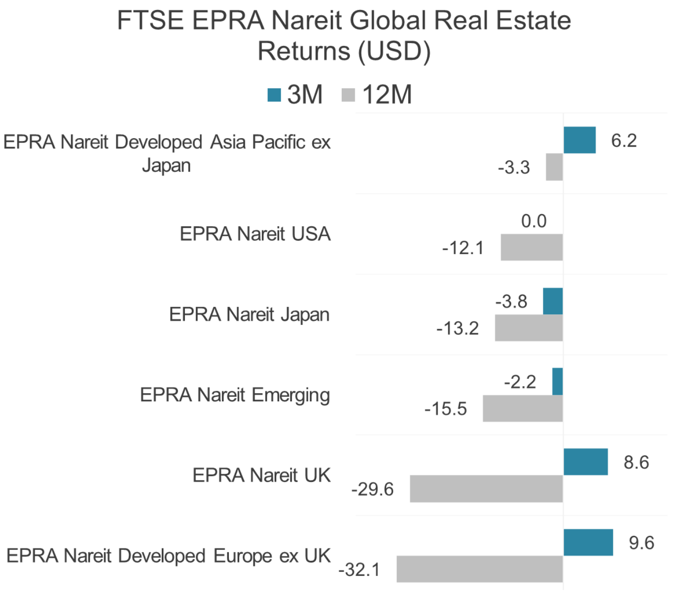



Chart 2: Core Infrastructure posted losses over the past three months, while most risk assets rallied

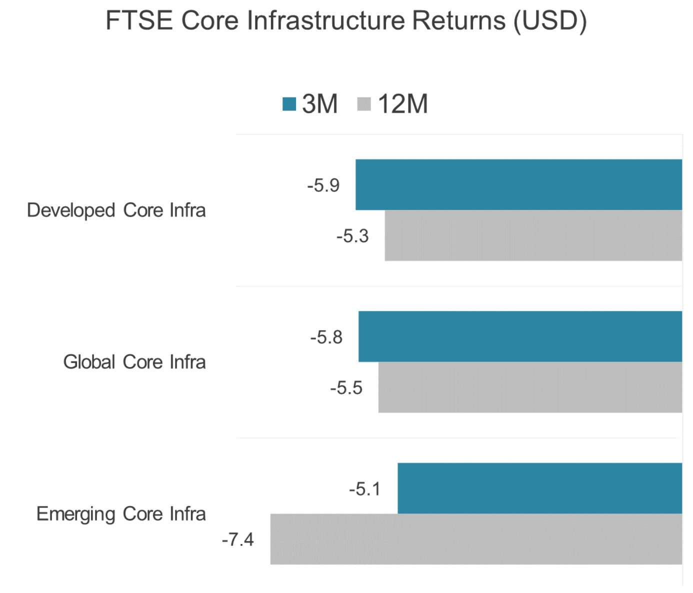



**Chart 3:** Listed real estate lagged equity for the 12M, particularly in UK and Europe (highest inflation countries)

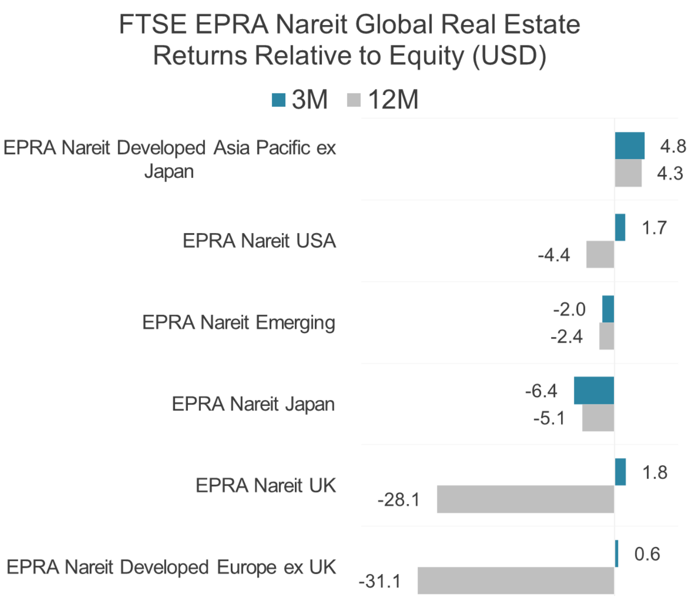
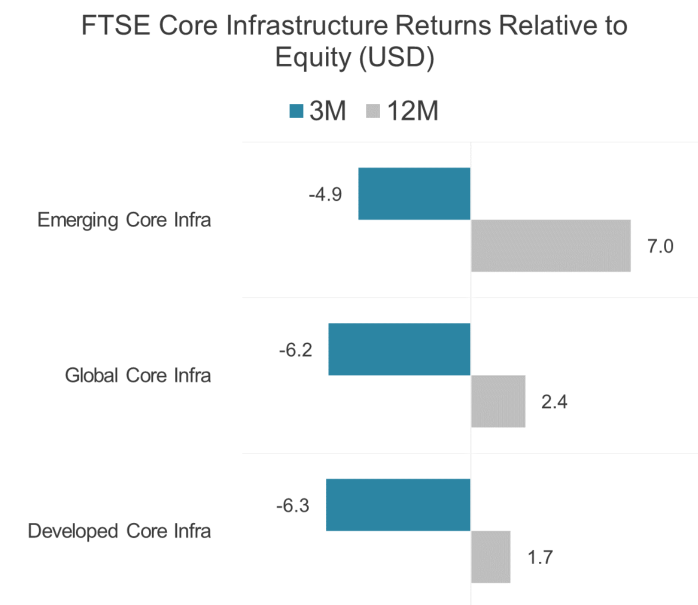



**Chart 4:** Core Infrastructure trailed equity in the recent global rally, a major reversal from its 12M outperformance

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## Currencies

**Tightening yield differentials and easing financial-market stress have taken the wind out of the super-strong US dollar**

With its steep rise over the past decade (Chart 1), the trade-weighted US dollar reached a level of more than two standard deviations from its 10-year mean at the start of Q4 2022, an extreme over-valuation from which mean reversals have historically begun. The US dollar rally has lost steam since then, particularly versus currencies that had weakened the most, namely the yen, euro and sterling.

Short-term interest-rate differentials are a key determinant of currency values (Chart 2-5). They show the euro was overvalued during 2016-2019, then underwent a period of undervaluation before correcting in Q4 2022. While the undervaluation of sterling and the yen has also reversed since late last year, both remain undervalued based on rate differentials.

The US dollar tends to strengthen in periods of high market stress, when strong demand for safe havens drive capital flows into the reserve currency. **A weakening dollar is a positive sign for the global economy, and also eases financial conditions.**

Chart 1: The trade-weighted US dollar (real & nominal) appears to have rolled over. LT patterns suggest it may fall further

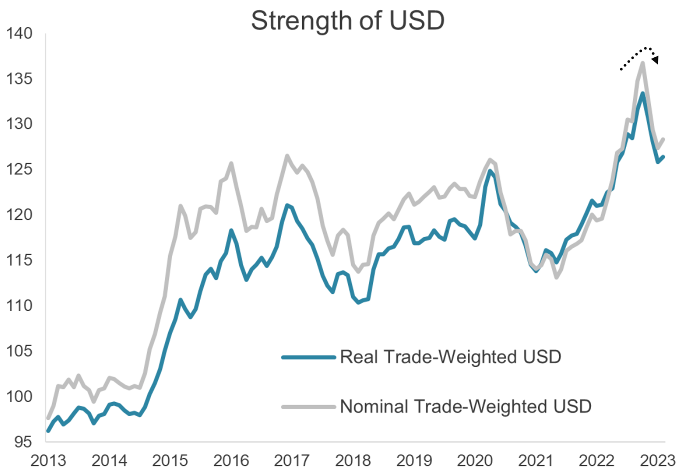



Chart 2: The euro bottomed vs USD at end-2022, as rate differentials narrowed, but remains below its10-year average

