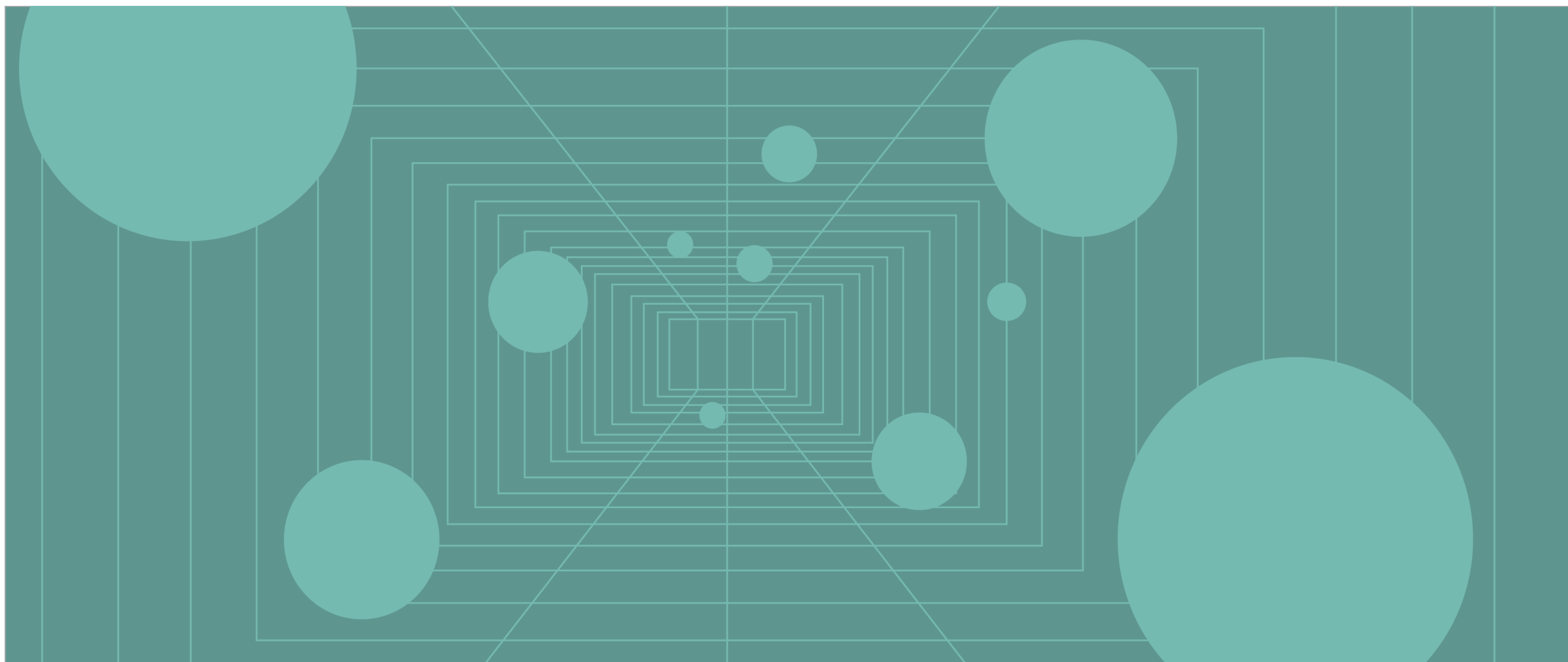
ASSET CLASS FACTS & FIGURES



CAMBRIDGE ASSOCIATES

THIRD QUARTER 2024

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EQUITIES

C|A CAMBRIDGE ASSOCIATES

Developed Markets Equities

Facts & Figures Third Quarter 2024

DM equities returned 6.4% in 3Q and 32.4% in the last 4 quarters for USD investors. The strong performance across the last 4 quarters was driven by better-than-expected economic activity data, expectations for central bank policy rate cuts, and continued excitement for companies linked to artificial intelligence. Among major markets, the US (35.6%) has returned the most in the last 4 quarters.

- The bloc trades at 17.6x cyclically adjusted cash earnings, which ranks higher than 97% of historical data dating back to 1979. The high valuation level masks dispersion across major DM blocs, with the US trading at levels higher than DM ex US. In particular, the UK's large exposure to cyclical companies has left its equities trading low relative to history.

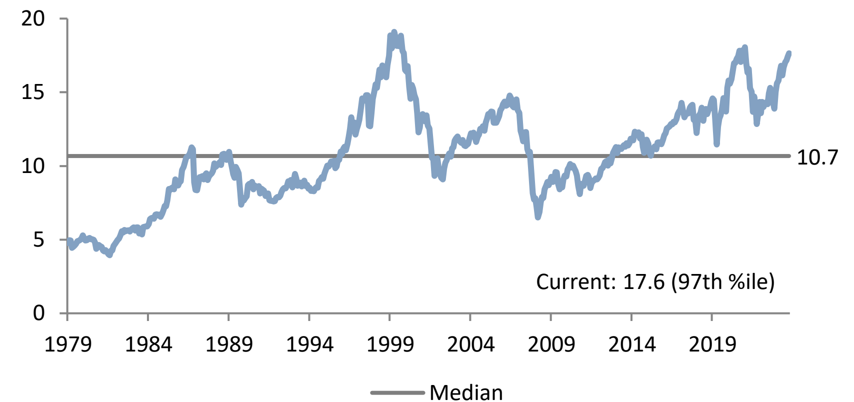
- The global economy is expected to grow by 3.1% in 2024, according to analysts surveyed by Bloomberg in September. Developed economies, which tend to grow at a slower rate than emerging economies, are expected to collectively grow by 1.8%. While low, the 2024 growth expectation is higher than the expectation in December when analysts expected 2024 growth to be 1.2%. Among major developed countries, growth expectations are highest for the US (2.6%), followed by the UK (1.1%), euro area (0.7%), and Japan (0.0%).

- DM corporate earnings are expected to grow by 7.3% in 2024, which is more than the 1.3% pace earnings are expected to have grown in 2023. Roughly 60% of this year's earning growth is expected to come from profit margin expansion, with the remainder from sales growth. Among major markets, US earnings are expected to grow at levels above DM as a bloc, with the euro area, Japan, and UK below.

- Expectations for policy interest rates is a key risk for equities. Major DM central banks increased policy rates by considerable amounts in 2022 and 2023. While the market expects many key central banks will cut rates, inflation rates may not moderate as expected. This could force central banks to not cut interest rates in line with market expectations.

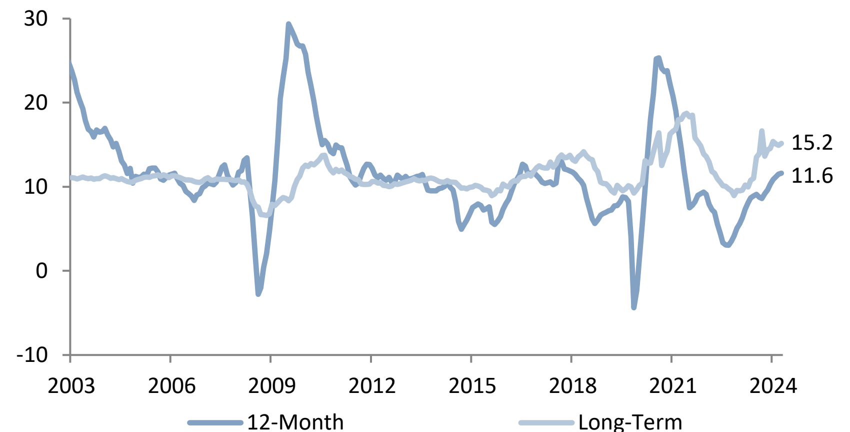
CYCLICALLY ADJUSTED PRICE-TO–CASH EARNINGS

Dec 31, 1979 – Sep 30, 2024



CORPORATE EARNINGS GROWTH EXPECTATIONS

Jun 30, 2003 – Sep 30, 2024 • Percent (%)



Sources: I/B/E/S, MSCI Inc., and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

Note: Data are based on the MSCI World Index.

US Equities

Facts & Figures Third Quarter 2024

US equities outperformed global equities in 3Q 2024, however, lagged in USD terms as the currency suffered its steepest quarterly decline since the GFC. Equities rallied and the currency sold off on growing consensus during the quarter that the Fed would begin easing, culminating with a larger-than-expected cut of 50 bps in September to kick-off the easing cycle. Investors positioned for the cut by rotating out of growth sectors, such as technology, in favor of rate-sensitive sensitive sectors like utilities and real estate.

- US equities' cyclically adjusted price-to-cash earnings multiple edged even higher in 3Q to 23x, reaching the 97th percentile of historical data dating back to 1979, approaching the recent high of nearly 24x in 2021. Relative valuation with DM ex US (10.7x) is now at par with its peak of 2.15x from November 2021. The gap in equity valuations remains stark even after adjusting for sector differences.

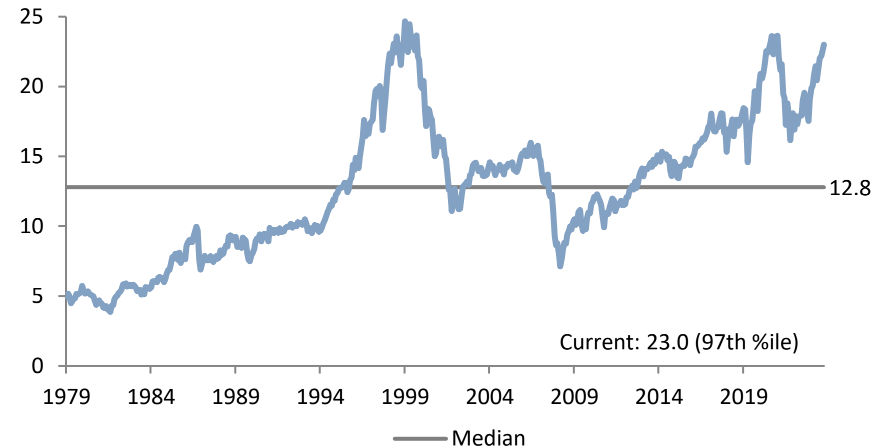
- Latest estimates show that 2Q 2024 GDP grew at 3% annualized, almost double the rate of 1Q. Bloomberg consensus GDP estimates for 2024 now point to slightly higher growth than 2023 (2.5%) at 2.6%., with the 2025 estimate of 1.8% unchanged. US GDP growth exceeds projections for DM in both 2024 and 2025.