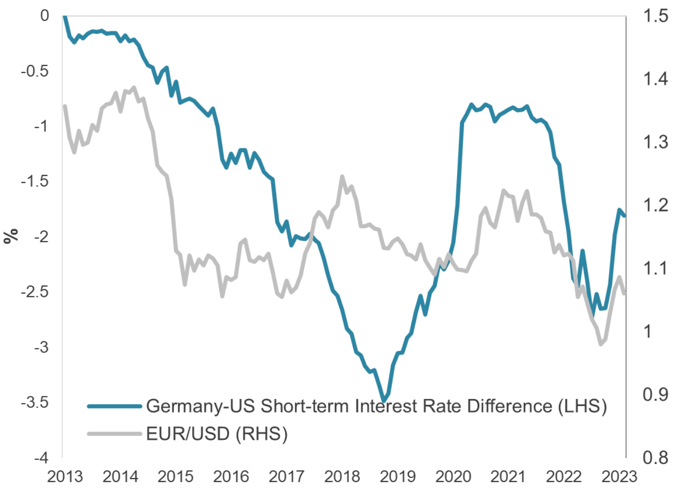



Chart 3: The GBP bottomed vs USD at end-2022, as rate differentials narrowed, but remains below its 10-year average

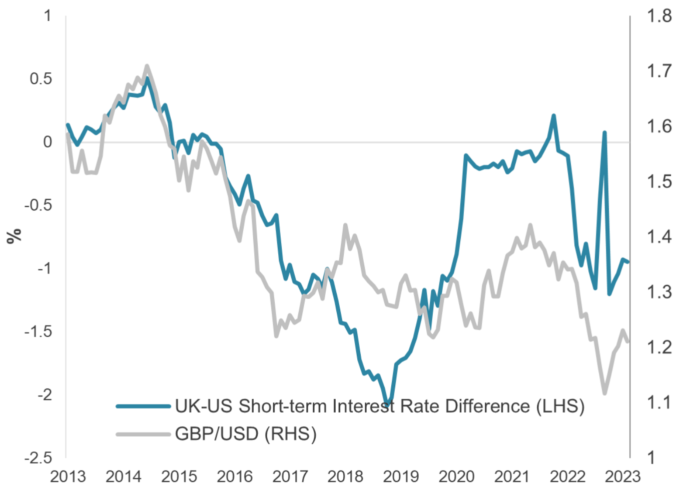



Chart 4: US-Japan rate differentials are at all-time highs, underpinning the recent extreme weakness of the yen

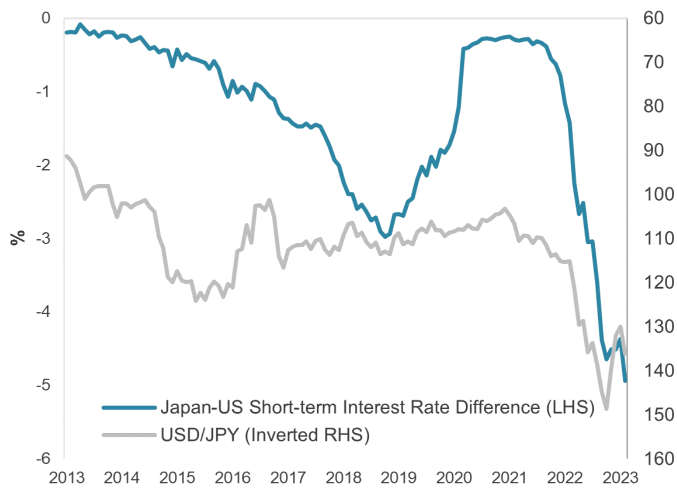
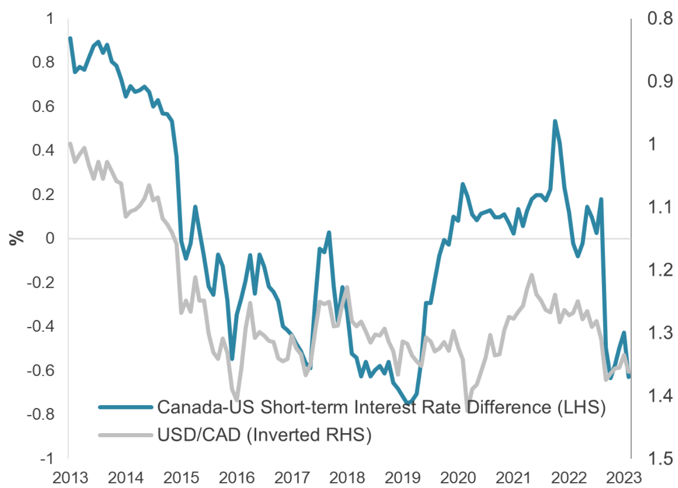



Chart 5: Canadian yields have moved below those of the US since September, leading to CAD depreciation vs the USD

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# Capital Flows

**Capital flows rallied in 2023, particularly into bonds. The exceptions were EM (particularly Chinese) bonds and North American equities, which saw outflows. Flows into sustainable investments have been more resilient than those into broader markets.**

Fund flows have improved in the last three months, after significant outflows in the middle of last year, though there was a lot of inter-month variability, driven by market volatility. Significant outflows from bond and equity funds in December, and strong inflows amid the January rally, were followed by mixed flows in February, with continued inflows into bonds and outflows from equities.

All but one region saw improving bond fund flows in the last three months, which was a reversal of the negative trend earlier in the year, particularly for Europe and North America. The exception was EM, which saw significant outflows from China bond funds in December. For the same period, there were also positive flows into equities across regions, except for North America, which saw a continuation of the outflows it has seen for most of the last 12 months.

SI flows continued to show more resiliency than those into the broader markets, with SI bond and equities seeing inflows for all of the last four months. SI investors continued to withdraw from money markets. The degree of SI inflows in February were markedly lower than in January, likely driven by weaker market performance. SI bond funds saw similar regional patterns to those of the broader market over the last three months, with positive flows everywhere except EM. However, SI equity funds were only positive in Europe, by far the biggest region of the SI market, whilst other regions were flat or down.

Chart 1: Net flows (USD) improved in 2023 (February was weaker than January) and FI had better flows than equities

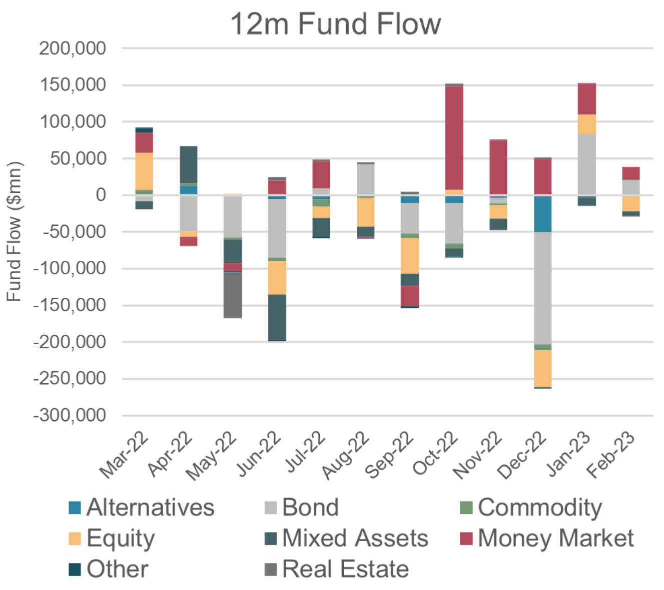



Chart 2: Flows into sustainable investments (USD) showed more resilience than those into broader markets

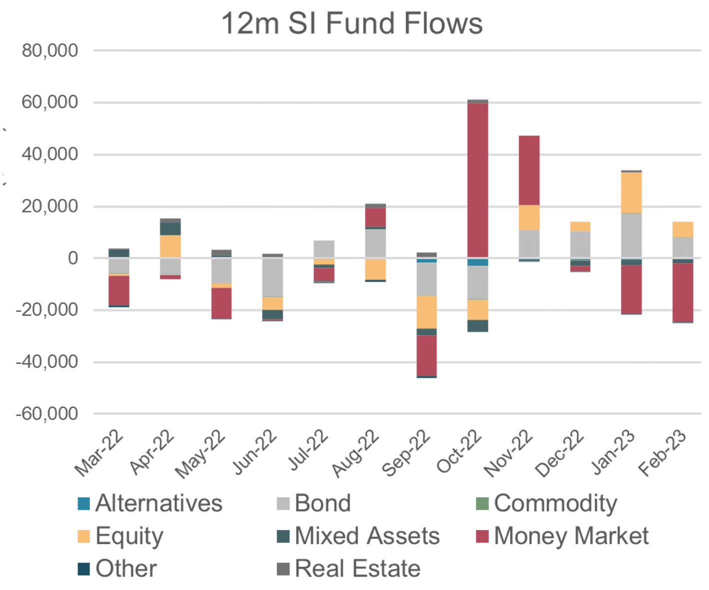



Chart 3: Bond flows (USD) were strongest in Japan over last 12M. All regions, except EM, have recovered in the last 3M

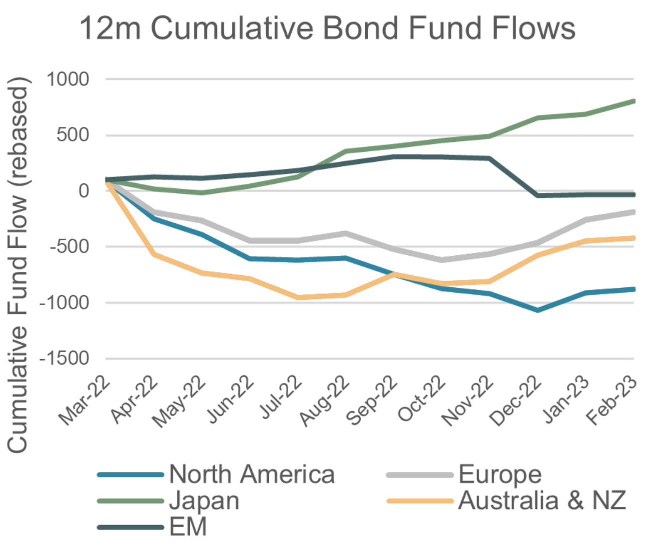
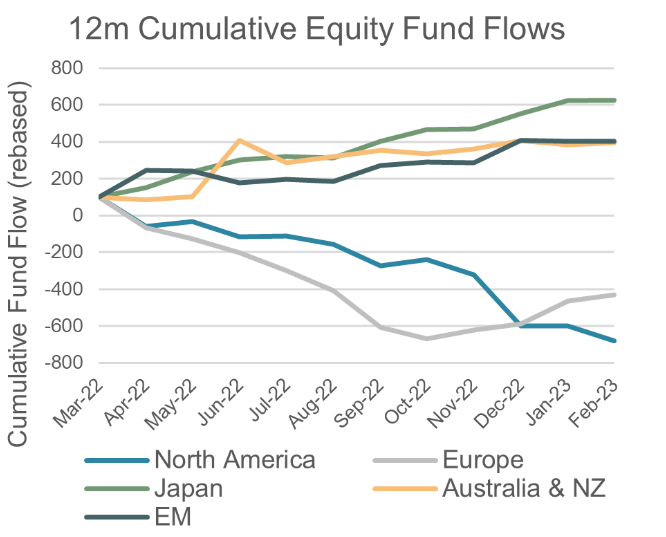



Chart 4: Equity flows rose the most in EM & Japan in last 12M. Europe saw inflows in last 3M, N. America had continued outflows

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# Cross Asset: Market Expectations and Risk Premiums

**Macro indicators suggest 7-10 year interest rates may be poised to ease. There are signs the slowdown in global growth may be stabilizing, while volatility in equities and spreads in high-yield credit have eased from recent peaks. Equity markets are pricing more benign economic conditions than credit.**

Gold tends to be a risk-off commodity, while copper is a proxy for global growth. The Copper/Gold ratio indicates expectations for slowing global growth are far less acute than during the China growth scare in 2015-2016 and Covid crash in early 2020. It has also begun to roll over, signaling brighter prospects for copper prices and, thus, global growth, as well as improved risk appetite.

Chart 2 illustrates the long-term positive correlation between shifts in economic growth indicators and sovereign bond yields, as well as the recent disconnect from the norm, with yields running higher than their typical relationship to growth prospects would imply. Chart 3 shows a similar relationship between moves in oil prices and long sovereign yields. By this reading, the falloff in oil prices reflects both the outlook for slower economic growth and easing geopolitical risks given the Ukraine crisis has not spread. These charts imply that sovereign yields have more room to fall, which could in turn provide a more positive backdrop for risk assets.

Chart 4 shows the typically strong correlation between risk in equities (volatility) and high-yield (credit spreads) and that both have eased recently. However, the decrease is more pronounced in equities, implying equity markets are priced for more benign economic conditions than credit is.

Chart 1: The Copper/Gold price ratio suggests that the recent slowdown in global growth expectations may be stabilizing

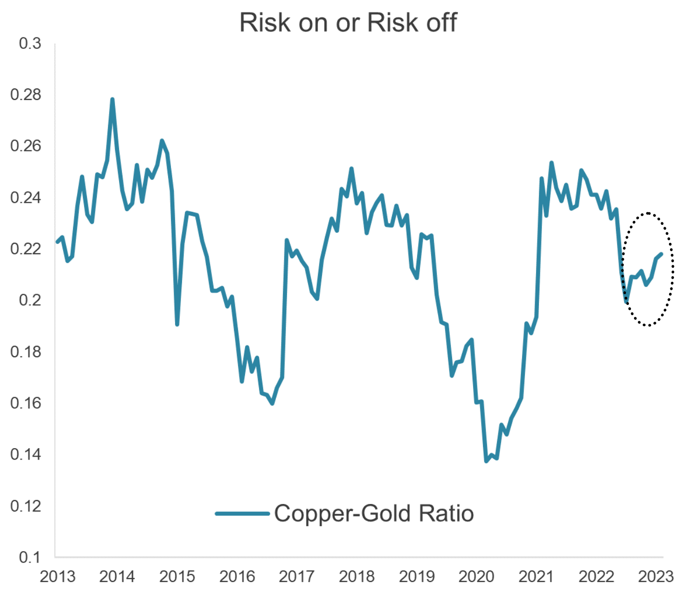



Chart 2: Sovereign yields are high relative to economic growth indicators, indicating they potentially have scope to fall