- Analysts slightly adjusted near-term earnings growth expectations, with the September forecast for 2024 adjusting down by 80 bps to 9.8%, while 2025 estimates increased by 40 bps to 15.2% versus June. Expectations improved due to ongoing economic resilience and heightened growth from AI-related activity and are the highest rates across major developed economies.

- The risk of a recession and pace of monetary policy tightening are key risks for equities. Solid improvement in inflation, with some signs of softening in the labor market, prompted the Fed to announce its intent to ease monetary policy earlier in 3Q. At is September meeting, the Fed cut rates by 50 bps and forecast another 200 bps of cuts through 2026. Indeed, late in the quarter, the Fed's preferred measure of inflation moderated to 2.2%. Now that easing in the US has begun, the difference between its policy rate and the rest of the world's became smaller, weakening the US dollar.

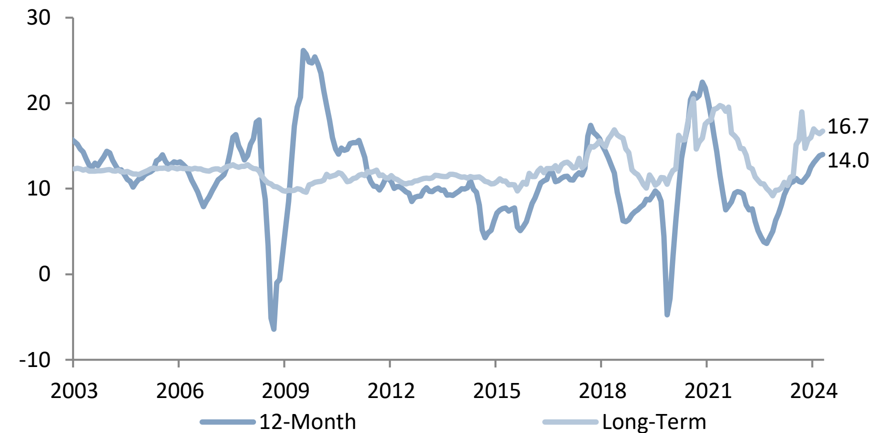
CYCLICALLY ADJUSTED PRICE-TO–CASH EARNINGS

Dec 31, 1979 – Sep 30, 2024



CORPORATE EARNINGS GROWTH EXPECTATIONS

Jun 30, 2003 – Sep 30, 2024 • Percent (%)



Sources: I/B/E/S, MSCI Inc., and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

Note: Data are based on the MSCI US Index.

Developed Markets excluding US Equities

Facts & Figures Third Quarter 2024

DM ex US equities returned 1.8% in 3Q 2024 in LC terms, lagging the 4.7% return of broader DM. However, the weaker dollar resulted in outperformance in USD terms, with DM ex US equities returning 7.8% versus 6.4% for broader DM. Nonetheless, the bloc still tails broader DM by 5.8 ppts year-to-date. Equities broadly have been supported recently by rising earnings expectations, particularly for the tech sectors, and rising valuations. However, DM ex US equities have trailed those of the US on both these metrics.

- The bloc trades at 10.7x cyclically adjusted cash earnings. This is in the 78th percentile of historical data dating back to 1979, and above the long-term median of 9.1x. That valuation multiple remains well below the 17.6x CAPCE of broader DM equities, due to the 23.0x CAPCE enjoyed by US equities. This valuation gap has returned to the COVID-era highs, having re-widened in recent quarters. A material valuation gap remains after adjusting for sectoral differences.

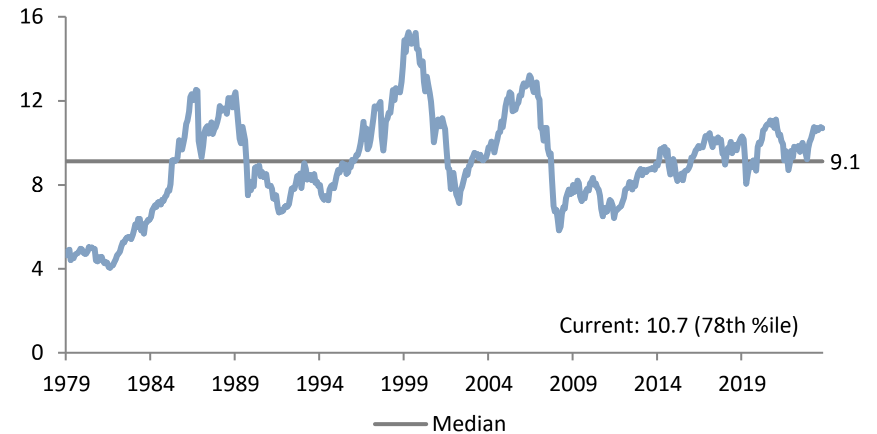
- The global economy is expected to grow by 3.1% in 2024, broadly unchanged over the course of the quarter. The perceived odds of a soft landing for the economy have been increasing. Economic data have held up quite well, while a moderating inflation picture is allowing interest rates to be cut. The US is expected to continue to outperform the major components of this index. Consensus growth for 2024 is 2.6% for the US, in comparison to 1.1% for the UK, followed by 0.7% in the Eurozone and zero growth in Japan.

- Analysts expect corporate earnings to grow by 7.7% on a 12-month forward EPS basis. This would represent an undershoot of 1.8 ppts to its median long-term expected EPS growth rate. This consensus corporate earnings growth is expected to be driven more by profit margin expansion (from 9.7% to 10.2%) than by sales growth (2.6%). This would put the index's profit margin back close to the previous record high-level of 10.3% it reached in 3Q 2022, according to IBES data. But this margin would still be below the current level of the same metric for the US (12.2%).

- On a regional basis, Switzerland stands out with expected EPS growth of 10.5% in the coming 12 months, while growth of 8.8%, 8.6%, and 6.3% is expected in the EMU, Japan, and the UK, respectively.

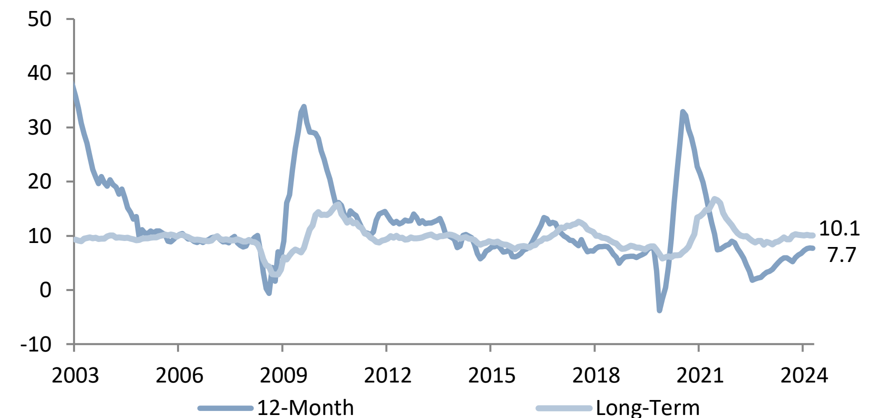
CYCLICALLY ADJUSTED PRICE-TO–CASH EARNINGS

Dec 31, 1979 – Sep 30, 2024



CORPORATE EARNINGS GROWTH EXPECTATIONS

Jun 30, 2003 – Sep 30, 2024 • Percent (%)



Sources: I/B/E/S, MSCI Inc., and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

Note: Data are based on the MSCI World ex US Index.

C|A

UK Equities

Facts & Figures Third Quarter 2024

UK equities returned 1.7% in 3Q 2024 in LC terms, underperforming the 4.7% returned by broader developed markets. However, a weaker dollar resulted in outperformance in USD terms, with the UK returning 7.9% versus 6.4% for DM. The YTD return of 15.4% in USD still sees the UK lag DM by 3.5 ppts. Partially due to sectoral tilts, the long-term earnings growth of the UK has lagged its peers over a prolonged period and is expected to do so again in 2024 and 2025.

- The UK's cyclically adjusted price-to–cash earnings (CAPCE) ratio inched higher to 7.5, the 23rd percentile. The ratio of the UK's CAPCE to that of DM declined further to 0.42, in the 1st percentile of observations. When adjusting for the substantial sectoral differences between the indexes, the relative CAPCE stands at 0.60. However, when the weaker expected earnings are considered, i.e., by looking at forward PEs, the ratio of sector-neutral forward PEs stands at 0.78. Overall, the valuation of UK equities remains depressed versus peers.

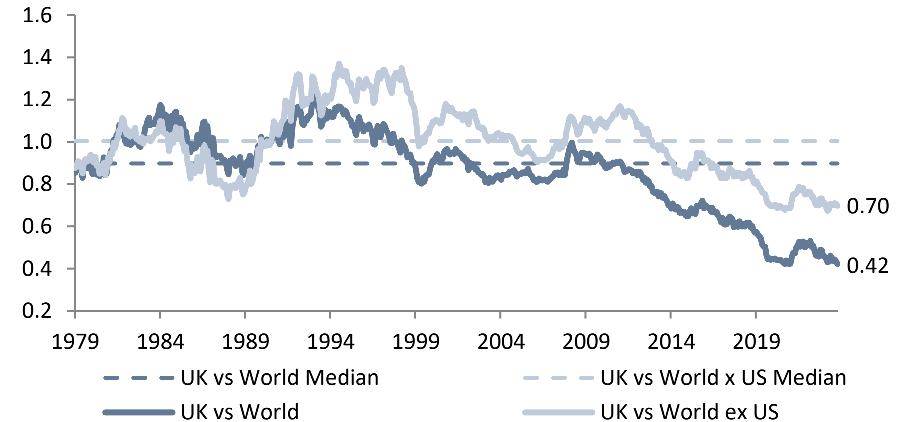
- In general, the UK index has an underweight to growth stocks and an overweight to value stocks. This has been a significant drag on relative performance in recent years. It has proved a headwind once more during 2024, with two of the three top-performing sectors in DM equities during the quarter being the sectors where the UK has the largest relative underweight. In general, these tilts may help the UK in periods of accelerating global growth, particularly when the former are partially driven by rising commodity prices.

- UK EPS are forecast to underperform broader DM by 5.8 ppts over the course of the next 12 months (5.8% vs 11.6%). EPS growth is currently forecast to be relatively evenly split between sales growth (2.4%) and an expansion in profit margin (10.8% to 11.1%).

- As with EPS, UK GDP is expected to underperform most peers in 2024. The current consensus for real GDP in 2024 is 1.1% vs 1.8%. However, this represents an increase from the 0.7% figure forecast three months ago, as the UK outperformed peers in 1H 2024. Further gradual BOE rate cuts, after the first 25-bp cut in August, combined with positive real wage growth, should act as some measure of tailwind. The upcoming budget, the first under the new government, will likely drive some volatility. The most significant takeaway will be determining if funds can be secured for increased investment, either through raising CGT or IHT, or from other sources.

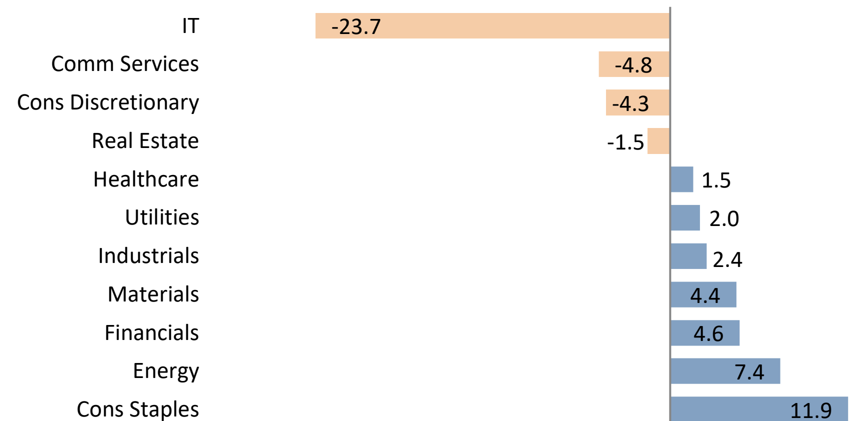
RELATIVE CAPCE: MSCI UK VS WORLD

Dec 31, 1979 – Sep 30, 2024



RELATIVE SECTOR WEIGHTS: UK MINUS WORLD

As of Sep 30, 2024 • Percentage Points



Sources: MSCI Inc. and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

Europe ex UK Equities

Facts & Figures Third Quarter 2024

Europe ex UK equities returned 1.5% in 3Q 2024 in local currency terms, trailing the 4.7% return of DM equities. However, the weakening of the dollar resulted in comparable returns in USD terms (6.2% versus 6.4%). Year-to-date, the region has lagged broader DM by 6.9 ppts. The underperformance of the region has been driven both by sectoral tilts, as well as idiosyncratic underperformance. Earnings have lagged in the regions and looking forward, earnings growth is expected to continue to lag that of broad DM in the next year.

- The region's CAPCE increased slightly to 11.3 during the quarter, standing at the 83rd percentile of its history. Its CAPCE relative to DM edged slightly lower to 0.64, moving further below the long-term median level of 0.74. A large portion of this relative cheapness is due to the comparative richness of the US market, however. The region's CAPCE relative to that of DM ex US was unchanged at 1.06, in the 80th percentile.

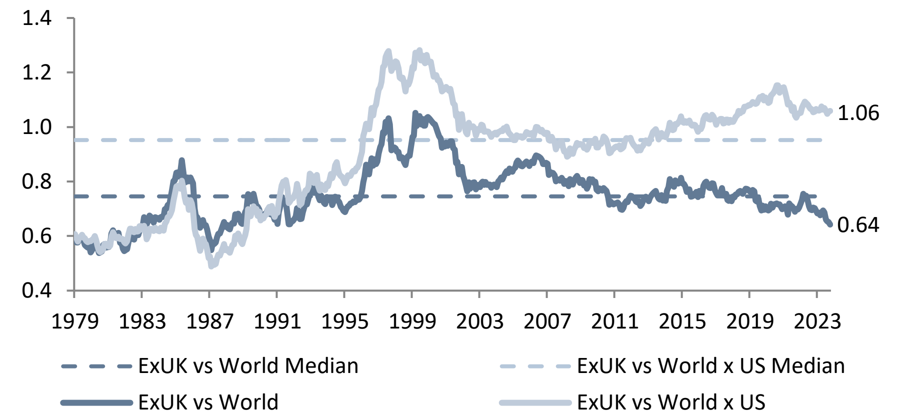
- The longer-term underperformance of the Europe ex UK region versus DM more broadly is down to a lower underlying profitability. The return on equity (ROE) for the region has been below that of broader DM for the last decade and the ratio of their ROEs stands at 0.89, albeit that has improved over the past two years and is now just above the long-term median. This is partly due to the region's lower exposures to some of the higher ROE sectors, notably tech. However, sectoral ROEs are lower in nine of the 11 GICS sectors, showing that it's a broader issue. Nevertheless, the region's ROE is greater than that of DM ex US.

- Earnings growth in Europe ex UK is expected to be 8.8% over the coming 12 months, trailing the 11.6% expected of broader developed markets. Sales growth over this period is expected to be 3.2%, while profit margins are expected to expand from 9.7% to 10.2%.

- Consensus estimates of Eurozone GDP growth for 2024 have remained steady at 0.7% over the past quarter. Growth in the Eurozone picked up moderately in 1H after two years of meager outcomes, however this still lags the 1.8% growth expected in developed markets more broadly. Germany is facing a number of headwinds to growth, partially offset by relatively stronger peripheral performance. The ECB cut interest rates for the second time in September and may be inclined to cut more quickly in the face of softening data.

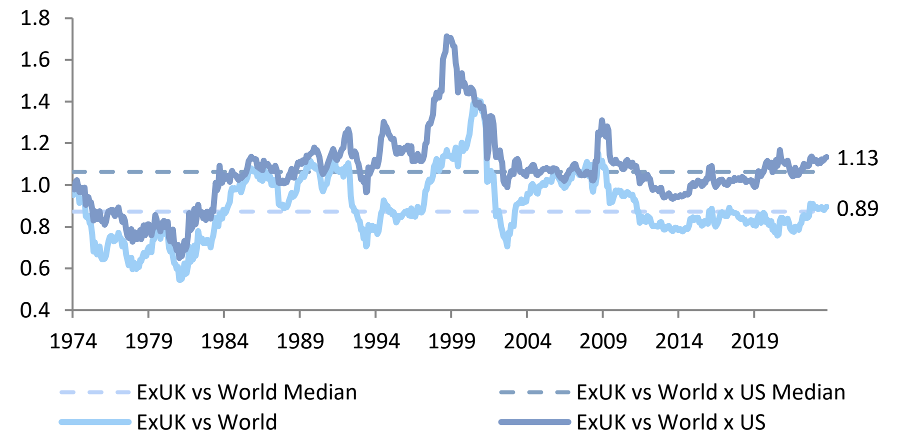
RELATIVE CAPCE: MSCI EUROPE EX UK VS WORLD AND WORLD EX US

Dec 31, 1979 – Sep 30, 2024



ROE: MSCI EUROPE EX UK VS WORLD AND WORLD EX US

Dec 31, 1974 – Sep 30, 2024 • Percent (%)



Sources: MSCI Inc. and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

Japanese Equities

Facts & Figures Third Quarter 2024

Japanese equities underperformed their developed markets peers in 3Q 2024 and YTD. Valuations are elevated in absolute terms but are low relative to other developed markets. Improving corporate governance and a focus on shareholder returns should help to serve as tailwinds for the market.

- The MSCI Japan Index returned -6.0% in local currency terms and 5.7% in USD terms in 3Q 2024, underperforming DM equities which returned 4.7% and 6.4%, respectively. Year-to-date, Japanese equities returned 14.0% in local currency terms and 12.4% in USD terms, underperforming DM equities by 4.8 ppts and 6.5 ppts, respectively.

- The market trades at 11.7x cyclically adjusted cash earnings, which ranks as the 77th percentile of historical observations since 1979. Relative to other developed markets, Japanese equities are at the 19th percentile of historical observations.

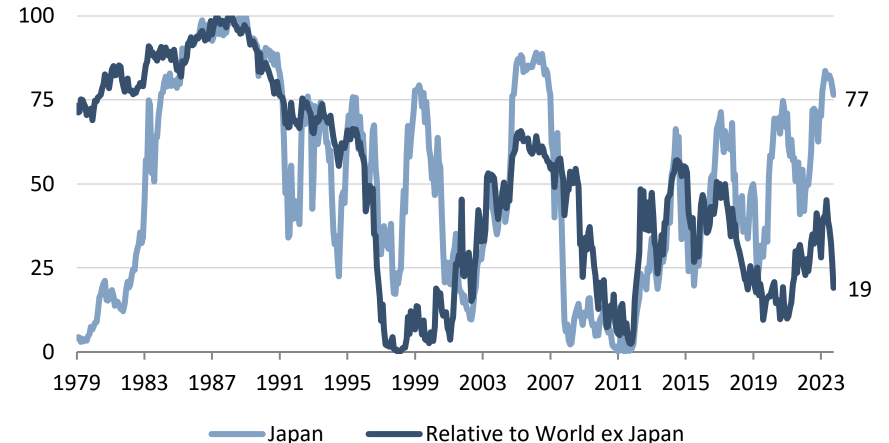
- Japanese equities sold off sharply in early August as the yen surged following the BOJ's move to tighten policy rates by 15 bps to 0.25%. While Japanese equities subsequently rebounded, the market still underperformed their DM peers in the quarter as the yen strengthened 12.5% over 3Q. Guidance from the BOJ indicates the central bank remains committed to normalizing monetary policy but at a gradual pace given soft domestic economic data. Although monetary policy in Japan is expected to remain looser than elsewhere in the near term, analysts' forecasts show 12-month forward corporate earnings growth in Japan (4.8%) is expected to trail that of their DM counterparts (11.6%).

- The ROE on Japanese equities currently stands at 9.5%, which is slightly above the historical median. Although Japan's ROE has historically been lower than that of its DM counterparts, an increased focus on corporate governance and shareholder returns in Japan may see this improve.

- As of the end of September, the MSCI Japan Index trailing dividend yield was 2.2%, above the 1.7% historical median. Japanese companies retain significant cash balances and have increased shareholder payouts (dividends plus buybacks) in recent years, which may continue to serve as a tailwind for Japanese equities.