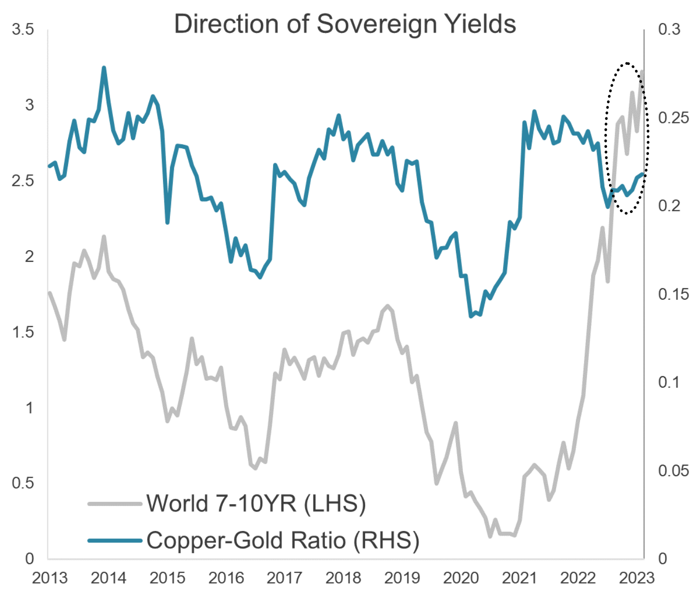



Chart 3: Falling oil prices indicate sovereign yields may have more room to ease

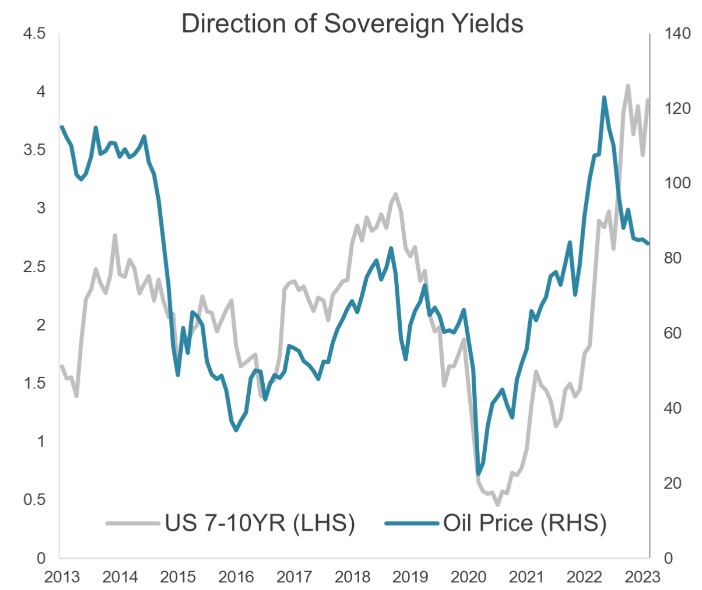
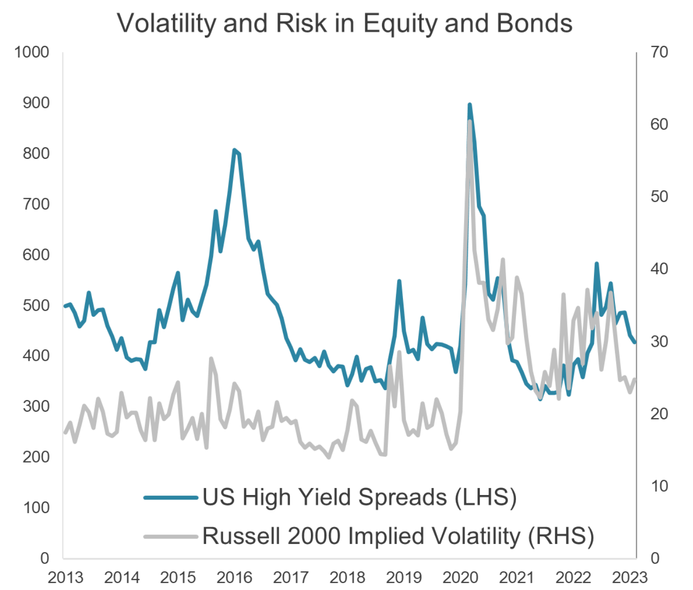



Chart 4: Equity risk (volatility) and high-yield risk (credit spreads) are both falling, though the fall is sharper in equities

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# Cross-Asset: Equities and Fixed Income

## Historical macro and stock/bond relationships indicate potential downside risk in equities, particularly in the US.

The total stock market capitalization/GDP ratio is a macro measure of equity valuations, known as the Buffett Indicator (Chart 1). It has always been higher for the US, unsurprising given the size of its economy and deep financial markets. For the US, a ratio above 1.4 has historically been followed by a bear market. Since 2021, this ratio fell from above 2 to about 1.5 but is still above its long-term average. For the FTSE All-World, this ratio is in line with its long-term average of 0.6, indicating that global equities are fairly valued.

The stock/bond ratio (Chart 2) went from parity a decade ago to an all-time high of 1.54x in 2021. At 1.45x currently, it remains above pre-Covid levels. While some of the extreme frothiness has been squeezed out of equities, they remain overvalued per historical norms. To reach equilibrium, equities would have to fall further or bond prices to move higher (another indicator bond yields may have peaked). This metric lends further support to the view that equities have more potential downside risk. A similar disconnect has emerged between the risk premiums of equities and high-yield credit (Chart 4), two risky and typically highly correlated asset classes. The equity risk premium is currently much lower than that of HY, which again implies room for equity valuations to contract.

The historically low correlation (average 40%) between stocks and bonds is the basis for the 60/40 portfolio. The abnormal spike in this correlation to an all-time high of 85% at year-end 2022 (Chart 4) makes it likely it will mean-revert at some point and again provide diversification benefits.

Chart 1: Global market cap relative to the real economy is near long-term norm but still a tad higher than average for US

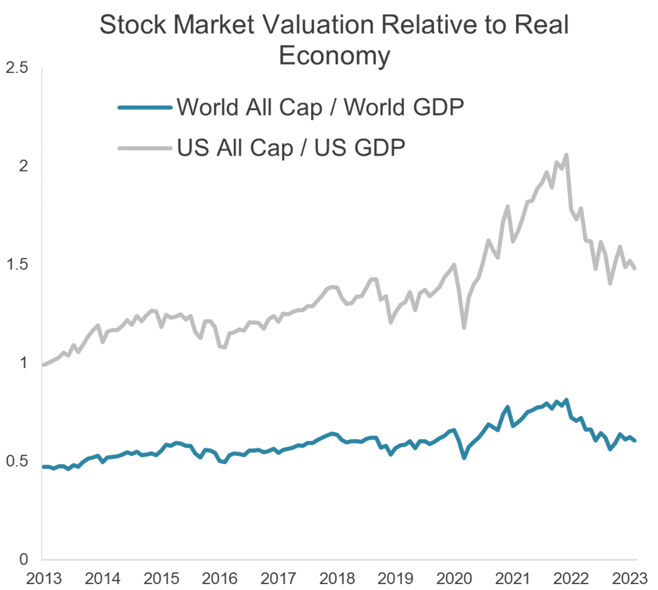



Chart 2: While off recent peaks, relative stock/bond market values are still elevated, indicating downside risk for equities

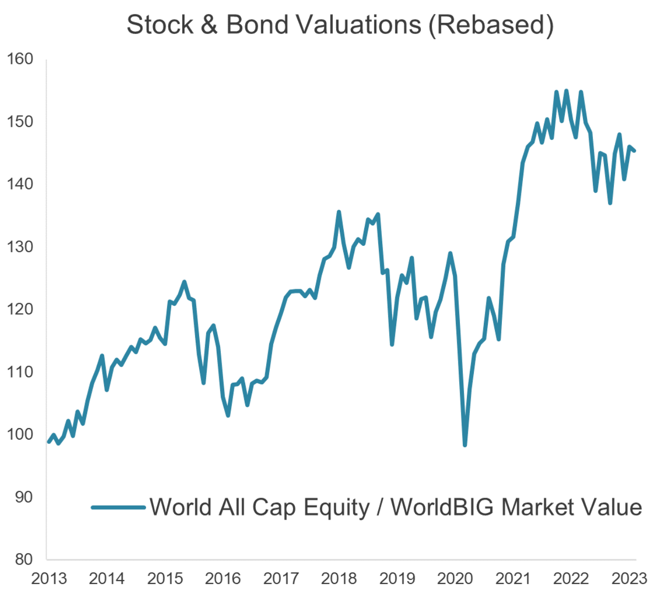



Chart 3: Stock/bond correlations are at record highs, but mean reversion would restore diversification opportunities

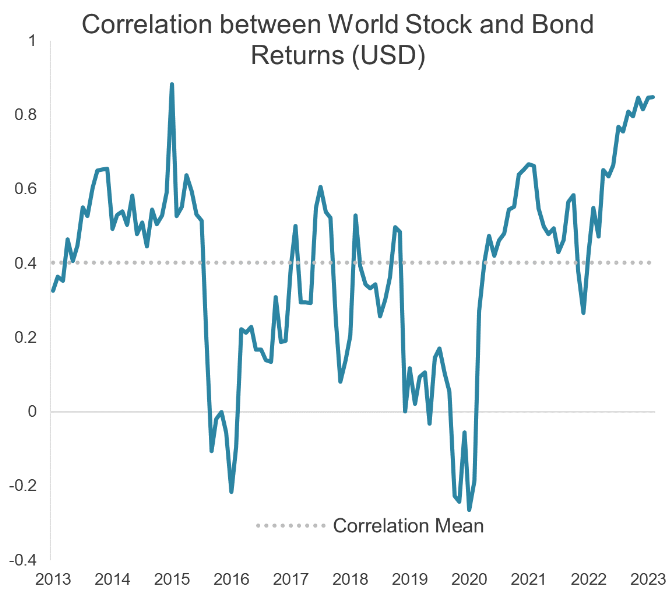
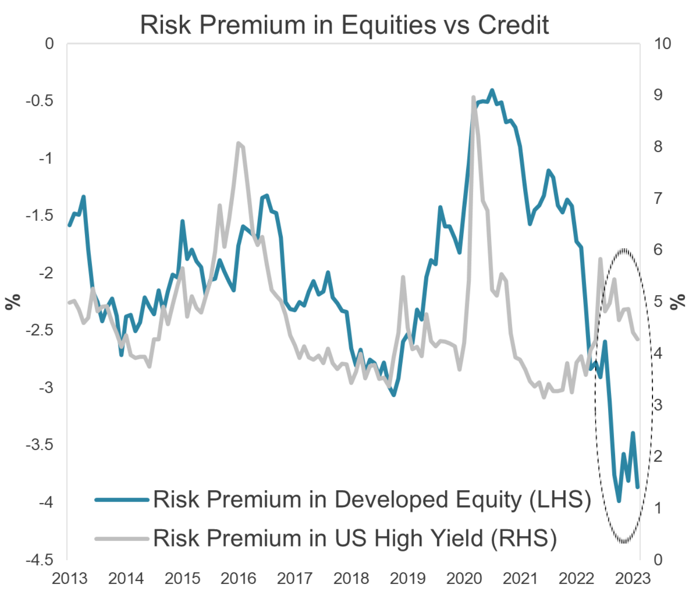



Chart 4: The US equity risk premium is unusually low relative to high-yield credit spreads, suggesting downside risk for equities

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## Cross Asset: Return and Risk

**Commodities and equities have characteristics that appeal to total-return investors. Real estate and infrastructure provide above-average income. Fixed income sold off sharply in 2022, paying earnings yields matching those of infrastructure.**

Based on the broadest FTSE Russell indices in equities, fixed income, commodities, real estate and infrastructure, almost every asset class delivered negative returns over the past year (the return for commodities is very dependent on the index used, given the huge return dispersion among different commodities and their differing weights in the indexes). But commodities do not generate income. For income-oriented investors, real assets such as real estate and infrastructure are more attractive than equities.

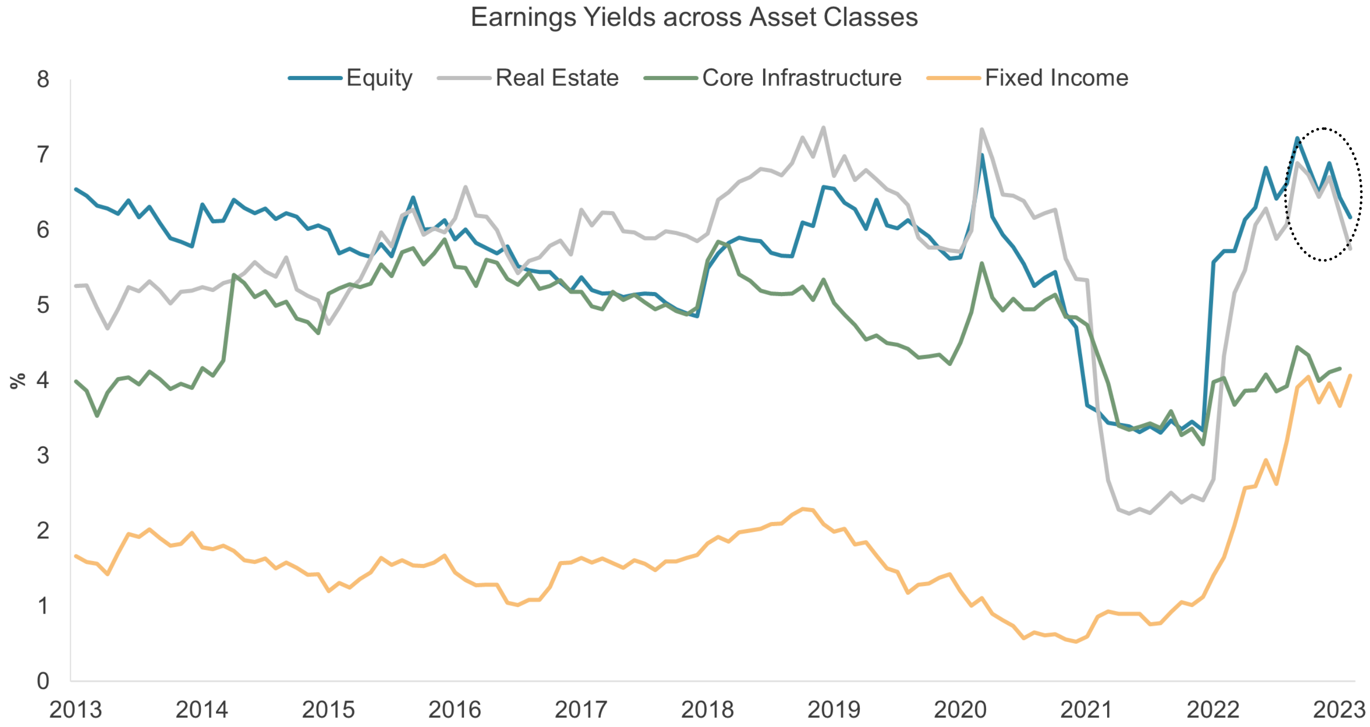
In real assets, infrastructure outperformed real estate over one- and five-year periods, with higher returns and risk-adjusted returns. Infrastructure (ports, bridges, etc.) tends to have longer, and government regulated, leases, which protect their revenue streams, while both retail and commercial real estate is affected by shorter-duration leases and rising vacancy rates. Infrastructure projects also involve fewer players and more stable revenue streams.

The spike in interest rates over the past year has made fixed income a competitive asset class, with earnings yields now roughly in line with those of infrastructure. Earnings yields (E/P, or the reverse of P/E) in equities and listed real estate are now almost equal (Chart 2). The equity earnings yield differential over fixed income has narrowed sharply over the last 12 months.

Chart 1: Key Metrics Across Asset Classes

| 1Y Annualised | USD Total Return % | Income Yield % | Risk | Return/Risk |
|---|---|---|---|---|
| Equity | -7.7 | 2.2 | 21.3 | -0.4 |
| Fixed Income | -14.0 | 3.2 | 11.3 | -1.2 |
| Commodities | 3.1 | -- | 16.1 | 0.2 |
| Real Estate | -14.4 | 4.0 | 22.7 | -0.6 |
| Infrastructure | -5.5 | 3.1 | 20.1 | -0.3 |
| **5Y Annualised** | **USD Total Return %** | **Income Yield %** | **Risk** | **Return/Risk** |
| Equity | 6.3 | 2.2 | 17.5 | 0.4 |
| Fixed Income | -2.0 | 1.7 | 6.7 | -0.3 |
| Commodities | 8.4 | -- | 19.9 | 0.4 |
| Real Estate | 1.8 | 3.9 | 18.9 | 0.1 |
| Infrastructure | 7.0 | 3.2 | 15.2 | 0.5 |

Chart 2: Earnings yield (EY) in equities & listed real estate are maintaining their high co-movement. EY have been decreasing in infrastructure & increasing sharply in fixed income. Equities (more volatile than fixed income) compensate investors with higher EY

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# Cross Asset: Return and Risk

**The one-year risk/return profile for US equities has deteriorated sharply from that of the past five years. Fixed income volatility has been less than half that of equities over both periods. HY provided superior risk-adjusted returns versus investment-grade corporates.**

Over the past five years, most equity markets have had volatility in the 15-20% range, while bond market volatility has been in the 5-10% range, half or less than that of equities. Over the five-year period, US large-cap equities outperformed global peers, though with volatility at the upper end of the range for equities, and the highest risk-adjusted returns of all the major asset classes (Chart 2).

The difference between the one- and five-year risk/return of the different asset classes and markets is quite notable. Over the one-year period (Chart 1), the value-oriented UK and Developed European equites were roughly flat (down approximately 1%), with lower volatility than global peers. Emerging markets were the biggest laggards, though volatility was in line or lower than that of most developed markets. US large caps had a risk/return tradeoff slightly worse than that of US small caps over the past year.

In terms of return per unit of risk over the one- and five-year periods, listed infrastructure did better than listed real estate, while high-yield credit outperformed investment grade corporates in the US and globally.

Chart 1: One-Year Risk-Return of Different Asset Classes - Equity volatility was in the 21-27% range, while returns were deeply negative, except for UK and Developed Europe, which also had the highest return per unit of risk over the last 12 months


Chart 2: Five-Year Risk-Return of Different Asset Classes - Equity volatility was lower (17-24%) over this period, with DMs significantly outperforming EMs. US large caps (Russell 1000) delivered the highest return per unit of risk over the past five years


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# Cross Asset: Correlations

**Correlations between stocks and sovereign bonds have turned sharply positive over the past year as rates drove equities.**

The correlation between the Russell 1000 and the US 7-10 year Treasury yield rose from 13% over the five-year period to 66% over the past year, while correlations to global sovereign yields climbed from 45% to 76% and those with US TIPs (real yields) went from 59% to 86% over the same period. These changes highlight (1) how bond yields have dominated equity performance over the past year, and (2) how global rates have been a bigger influence than US rates on US stock behavior, which is not surprising given the significant international revenue and earnings exposure of the Russell 1000.