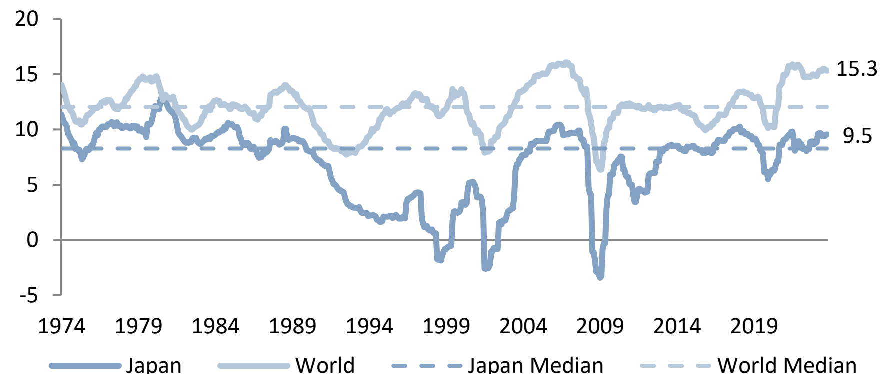
CYCLICALLY ADJUSTED PRICE-TO–CASH EARNINGS

Dec 31, 1979 – Sep 30, 2024 • Percentile (%)



ROE: MSCI JAPAN VS WORLD

Dec 31, 1974 – Sep 30, 2024 • Percent (%)



Sources: MSCI Inc. and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

Emerging Markets Equities

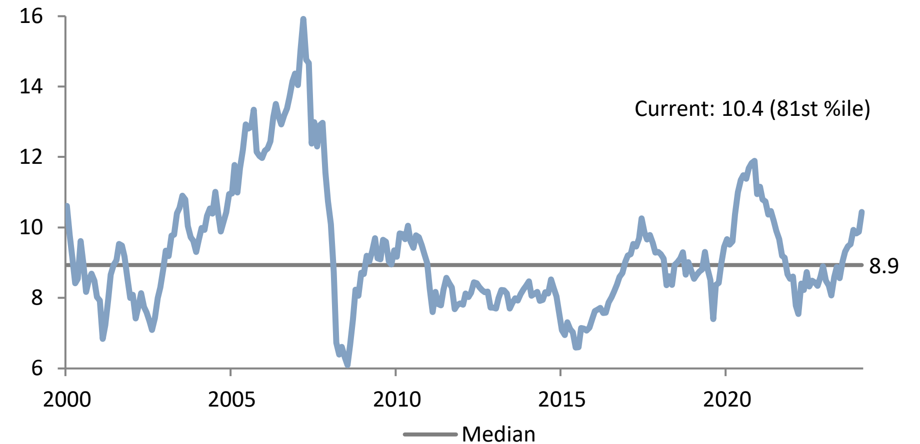
Facts & Figures Third Quarter 2024

EM equities returned 8.7% in USD terms in 3Q, bringing YTD performance to 16.9%. EM outperformed DM for a second straight quarter amid a broader rotation highlighted by new Chinese stimulus, Fed rate cuts, and a declining US dollar. Indeed, China (23.5%) accounted for nearly two-thirds of the broader index gain.

- The Chinese equity rally and a broader rotation among global stock markets lifted other countries within EM Asia (9.5%), including ASEAN members Thailand (28.9%), Philippines (21.7%), Malaysia (20.5%), and Indonesia (15.3%). Chinese stimulus typically supports trade for the broader region, suggesting an improved outlook for Asian EPS growth. The rotation buffeted tech-heavy Korea (-5.6%) and Taiwan (0.5%), along with concerns of oversupply in the semiconductor sector.
- LatAm (3.7%) lagged in 3Q. Mexico (-3.4%) continued to be plagued by political concerns, whereas Brazil (7.1%) lifted the broader region. Reflecting heightened political risks, the Mexican peso has depreciated nearly 15% versus the USD this year. Value-oriented EMEA (7.1%) posted a solid gain, propelled by South Africa (16.1%) and Saudi Arabia (5.3%).
- Despite recent outperformance, EM has lagged DM by nearly 9 ppts annualized on a trailing 3Y basis, building on a longer-term trend since 2010. This extended period coincided with USD appreciation, subpar earnings growth, and a narrowing economic growth differential, which are keys to the outlook for EM performance vis-à-vis DM.
- EM valuations have expanded rapidly YTD but exhibit wide dispersion. Indian and Taiwanese equity valuations look elevated relative to their 20-year medians, whereas Brazilian and Mexican valuations are relatively low. Broad EM stocks trade at a nearly 40% discount to DM, among the widest on record since 2000.
- The EM equity outlook apparently improved in 3Q. Expected 2025 EPS (16%) and GDP (4.3%) growth looks set to outperform DM, China has expanded stimulus measures, and the Fed is now cutting interest rates. However, US economic outperformance may limit the scope of this Fed easing cycle, suggesting potentially limited benefits from further USD weakening. In general, EM equities typically bear the brunt of broader risk aversion permeating global stock markets, particularly in today's macro and geopolitical environment.

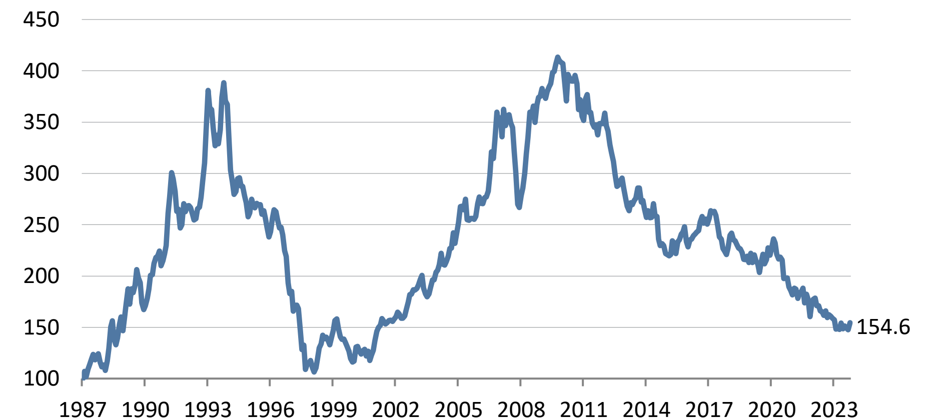
CYCLICALLY ADJUSTED PRICE-TO–CASH EARNINGS: MSCI EM

Aug 31, 2000 – Sep 30, 2024



EM/DM EQUITY RELATIVE CUMULATIVE WEALTH

Dec 31, 1987 – Sep 30, 2024 • US Dollars



Sources: MSCI Inc. and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

Notes: EM CAPCE based on five-year average real cash earnings. Total returns are gross of dividend taxes prior to January 2001 and net thereafter. EM and DM equities based on the MSCI Emerging Markets Index and MSCI World Index, respectively.

C|A

Asia ex Japan Equities

Facts & Figures Third Quarter 2024

Asia ex Japan equities outperformed global equities in 3Q 2024 and on a YTD basis, in part, due to the strong rally in China in late September. Valuations for the region have risen to elevated levels, largely driven by India and Taiwan.

- Asia ex Japan equities returned 10.4% in USD terms in 3Q 2024, compared to global equities which returned 4.9%. YTD, Asia ex Japan equities returned 21.2%, outperforming global equities which returned 18.7%.

- Over 3Q, performance was driven by a rebound in Chinese (23.5%) and Hong Kong (24.4%) equities, which rallied sharply in late September following a series of stimulus measures by China. Southeast Asian equities in aggregate (19.8%) also posted strong returns in 3Q, as the start of Fed rate cuts and a decline in global interest rates led to a broad market rotation toward cyclical and high-yielding stocks. In contrast, tech-oriented Taiwan (0.5%) and South Korea (-5.6%) underperformed the broad index, as did India (7.3%) to a lesser extent.

- Asia ex Japan valuations have risen from their October 2022 lows to elevated levels. The index's CAPCE metric trades at 11.3x, which is the 83rd percentile of historical observations. Relative to DM equities, however, Asia ex Japan trades lower at the 16th percentile of historical observations.

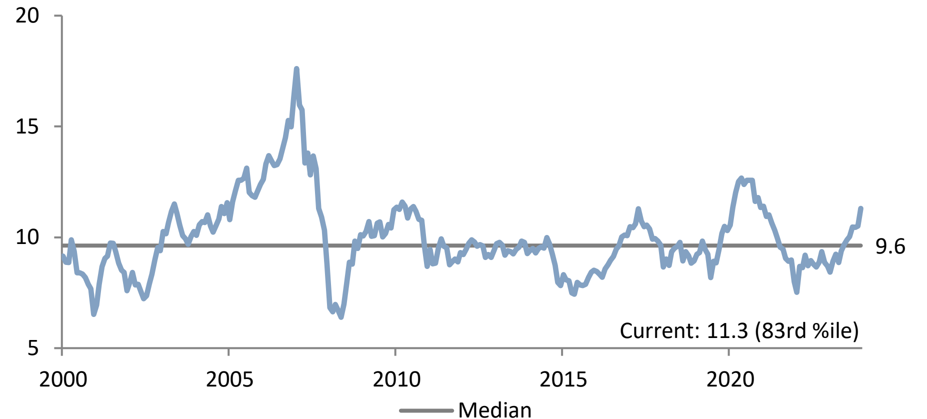
- There is dispersion among Asia ex Japan country valuations. Most markets trade near or below historical median valuations, except for Taiwan and India where valuations are very elevated.

- Analysts' expectations of forward 12M EPS growth for Asia ex Japan remains strong at 17.4%, which tops that of their global counterparts (12.4%). Earnings expectations for the region may improve if China follows through with more fiscal stimulus measures and if these trigger a recovery in economic activity in both China and the region.

- Yet, key risks to these estimates are a further market rotation from global technology stocks and cooler demand for semiconductor chips, given the sector exposures in Taiwan and Korea, and a weakening in developed markets growth and trade volume growth, given the export-oriented and cyclically sensitive nature of most Asia ex Japan markets.

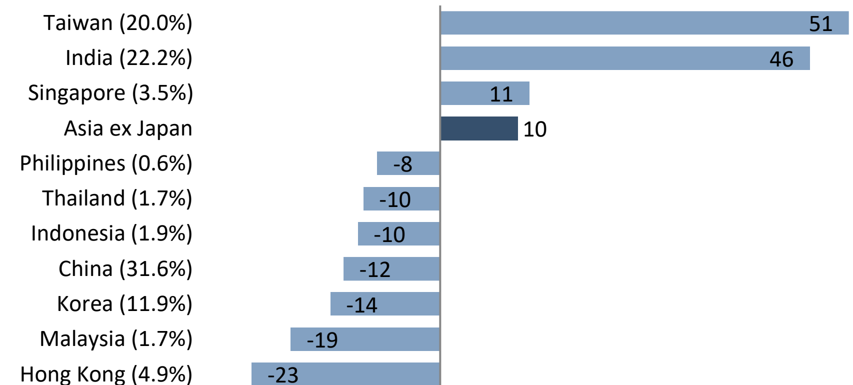
CYCLICALLY ADJUSTED PRICE-TO-CASH EARNINGS: MSCI ALL COUNTRY ASIA EX JAPAN

Oct 31, 2000 – Sep 30, 2024



COUNTRY P/B % DEV FROM HIST MEDIAN: MSCI AC ASIA EX JAPAN

As of Sep 30, 2024 • Index Weight in Parentheses



Sources: MSCI Inc. and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

Notes: CAPCE based on five-year average real cash earnings. Totals may not sum to 100% due to rounding.

Chinese Equities

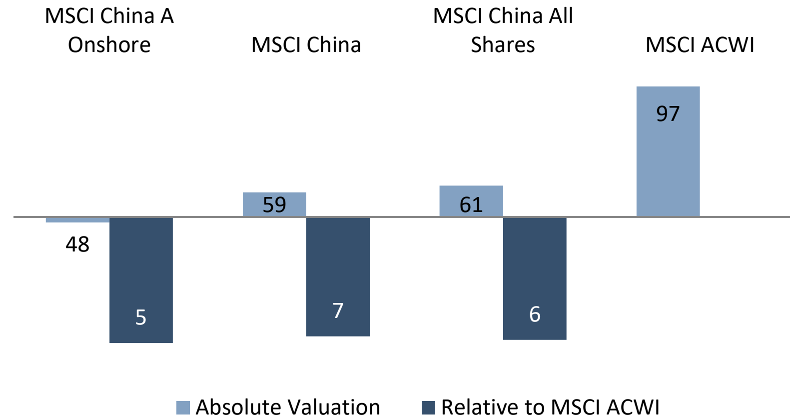
Facts & Figures Third Quarter 2024

Chinese equities rallied sharply in late September on expectations of more aggressive stimulus. As a result, Chinese equities have now outperformed global equities YTD. Valuations for Chinese equities have rebounded from depressed levels to fair value but remain very low relative to global equities.

- Chinese equities consist of mainland China-listed A-shares, Hong Kong-listed Chinese companies, and US-listed Chinese companies. The MSCI China All Shares Index combines both onshore and offshore markets and is composed of 49% Hong Kong-listed equities, 5% US-listed equities, and 47% A-Shares.
- The MSCI China All Shares Index returned 20.0% in 3Q 2024 and 24.2% YTD in LC terms, outperforming global equities, which returned 4.9% and 18.7%, respectively.
- The rally was concentrated in the last week of September, triggered by a series of policy measures and pledges of further fiscal stimulus. While details around fiscal stimulus remain uncertain, guidance from the September Politburo meeting shows a shift in the government's focus towards preventing further weakness in the property market and in stimulating domestic consumption.
- With the recent rally, Chinese equities are back to index levels seen in early 2023 following the pivot from zero-COVID, and momentum indicators are approaching stretched levels. Valuations have also rebounded from previously depressed levels. The composite P/E ratio for the MSCI China All Shares Index has risen above fair value, although relative to global equities, Chinese equity valuations remain very low.
- Active China-dedicated managers have historically demonstrated an ability to add value over the A-share index, given the retail-driven nature of the market. However, the A-share market is underweight the technology sector, with most Chinese tech companies listed offshore in Hong Kong or the US. Managers with flexible "All China" mandates can offer exposure across the China equity universe.

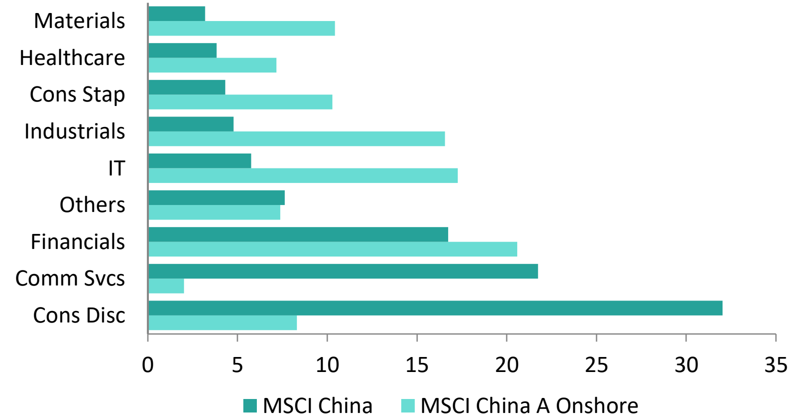
COMPOSITE P/E: PERCENTILE

Feb 28, 2010 – Sep 30, 2024



SECTOR WEIGHTS

As of Sep 30, 2024 • Percent (%)



Sources: FactSet Research Systems, MSCI Inc., and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

Notes: Composite P/E reflects the harmonic average of the 5-year cyclically-adjusted P/CE, forward P/E, and ROE-adjusted P/E ratios. Sector weight for "Others" consists of Real Estate, Utilities, and Energy. Totals may not sum to 100% due to rounding.

C|A

US Small-Cap Equities

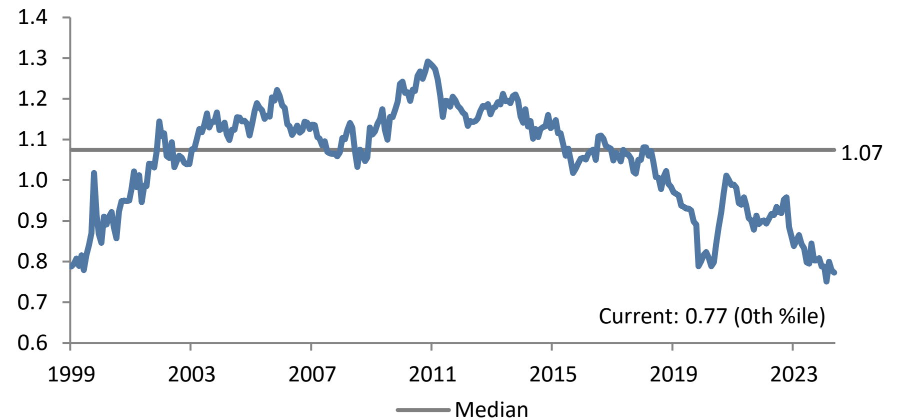
Facts & Figures Third Quarter 2024

US small-cap equities reversed their losing streak for the past two quarters, besting large-cap stocks in 3Q by nearly 3 ppts. Most of this outperformance came in July when the Fed announced its intention to begin easing its monetary policy. Small caps lagged in August and September and have underperformed YTD by 10 ppts.

- Energy was the only sector in both small- and large-cap indexes to decline in 3Q. The highest returns-sectors in small caps were real estate and financials, while utilities and real estate led in large caps.
- The key headwind for small caps this year has been the repricing of rate cut expectations. Higher interest rates can provide a difficult backdrop for their profitability, given that small caps often rely more heavily on floating-rate debt than their large-cap counterparts. Thus, small caps rebounded when the Fed announced that policy rate cuts were afoot.
- Relative valuations between small caps and mid- to large-cap peers are sharply discounted; in fact, they have never been cheaper based on a normalized price-to-cash earnings metric dating back to 1999. During this period, small caps have typically traded at a 7% premium versus large caps, as opposed to the 23% discount they are trading at today.
- The US small-cap segment is overweight cyclical sectors and underweight technology compared to the mid-/large-cap universe. As such, small caps tend to be more sensitive to the economic cycle and have a better track record during economy recovery phases.
- Recent US government initiatives, such as the Infrastructure Act, the CHIPs Act, and the Inflation Reduction Act, could provide incentives for some reshoring of supply chains that would benefit certain sectors overweight in small-cap stock indexes. Namely, the industrials and materials sectors could benefit from greater spending on infrastructure projects, both of which are held in relatively higher weights in the small-cap index versus large caps. Support for these regulations may change with a change in US administration.

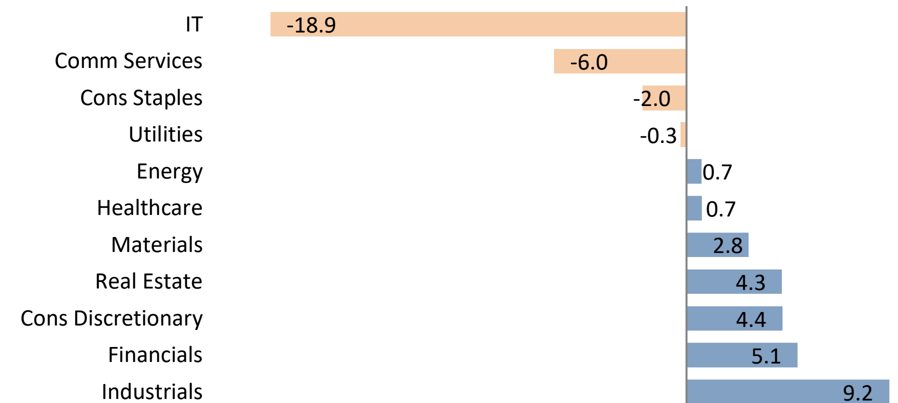
RELATIVE 5-YR CAPCE: MSCI US SC VS US LC/MC

May 31, 1999 – Sep 30, 2024



RELATIVE SECTOR WEIGHTS: US SC MINUS US LC/MC

As of Sep 30, 2024 • Percentage Points



Sources: MSCI Inc. and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

Note: CAPCE ratios based on five-year average inflation-adjusted earnings.

Developed ex US Small-Cap Equities

Facts & Figures Third Quarter 2024

Developed ex US small caps returned 3.6% in 3Q in local currency terms, beating their mid- to large-cap peers by 181 bps. The weakness of the dollar meant that the USD return on the quarter was a strong 10.4%. Year-to-date, small caps have modestly trailed mid- to large caps, by 125 bps in LC terms and by 157 bps in USD terms.