Chart 1: 1-Year Correlation - Equities have been driven mainly by real yields in the last one year

| | Russell 1000 | Russell 2000 | All-World | All-World ex USA | UK | Dev Europe ex UK | Japan | Dev Asia Pac ex Japan | Emerg-ing | US Govt 7-10yr | US ILSI | US High Yield | USBIG Corp | World Govt 7-10yr | World ILSI | World HY | WBIG Corp | Global Core Infra-structure | EPRA Nareit Global | Gold | Crude Oil |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Russell 1000 | | 0.96 | 0.98 | 0.85 | 0.85 | 0.89 | 0.87 | 0.82 | 0.56 | 0.66 | 0.86 | 0.92 | 0.77 | 0.76 | 0.88 | 0.91 | 0.79 | 0.85 | 0.90 | 0.31 | 0.22 |
| Russell 2000 | 0.96 | | 0.92 | 0.77 | 0.79 | 0.81 | 0.80 | 0.74 | 0.46 | 0.63 | 0.86 | 0.91 | 0.70 | 0.72 | 0.84 | 0.88 | 0.72 | 0.73 | 0.82 | 0.26 | 0.29 |
| All-World | 0.98 | 0.92 | | 0.94 | 0.92 | 0.95 | 0.94 | 0.90 | 0.71 | 0.73 | 0.87 | 0.91 | 0.85 | 0.84 | 0.92 | 0.94 | 0.88 | 0.87 | 0.94 | 0.44 | 0.18 |
| All-World ex USA | 0.85 | 0.77 | 0.94 | | 0.95 | 0.96 | 0.97 | 0.96 | 0.88 | 0.79 | 0.83 | 0.81 | 0.91 | 0.89 | 0.91 | 0.89 | 0.94 | 0.83 | 0.92 | 0.63 | 0.09 |
| UK | 0.85 | 0.79 | 0.92 | 0.95 | | 0.97 | 0.92 | 0.90 | 0.74 | 0.74 | 0.86 | 0.84 | 0.83 | 0.86 | 0.91 | 0.91 | 0.88 | 0.78 | 0.88 | 0.55 | 0.25 |
| Dev Europe ex UK | 0.89 | 0.81 | 0.95 | 0.96 | 0.97 | | 0.93 | 0.87 | 0.73 | 0.73 | 0.81 | 0.87 | 0.85 | 0.87 | 0.90 | 0.94 | 0.91 | 0.77 | 0.90 | 0.50 | 0.15 |
| Japan | 0.87 | 0.80 | 0.94 | 0.97 | 0.92 | 0.93 | | 0.93 | 0.84 | 0.83 | 0.87 | 0.85 | 0.94 | 0.93 | 0.93 | 0.92 | 0.96 | 0.84 | 0.89 | 0.58 | 0.11 |
| Dev Asia Pac ex Japan | 0.82 | 0.74 | 0.90 | 0.96 | 0.90 | 0.87 | 0.93 | | 0.86 | 0.71 | 0.82 | 0.76 | 0.83 | 0.82 | 0.89 | 0.83 | 0.86 | 0.89 | 0.93 | 0.71 | 0.16 |
| Emerging | 0.56 | 0.46 | 0.71 | 0.88 | 0.74 | 0.73 | 0.84 | 0.86 | | 0.74 | 0.61 | 0.50 | 0.85 | 0.78 | 0.71 | 0.62 | 0.83 | 0.68 | 0.73 | 0.69 | -0.18 |
| US Govt 7-10yr | 0.66 | 0.63 | 0.73 | 0.79 | 0.74 | 0.73 | 0.83 | 0.71 | 0.74 | | 0.79 | 0.67 | 0.94 | 0.95 | 0.85 | 0.71 | 0.91 | 0.57 | 0.72 | 0.56 | 0.04 |
| US ILSI | 0.86 | 0.86 | 0.87 | 0.83 | 0.86 | 0.81 | 0.87 | 0.82 | 0.61 | 0.79 | | 0.87 | 0.80 | 0.82 | 0.94 | 0.86 | 0.81 | 0.79 | 0.88 | 0.46 | 0.26 |
| US High Yield | 0.92 | 0.91 | 0.91 | 0.81 | 0.84 | 0.87 | 0.85 | 0.76 | 0.50 | 0.67 | 0.87 | | 0.77 | 0.77 | 0.85 | 0.98 | 0.79 | 0.71 | 0.84 | 0.27 | 0.23 |
| USBIG Corp | 0.77 | 0.70 | 0.85 | 0.91 | 0.83 | 0.85 | 0.94 | 0.83 | 0.85 | 0.94 | 0.80 | 0.77 | | 0.97 | 0.89 | 0.83 | 0.99 | 0.71 | 0.82 | 0.57 | -0.02 |
| World Govt 7-10yr | 0.76 | 0.72 | 0.84 | 0.89 | 0.86 | 0.87 | 0.93 | 0.82 | 0.78 | 0.95 | 0.82 | 0.77 | 0.97 | | 0.92 | 0.84 | 0.98 | 0.68 | 0.80 | 0.63 | 0.11 |
| World ILSI | 0.88 | 0.84 | 0.92 | 0.91 | 0.91 | 0.90 | 0.93 | 0.89 | 0.71 | 0.85 | 0.94 | 0.85 | 0.89 | 0.92 | | 0.89 | 0.91 | 0.80 | 0.93 | 0.63 | 0.14 |
| World HY | 0.91 | 0.88 | 0.94 | 0.89 | 0.91 | 0.94 | 0.92 | 0.83 | 0.62 | 0.71 | 0.86 | 0.98 | 0.83 | 0.84 | 0.89 | | 0.87 | 0.75 | 0.87 | 0.39 | 0.18 |
| WBIG Corp | 0.79 | 0.72 | 0.88 | 0.94 | 0.88 | 0.91 | 0.96 | 0.86 | 0.83 | 0.91 | 0.81 | 0.79 | 0.99 | 0.98 | 0.91 | 0.87 | | 0.73 | 0.84 | 0.60 | 0.04 |
| Global Core Infrastructure | 0.85 | 0.73 | 0.87 | 0.83 | 0.78 | 0.77 | 0.84 | 0.89 | 0.68 | 0.57 | 0.79 | 0.71 | 0.71 | 0.68 | 0.80 | 0.75 | 0.73 | | 0.88 | 0.46 | 0.26 |
| EPRA Nareit Global | 0.90 | 0.82 | 0.94 | 0.92 | 0.88 | 0.90 | 0.89 | 0.93 | 0.73 | 0.72 | 0.88 | 0.84 | 0.82 | 0.80 | 0.93 | 0.87 | 0.84 | 0.88 | | 0.58 | 0.12 |
| Gold | 0.31 | 0.26 | 0.44 | 0.63 | 0.55 | 0.50 | 0.58 | 0.71 | 0.69 | 0.56 | 0.46 | 0.27 | 0.57 | 0.63 | 0.63 | 0.39 | 0.60 | 0.46 | 0.58 | | 0.04 |
| Crude Oil | 0.22 | 0.29 | 0.18 | 0.09 | 0.25 | 0.15 | 0.11 | 0.16 | -0.18 | 0.04 | 0.26 | 0.23 | -0.02 | 0.11 | 0.14 | 0.18 | 0.04 | 0.26 | 0.12 | 0.04 | |

Chart 2: 5-Year Correlation - US equities are more correlated to US high yield than to EM equities. Risk drivers matter the most