- Non-US small caps snapped a run of three consecutive quarters of underperformance in 3Q. Outperformance occurred, in part, due to sectoral tilts but primarily due to underlying outperformance. Relative outperformance was particularly strong in consumer discretionary and healthcare, while strong absolute performance in real estate and industrials contributed the most to absolute returns.

- Developed ex US small-cap valuations rose slightly in 3Q but remain steeply discounted relative to their large-cap peers. As of September 30, developed ex US small-cap valuations were trading at a 9.4x cyclically adjusted price-to–cash earnings (CAPCE) ratio, in the 37th percentile of historical observations. On a relative basis, small-cap valuations are in the 13th percentile versus their large-/mid-cap counterparts, at a ratio of 0.89.

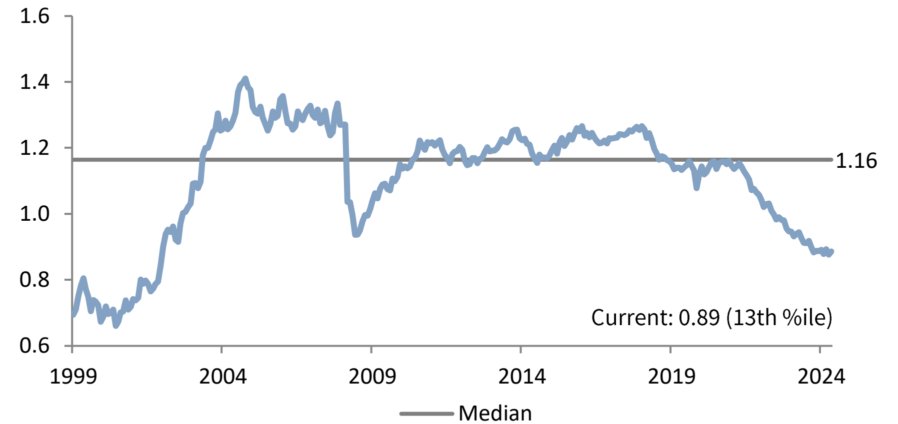
- From a relative sector exposure standpoint, the developed ex US small-cap segment is overweight cyclicals—particularly real estate and industrials—vis-à-vis its large-/mid-cap counterpart, though this is partially offset by a large underweight to financials. However, the defensive and higher-quality consumer staples and healthcare sectors are meaningfully underrepresented in the small-cap universe.

- Superior long-term earnings growth has helped developed ex US small caps outperform their large-/mid-cap counterparts over time. Over the last 15 years, world ex US small caps normalized real cash earnings per share grew by 3.1% per annum, while real EPS for large-/mid-caps has been flat.

- The developed ex US small-cap universe is arguably less efficient than the larger-cap space. Therefore, the former may provide more opportunities for active managers to add value over time.

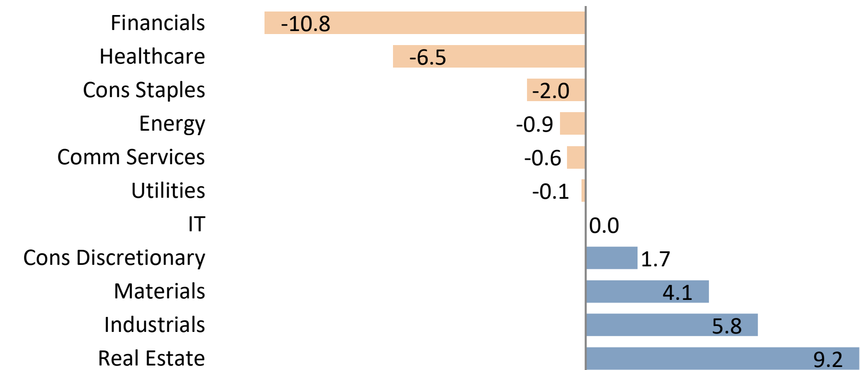
RELATIVE 5-YR CAPCE: MSCI WORLD EX US SC VS LC/MC

May 31, 1999 – Sep 30, 2024



RELATIVE SECTOR WEIGHTS: MSCI WORLD EX US SC MINUS WORLD EX US LC/MC

As of Sep 30, 2024 • Percentage Points



Sources: MSCI Inc. and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

Note: CAPCE ratios based on five-year average inflation-adjusted cash earnings.

US Growth and Value Equities

Facts & Figures Third Quarter 2024

US growth stocks gained 3% in 3Q, trailing value stocks by nearly 7 ppts, reversing their three-quarter winning streak. Still, YTD growth has bested value by nearly 8 ppts, driven by a surge in technology stocks. During the quarter, investors began to rotate in favor of value stocks once the Fed announced its intention to begin monetary easing.

- Growth stocks added another impressive quarter to their track record of recent dominance versus value stocks. Performance was boosted by the surge in a subset of large-cap tech companies, which have enjoyed a torrid pace of price appreciation in the past year. Indeed, the information technology sector now accounts for the highest weighting in the MSCI US Growth Index (~50%) since the dot-com stock boom in 2000.

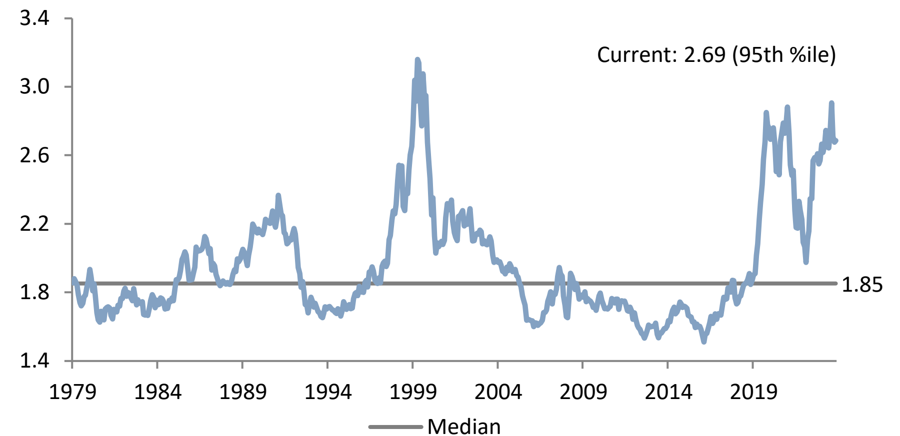
- Based on the cyclically adjusted price-to–cash earnings (CAPCE) ratio, the MSCI US Growth Index moderated slightly, trading at 2.7 times the valuation of the MSCI US Value Index. That relative ratio is in the 95th percentile of historical observations. Investors have demonstrated a willingness to assign a higher multiple to expected earnings for growth-oriented stocks compared to value stocks. The price-to–forward earnings multiple for the MSCI US Growth Index trades at 30x, which is 1.8 times higher than that for value stocks. This ratio is 33% higher than the median ratio of 1.35 that has been observed over the past 20 years.

- Growth stocks have traditionally generated higher return on equity (ROE) than value counterparts. Today's wide ROE spread is partly driven by differences in sector exposures—technology and financials most prominently—and helps to explain the current valuation disparity between the growth and value indexes.

- Technology stocks have largely driven the US market's profitability, growth, and price performance over the past decade. Today the IT sector plus just two other stocks (Amazon and Alphabet) make up more than 60% of the growth index. In comparison, IT is just 13% of the value index. However, the value index has a much higher weighting to the financials sector, which could see an increase in profitability if rates rise and the slope of the yield curve steepens. The two-year, ten-year curve inflected positive during 3Q.

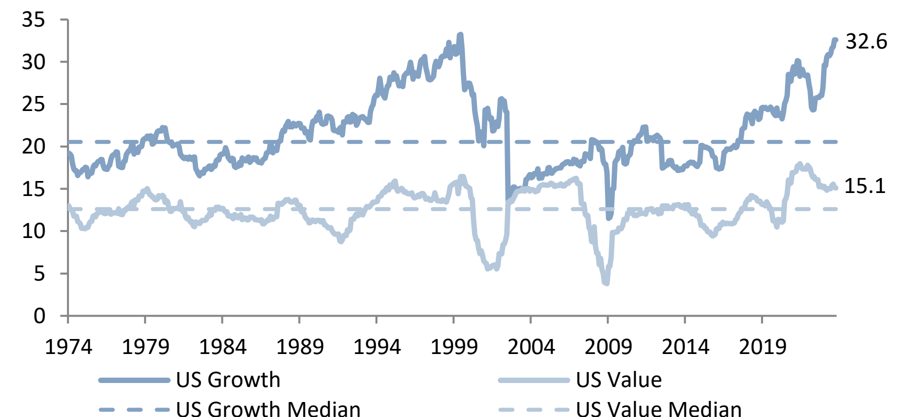
RELATIVE 5-YR CAPCE: MSCI US GROWTH VS US VALUE

Nov 30, 1979 – Sep 30, 2024



ROE: MSCI US GROWTH VS US VALUE

Dec 31, 1974 – Sep 30, 2024 • Percent (%)



Sources: MSCI Inc. and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

Developed Markets Equity Factors

Facts & Figures Third Quarter 2024

Minimum volatility (7.8%) and size (6.4%) were the top-performing major equity market factors in 2Q, besting the MSCI World Index (4.7%). All other factors trailed the broader index, with value (4.5%) just marginally lagging, while quality (2.4%) and momentum (0.5%) underperformed more markedly. Nonetheless, over the past 12 months momentum (42.8%) has surged at a pace that ranked in the 96th percentile of its 12-month returns in the past 50 years. Quality (35.7%) is the only other factor that is outperforming the broader index (30.4%) over the trailing one year.

- Momentum's strength on a one-year horizon owes to the ongoing outperformance of a subset of IT stocks. Momentum strategies emphasize stocks that have performed well in the recent past, so sustained upward price trends are catalysts for outperformance. The weaker performance of the IT sector last quarter (0.9%)—the second worst-performing sector—helps explain the softer performance of momentum in 3Q. For example, NVIDIA, which is the largest component of the MSCI World Momentum Index, had seen seven consecutive quarters of gains prior to 3Q, during which time it has gained 917%, though it declined by 1.7% in the last quarter.

- Valuations of momentum and quality declined in 3Q, with the other three factors seeing a rising valuation. Quality still commands the richest valuations among major factors, based on three different multiples. Value is trading at the lowest multiples, while valuations for size and minimum volatility are also generally more moderate.