| | Russell 1000 | Russell 2000 | All-World | All-World ex USA | UK | Dev Europe ex UK | Japan | Dev Asia Pac ex Japan | Emerg-ing | US Govt 7-10yr | US ILSI | US High Yield | USBIG Corp | World Govt 7-10yr | World ILSI | World HY | WBIG Corp | Global Core Infra-structure | EPRA Nareit Global | Gold | Crude Oil |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Russell 1000 | | 0.93 | 0.98 | 0.88 | 0.83 | 0.89 | 0.79 | 0.84 | 0.71 | 0.13 | 0.59 | 0.84 | 0.62 | 0.45 | 0.65 | 0.84 | 0.68 | 0.83 | 0.86 | 0.20 | 0.54 |
| Russell 2000 | 0.93 | | 0.93 | 0.88 | 0.84 | 0.85 | 0.80 | 0.86 | 0.74 | -0.01 | 0.48 | 0.85 | 0.54 | 0.36 | 0.55 | 0.84 | 0.61 | 0.73 | 0.82 | 0.09 | 0.64 |
| All-World | 0.98 | 0.93 | | 0.96 | 0.90 | 0.94 | 0.85 | 0.91 | 0.80 | 0.13 | 0.58 | 0.85 | 0.64 | 0.50 | 0.67 | 0.88 | 0.73 | 0.85 | 0.89 | 0.25 | 0.57 |
| All-World ex USA | 0.88 | 0.88 | 0.96 | | 0.94 | 0.96 | 0.87 | 0.96 | 0.89 | 0.11 | 0.52 | 0.82 | 0.64 | 0.53 | 0.65 | 0.87 | 0.75 | 0.80 | 0.87 | 0.31 | 0.58 |
| UK | 0.83 | 0.84 | 0.90 | 0.94 | | 0.93 | 0.80 | 0.89 | 0.76 | -0.01 | 0.42 | 0.76 | 0.49 | 0.40 | 0.56 | 0.80 | 0.61 | 0.78 | 0.85 | 0.22 | 0.65 |
| Dev Europe ex UK | 0.89 | 0.85 | 0.94 | 0.96 | 0.93 | | 0.82 | 0.89 | 0.76 | 0.15 | 0.54 | 0.80 | 0.62 | 0.54 | 0.67 | 0.86 | 0.73 | 0.79 | 0.86 | 0.29 | 0.57 |
| Japan | 0.79 | 0.80 | 0.85 | 0.87 | 0.80 | 0.82 | | 0.82 | 0.70 | 0.16 | 0.45 | 0.71 | 0.53 | 0.48 | 0.53 | 0.74 | 0.62 | 0.69 | 0.71 | 0.14 | 0.46 |
| Dev Asia Pac ex Japan | 0.84 | 0.86 | 0.91 | 0.96 | 0.89 | 0.89 | 0.82 | | 0.88 | 0.11 | 0.53 | 0.77 | 0.63 | 0.52 | 0.63 | 0.83 | 0.73 | 0.78 | 0.86 | 0.35 | 0.54 |
| Emerging | 0.71 | 0.74 | 0.80 | 0.89 | 0.76 | 0.76 | 0.70 | 0.88 | | 0.09 | 0.41 | 0.69 | 0.63 | 0.50 | 0.56 | 0.76 | 0.72 | 0.65 | 0.74 | 0.39 | 0.46 |
| US Govt 7-10yr | 0.13 | -0.01 | 0.13 | 0.11 | -0.01 | 0.15 | 0.16 | 0.11 | 0.09 | | 0.72 | 0.15 | 0.66 | 0.82 | 0.64 | 0.18 | 0.60 | 0.15 | 0.19 | 0.43 | -0.28 |
| US ILSI | 0.59 | 0.48 | 0.58 | 0.52 | 0.42 | 0.54 | 0.45 | 0.53 | 0.41 | 0.72 | | 0.62 | 0.81 | 0.80 | 0.91 | 0.63 | 0.80 | 0.57 | 0.63 | 0.48 | 0.14 |
| US High Yield | 0.84 | 0.85 | 0.85 | 0.82 | 0.76 | 0.80 | 0.71 | 0.77 | 0.69 | 0.15 | 0.62 | | 0.73 | 0.53 | 0.70 | 0.98 | 0.78 | 0.75 | 0.82 | 0.25 | 0.65 |
| USBIG Corp | 0.62 | 0.54 | 0.64 | 0.64 | 0.49 | 0.62 | 0.53 | 0.63 | 0.63 | 0.66 | 0.81 | 0.73 | | 0.82 | 0.85 | 0.76 | 0.97 | 0.59 | 0.69 | 0.48 | 0.29 |
| World Govt 7-10yr | 0.45 | 0.36 | 0.50 | 0.53 | 0.40 | 0.54 | 0.48 | 0.52 | 0.50 | 0.82 | 0.80 | 0.53 | 0.82 | | 0.88 | 0.60 | 0.88 | 0.44 | 0.52 | 0.61 | 0.05 |
| World ILSI | 0.65 | 0.55 | 0.67 | 0.65 | 0.56 | 0.67 | 0.53 | 0.63 | 0.56 | 0.64 | 0.91 | 0.70 | 0.85 | 0.88 | | 0.74 | 0.89 | 0.65 | 0.71 | 0.61 | 0.25 |
| World HY | 0.84 | 0.84 | 0.88 | 0.87 | 0.80 | 0.86 | 0.74 | 0.83 | 0.76 | 0.18 | 0.63 | 0.98 | 0.76 | 0.60 | 0.74 | | 0.84 | 0.76 | 0.83 | 0.34 | 0.64 |
| WBIG Corp | 0.68 | 0.61 | 0.73 | 0.75 | 0.61 | 0.73 | 0.62 | 0.73 | 0.72 | 0.60 | 0.80 | 0.78 | 0.97 | 0.88 | 0.89 | 0.84 | | 0.64 | 0.74 | 0.55 | 0.35 |
| Global Core Infrastructure | 0.83 | 0.73 | 0.85 | 0.80 | 0.78 | 0.79 | 0.69 | 0.78 | 0.65 | 0.15 | 0.57 | 0.75 | 0.59 | 0.44 | 0.65 | 0.76 | 0.64 | | 0.87 | 0.31 | 0.47 |
| EPRA Nareit Global | 0.86 | 0.82 | 0.89 | 0.87 | 0.85 | 0.86 | 0.71 | 0.86 | 0.74 | 0.19 | 0.63 | 0.82 | 0.69 | 0.52 | 0.71 | 0.83 | 0.74 | 0.87 | | 0.28 | 0.55 |
| Gold | 0.20 | 0.09 | 0.25 | 0.31 | 0.22 | 0.29 | 0.14 | 0.35 | 0.39 | 0.43 | 0.48 | 0.25 | 0.48 | 0.61 | 0.61 | 0.34 | 0.55 | 0.31 | 0.28 | | 0.00 |
| Crude Oil | 0.54 | 0.64 | 0.57 | 0.58 | 0.65 | 0.57 | 0.46 | 0.54 | 0.46 | -0.28 | 0.14 | 0.65 | 0.29 | 0.05 | 0.25 | 0.64 | 0.35 | 0.47 | 0.55 | 0.00 | |

Source: FTSE Russell/Refinitiv. All data as of February 28, 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. Results in this report are for research / illustrative purposes and do not represent the official performance of the indexes.

# Cross Asset: Correlations (continued)

### Consistently high correlations between equities and high-yield credit show that stock/bond diversification benefits come primarily from investment-grade and inflation-linked bonds.

As the riskiest part of fixed income, high-yield corporates have typically been highly correlated with equities (ranging from 84% to 92%). Investment-grade is typically far less correlated to equities than to HY, but that changed dramatically amid the extreme volatility of 2022. The diversification benefits implied in the 60/40 portfolio are driven mainly by sovereign bonds, investment-grade corporates and inflation-linked bonds.

### Consistently falling correlations between developed and emerging markets provide diversification benefits

Within equities, correlations have consistently receded between US and other developed markets, and even more so with emerging markets. The correlation between US and EM equities was 71% over the five-year period and fell to 56% last year, a trend that logically could continue given the diverging economic paths of the US and China.