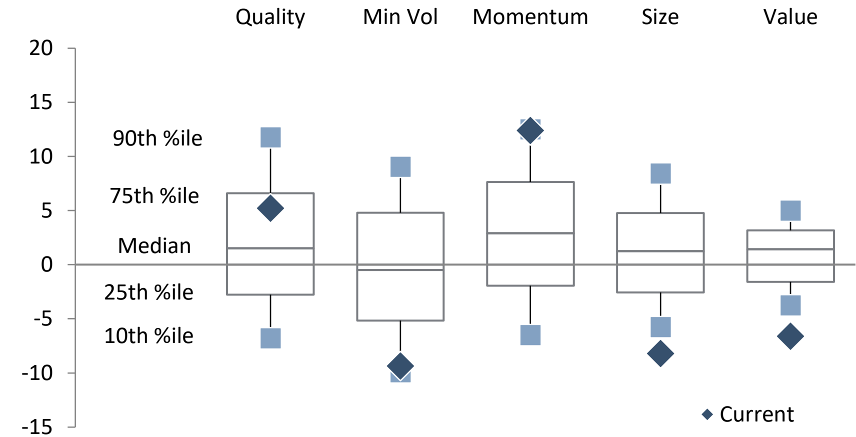
- The P/B ratio tends to have the strongest relationship to subsequent five-year returns across factors, but the strength of the relationship varies by factor. For instance, the relationship between starting valuation and subsequent returns is weak for the momentum factor, which overweights recent outperformers and typically has a very high turnover ratio.

- Because the excess returns across several strategies have low or negative correlations with each other, combining these factors can add a diversification benefit. For example, value and momentum had strongly negative correlations over the trailing five-year period, suggesting that certain combinations of factors may work together to smooth out the overall pattern of portfolio outperformance over time.

- Quality, minimum volatility, momentum, size, and value are five factors primarily cited in academic research. These factors represent market premiums that have all shown superior risk/return characteristics compared to broad-market benchmarks.

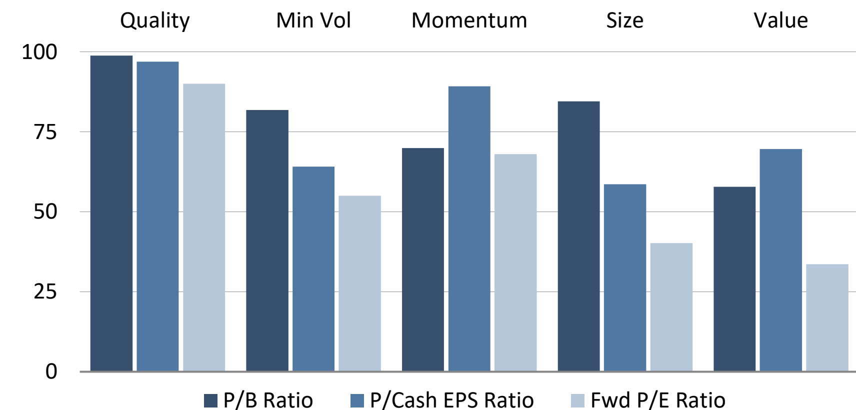
FACTOR RETURNS IN EXCESS OF DEVELOPED MARKETS EQUITIES

As of Sep 30, 2024 • Rolling 12M • Percent (%)



CURRENT VALUATION PERCENTILE RANKING BY FACTOR

As of Sep 30, 2024



Sources: MSCI Inc. and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

Hedge Funds

Facts & Figures Third Quarter 2024

Fundamental hedge fund strategies continued to grind out positive performance in the 3Q, while navigating volatility across asset classes precipitated by expectations of central bank activity that eventually came to pass, while quantitative funds struggled.

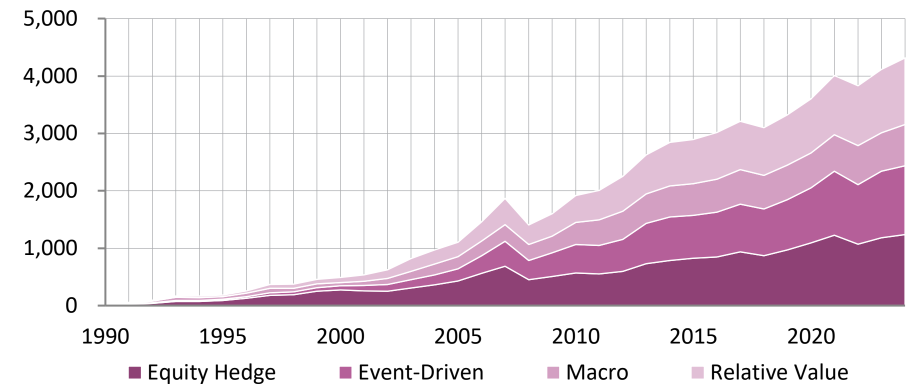
- Relative value (RV) hedge funds continued to post steady gains, with the HFRI Relative Value (Total) Index up 2.4% in 3Q—the varying pace of central bank rate cutting and uncertainty around inflation continued to create arbitrage opportunities for RV managers. Macro funds were down, with the HFRI Macro (Total) Index returning -0.8%, although there was meaningful dispersion within macro strategies, especially in August, as Japan-led market volatility caught certain funds offside while others profited. Quantitative strategies also struggled, with the HFRI Macro Systematic Diversified Index returning -3.6%. Trend following strategies had another difficult quarter due primarily to sharp reversals in equity markets in August.

- Long/short equity funds generated gains in 3Q as the HFRI Equity Hedge (Total) Index returned 3.8%, bringing YTD results to 10.3%. Funds with exposure to cyclicals and inflation-sensitive sectors (e.g., industrials, financials, and utilities) benefited from renewed optimism on the expectation and eventual occurrence of central bank easing. Meanwhile, TMT-focused funds experienced choppiness during 3Q as volatility in July and early August—especially among mega-cap tech leaders—eventually gave way to more constructive positioning. Elsewhere, healthcare-focused strategies have experienced diverging returns driven primarily by idiosyncratic moves in underlying portfolio holdings.

- The HFRI Event-Driven (Total) Index returned 4.8% in 3Q, bolstering YTD results (7.8%). While traditional multi-strategy managers are reporting enhanced performance in the higher interest rate environment, those with more meaningful equity allocations have generally experienced commensurately higher returns. Notably, some of the larger funds have also benefited from investments in FTX claims as the company's reorganization plan recently received court approval. As previously noted, managers believe that an elevated, multi-year restructuring environment may be emerging. In addition to traditional in-court restructurings, they are already observing out-of-court restructurings, recapitalizations, and other liability management exercises. However, they caution that certain exchanges may be "can-kicking" in nature with some companies ultimately having to file for bankruptcy.

HFRI HISTORICAL ASSET GROWTH BREAKOUT

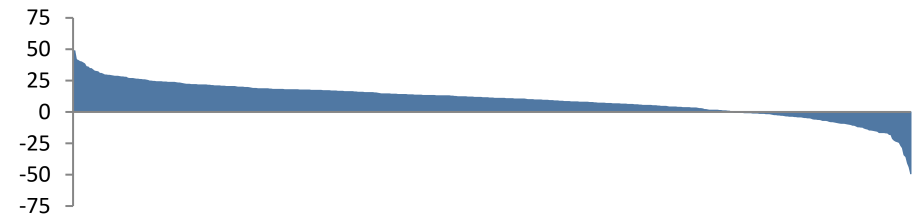
1990–2024 (Jun) • US$B



EQUITY DISPERSION: TOTAL RETURNS FOR THE S&P 500 CONSTITUENTS

As of Sept 30, 2024

Trailing 3-Month Returns (%)



Trailing 12-Month Returns (%)

Sources: Hedge Fund Research, Inc., FactSet Research Systems, and Standard & Poor's.

FIXED INCOME

CAMBRIDGE ASSOCIATES

US Bonds

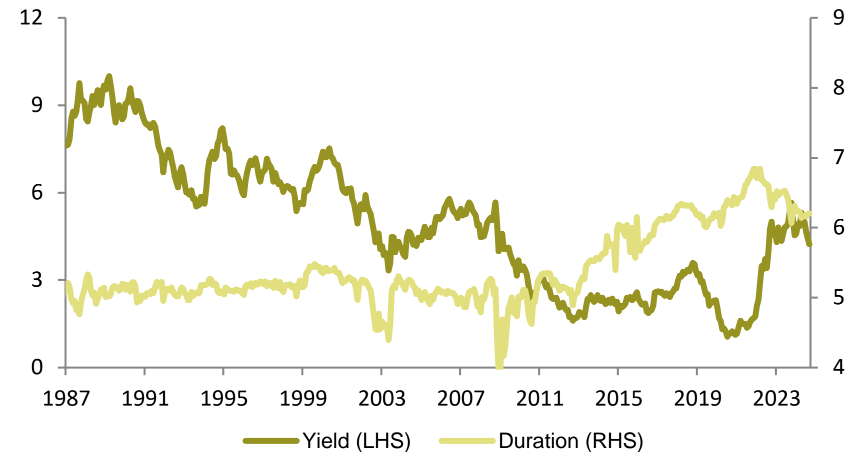
Facts & Figures Third Quarter 2024

Core US bonds had a strong third quarter as inflation cooled and the Fed embarked on a potentially prolonged rate cutting cycle. The market and the Fed are now pricing in around 150 bps of further easing over the next 12 months, but inflation and the labor markets will need to continue cooling down as expected.

- The Bloomberg US Aggregate Bond Index returned 5.2% in 3Q and is now up 4.4% YTD in 2024.
- Performance of core fixed income assets like US Treasuries was boosted in 3Q as the Fed cut 50 bps at its September meeting and released projections indicating it expected to cut rates another 150 bps by the end of 2025.
- Softer labor market data and inflation readings had strengthened the case for the Fed cut. The August core PCE reading (2.7% YOY) was above the Fed's target but has fallen more than 110 bps over the past year.
- While market expectations for future Fed easing sync with those provided by the Fed, forecasts can and do change. The unexpectedly strong September nonfarm payroll data highlights one potential argument against extensive easing.
- The Bloomberg US Aggregate Bond Index yield fell almost 80 bps in 3Q to 4.23% but remains above its ten-year average.
- The Bloomberg Aggregate Index has a high-quality asset mix—over 70% of the index carries an AA or higher rating, and most of this is either a direct or indirect obligation of the federal government. Just about 12% of the index consists of corporate bonds carrying a rating of BBB or below.
- The duration of the Bloomberg US Aggregate index (around 6 years) has declined as rates have backed up but leaves it vulnerable to unexpected spikes in long-term yields.
- Credit spreads declined in 2023 and are now well below historical averages. Still, US IG corporate fundamentals remain healthy as rising earnings are helping to somewhat offset higher interest costs.