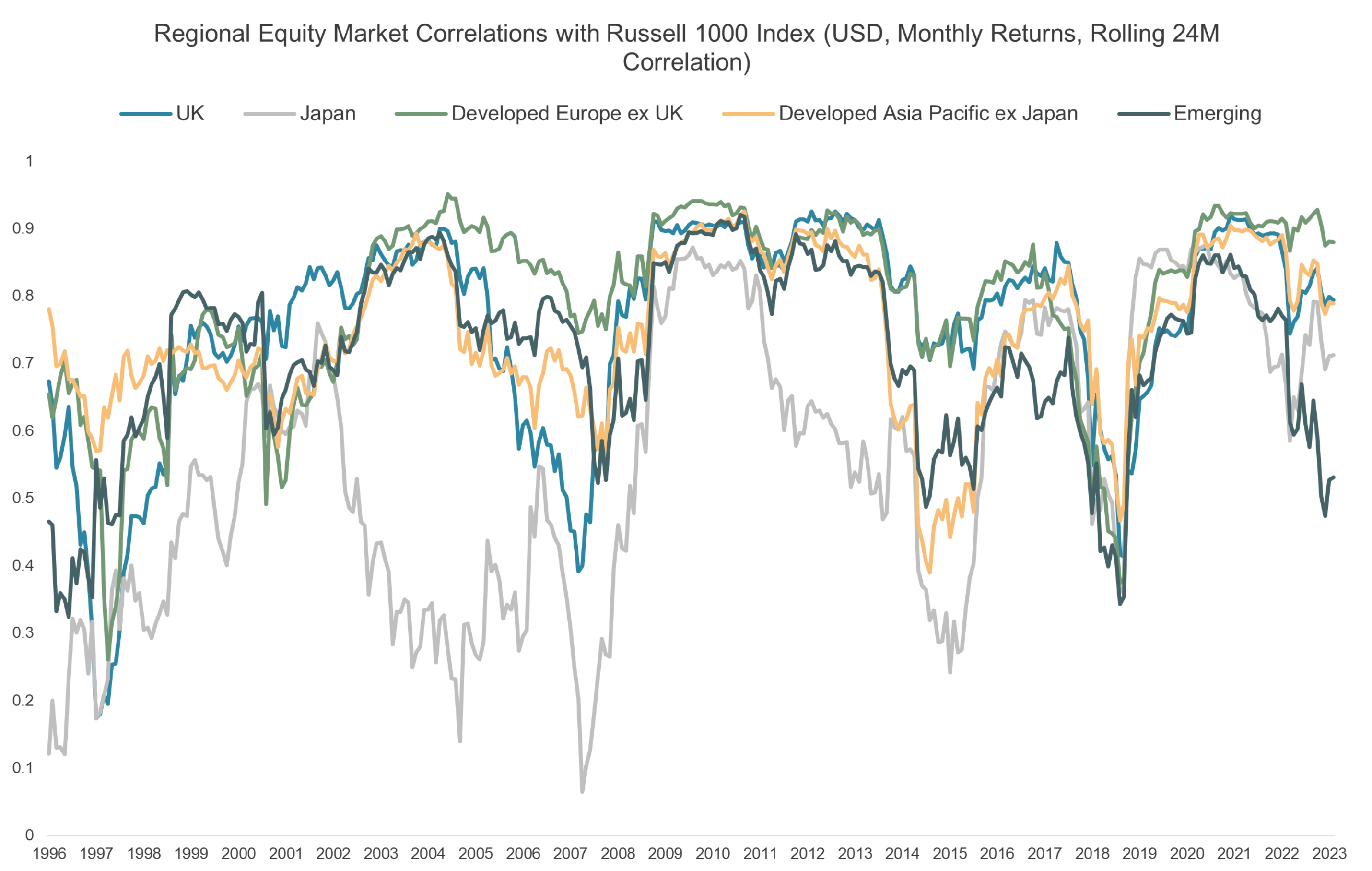
### Commodities are a diverse asset class, and provide significant diversification benefits

Commodities can be volatile, with long periods of underperformance relative to equities. Less appreciated is their role as a great diversifier in portfolio construction, and the tremendous variation among the different commodities. Gold performed well in the high-inflation, rising-rate environment of 2022. With a five-year correlation to US large-cap equities of 20% (31% over the past year), the precious metal provided a lot of diversification. On the other hand, the five-year correlation between oil prices and US large-cap equities was 54% (as both have a positive beta to economic growth), but that dropped to 22% over the past year as geopolitical stresses from the Russia/Ukraine war affected each asset class in opposing ways.

### Listed real assets have a high beta to listed equities

Listed real estate and infrastructure are driven by forces specifically related to these real assets. However, because they are listed, they also have a high beta to listed equities. The correlation of listed real estate and infrastructure to US large-cap equities has remained north of 80% over the last five years.

Chart 1: Equity Market Correlations –US equities have the highest correlation with Developed Europe ex UK and lowest with EM




Source: FTSE Russell/Refinitiv. All data as of February 28, 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. Results in this report are for research / illustrative purposes and do not represent the official performance of the indexes.

# Appendix 1: List of indices used in report

| Name | Mnemonic/Code |
|---|---|
| World Government Bond Index 1-3yr | WGBI_1-3 |
| World Government Bond Index 7-10yr | WGBI_7-10 |
| World Inflation-Linked Securities Index 7-10yr | ILSI_7-10 |
| US Treasury 1-3yr | US_TSY1-3 |
| US Treasury 7-10yr | US_TSY7-10 |
| Germany 1-3yr | DE_TSY1-3 |
| Germany 7-10yr | DE_TSY7-10 |
| World Broad Investment-Grade Bond Index Corporate | WBIG_CORP |
| US Broad Investment-Grade Bond Index Corporate | BIG_CORP |
| Euro Broad Investment-Grade Bond Index Corporate | EBIG_CORP |
| Emerging Markets Corporate Capped Extended Broad Bond Index – Investment-Grade | EMBBICCE_IG |
| US High-Yield Market Index | HY_MKT_US |
| European High-Yield Market Index | EUROPE_HYM |
| Emerging Markets Corporate Capped Extended Broad Bond Index – High-Yield | EMBBICCE_HY |
| US Inflation-Linked Securities Index 10 yr+ | ILSI_US_10+ |
| FTSE World Broad Investment-Grade Bond Index (WorldBIG®) | WBIG |
| FTSE US Broad Investment-Grade Bond Index (USBIG®) | BIG |
| FTSE Euro Broad Investment-Grade Bond Index (EuroBIG®) | EBIG |
| FTSE World High-Yield Bond Index | WHYM |
| Russell 1000 Index | R1000 |
| Russell 2000 Index | R2000 |
| FTSE Global All Cap Index | GEISLMS |
| FTSE All-World Growth Index | AWORLDSG |
| FTSE All-World Value Index | AWORLDSV |
| Russell 1000 Growth Index | R1000G |
| Russell 1000 Value Index | R1000V |
| FTSE USA Index | WIUSA |
| FTSE UK Index | WIGBR |
| FTSE Developed Europe ex UK Index | AWDEXUKS |
| FTSE Japan Index | WIJPN |
| FTSE Developed Asia Pacific ex Japan Index | AWDPACXJ |
| FTSE China Index | WICHN |
| FTSE Emerging Index | AWALLE |
| FTSE All-World Index | AWORLDS |
| FTSE Global Core Infrastructure Index | FGCII |
| FTSE EPRA Nareit Global Index | ENHG |
| FTSE Europe Ex UK Index | AWEXUKS |
| FTSE Asia Pacific Ex Japan Index | AWPACXJA |
| FTSE USA All Cap Index | LMSUSA |
| FTSE Developed Index | AWD |
| FTSE All-World Ex US Index | AWXUSAS |
| FTSE Global Large Cap Index | GEISLC |
| FTSE Global Small Cap Index | GEISSC |
| FTSE Developed Large Cap Index | LCD |
| FTSE Developed Small Cap Index | SCD |
| FTSE Developed Growth Index | DGWLD |
| FTSE Developed Value Index | DVWLD |
| Refinitiv Commodity Index | RTCI |
| Refinitiv Core/Commodity CRB® Index Total Return | TRCCRBTR |

# Appendix 2: Methodology Reference Guide

## Report calculations

- Unless noted otherwise, all performance calculations are in US dollar.
- Methodology for calculation of Upgrade-Downgrade ratio in credit markets: Fallen angels, corporate bonds downgraded from IG − a minimum rating of BBB- with S&P, Moody's or Fitch - to a HY credit rating of BB+ or below, are not included in the calculation of downgrade ratio, as they were not included in the high yield index.
- All credit spreads are with reference to the US 7-10 year Treasury bond index.
- Risk premium in equity is calculated as the earnings yield (E/P) of the All-World Developed index minus the yield of US Treasury 7-10 years. Risk premiums in high yield are their credit spreads relative to yield of US Treasury 7-10 years.
- Correlation matrix among asset classes is calculated using monthly returns over the time frame of analysis mentioned in the chart heading.
- Earnings yield is calculated as the inverse of PE ratios for the indices in these four asset classes - equity, fixed income, listed real estate, listed infrastructure.
- In currencies, Euro and GBP are quoted as number of US dollars per unit of foreign currency. Yen and CAD are quoted as number of units of foreign currency per unit of US dollar.
- Currency exporters and importers classification is based on the commodity exposure in the macroeconomy of the country.
- Fund flow to geographic markets based on domicile of fund as defined by Lipper. Rebased cumulative fund flow commencing at the beginning of the 12 month period (sign inverted in rebasing if initial month flow is negative). Rebasing figure is sensitive to the first month's flow. Figures subject to revision.
- Page 15 uses the Refinitiv/CC CRB Total Return index (US $). Page 9 used the RFV Commodities Price index.

Source: FTSE Russell/Refinitv. Please see the end for important legal disclosures.

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