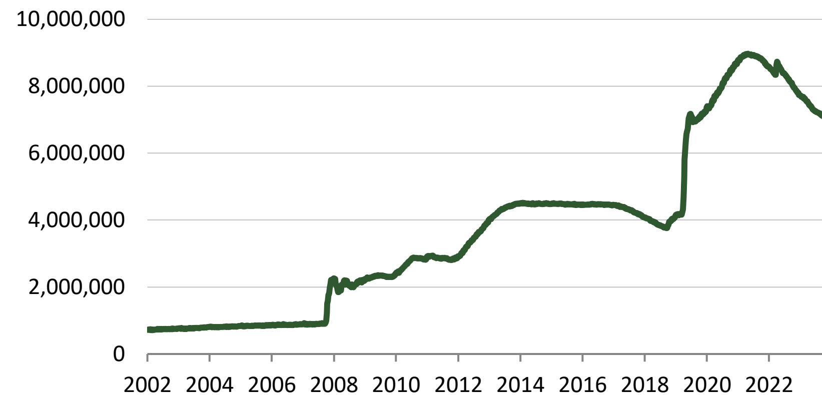
YIELD VS DURATION: BBG US AGGREGATE BOND INDEX

Jan 31, 1987 – Sep 30, 2024



FED BALANCE SHEET TOTAL ASSETS

Dec 18, 2002 – Sep 30, 2024 • US$M



Sources: Bloomberg Index Services Limited, Federal Reserve Bank of St. Louis, and Thomson Reuters Datastream.

Notes: Fed balance sheet assets are weekly and not seasonally adjusted. Total assets are less eliminations from consolidation.

US Treasuries

Facts & Figures Third Quarter 2024

US Treasury securities returned 4.7% in 3Q and 9.7% over the trailing 12-months, outperforming US cash (1.4% and 5.5%) over both periods. The outperformance was driven by weaker inflation and jobs data, which prompted the Fed to start cutting rates in September.

- Ten-year US Treasury notes were yielding 3.8% on Sept 30, which is about 60 bps below where they started the quarter and 90 bps below their 2024 peak of 4.70%.

- Treasury valuations are not longer as attractive given the decline in yields. Ten-year yields are now 0.3 standard deviation below their implied fair value yield of 4.1%, which is based on the trend in the nominal growth rate of the economy.

- Performance is now positive on a rolling 12-month basis. However, performance remains deeply depressed on a trailing three-year basis, suggesting there may still be more upside to the recent rally.

- Similarly, the macro environment is more conducive for high-quality bonds than it has been in recent years. US economic growth remains resilient, but both the jobs and inflation data have softened this year—the unemployment rate has risen from its low of 3.4% in 2023 to 4.1% and annual core CPI is 3.3%, down from 4.4% a year ago.

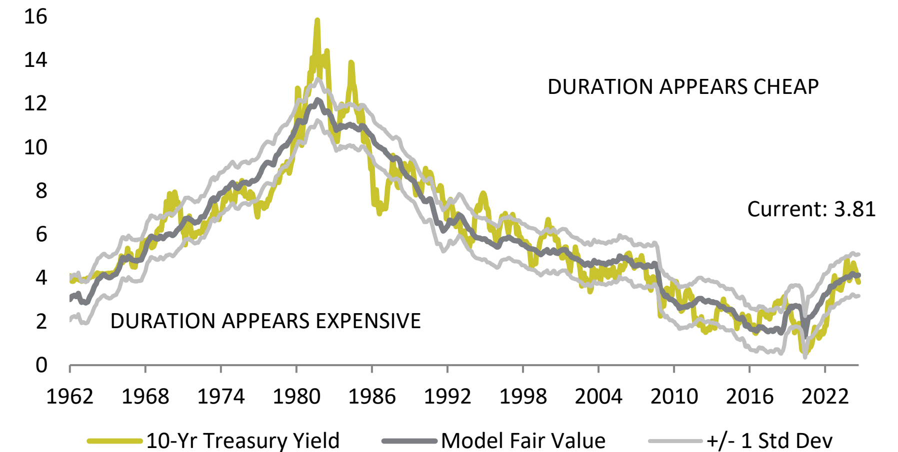
- The Fed believes inflation and employment risks have moved back into balance, and as a result, it began cutting rates in September with a larger than usual 50-bp cut. It projects it will lower the target range for the Fed funds rate by another 150 bps by the end of 2025, bringing the median rate from 4.9% to 3.4%. This is slightly less than what interest rate traders expect over this period (around 200 bps), making Treasury securities vulnerable to a repricing in rate expectations.

- The inverted Treasury yield curve also remains a headwind, but this should reverse as the curve steepens if the Fed cuts rates as much as projected over the next year.

- The US fiscal outlook is another risk. The CBO's latest projections show the deficit near 6% of GDP for much of the next ten years—significantly more than the 3.7% average over the past 50 years. A Republican sweep in the November election could exacerbate fiscal concerns.

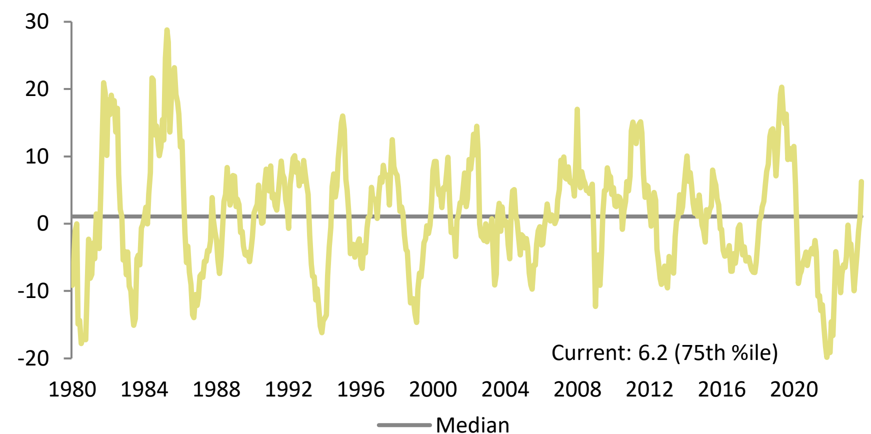
VALUATIONS: 10-YR TREASURY

Jan 31, 1962 – Sep 30, 2024 • Percent (%)



12-MONTH PRICE MOMENTUM: 10-YR TREASURY

Dec 31, 1980 – Sep 30, 2024 • Percent (%)



Sources: Federal Reserve and Thomson Reuters Datastream.

Note: The Model Fair Value is the predicted range of ten-year yields based on a multiple linear regression model that includes trailing ten-year real GDP and CPI change. CPI data are as of August 31, 2024.

US Cash

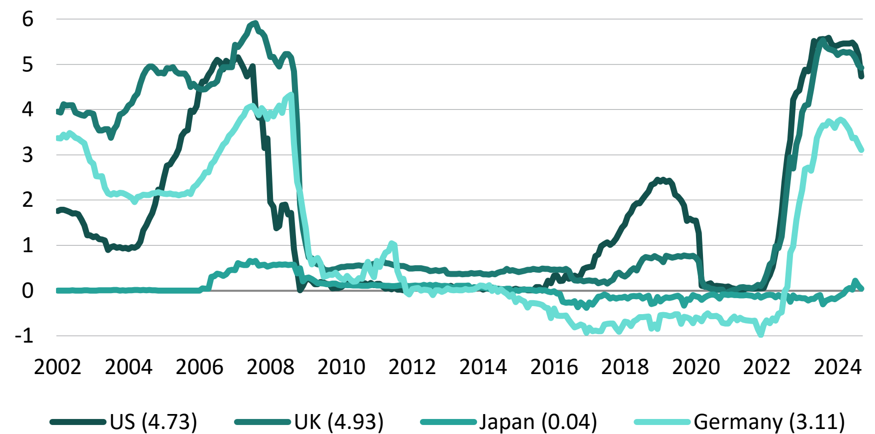
Facts & Figures Third Quarter 2024

US cash has returned 5.5% versus 9.7% for US Treasuries over the trailing 12 months, marking the first time that cash has underperformed bonds over this period since January 2021. The outlook for cash turned less favorable in 3Q with central banks starting to cuts rates and Treasury yield curves steepening in most major developed markets.

- DM central banks aggressively raised interest rates in recent years to bring down inflation, but their policy stance shifted in 3Q. The Fed, ECB, and BOE each lowered their main policy rates last quarter and even the BOJ, which is tightening policy, provided more dovish forward guidance. Interest rates markets project each of the three former central banks will lower rates by another 140 bps–200 bps over the next 12 months.
- Monetary tightening has increased cash yields above treasury yields, reducing the opportunity cost of holding cash. While cash yields remain above Treasury yields, yield curves steepened in 3Q, and cash yields should move below treasury yields if DM central banks lower rates as much as expected over the next 12 months.
- Cash has been a stable source of returns in recent yields as central banks aggressively raised rates to fight inflation. However, holding cash for an extended period would be challenging, given the risk that inflation erodes the value of cash in real terms and the opportunity costs of not investing in assets with higher expected returns over longer periods. Additionally, reinvestment risk will likely increase as central banks cut rates and the yield curve steepens.
- Cash holdings are important for liquidity needs, particularly for investors with heavy operational spending, significant unfunded commitments, or that have currency and other hedging overlays. US investors should stick to secure instruments such as US T-bills. In the eurozone, cash should be kept in a core country bank within prudent limits.
- For investors that use money market funds, we recommend Treasury and government funds. Prime funds invest in bank commercial paper, corporate notes, and other credits and may have gating and floating-NAV provisions, making them slightly riskier.

T-BILL RATES

Jan 31, 2002 – Sep 30, 2024 • Percent (%)



MARKET EXPECTATIONS FOR FUTURE CENTRAL BANK RATES

As of Sep 30, 2024 • Percent (%)

	CURRENT	3M	6M	1Y	2Y
UK	5.00	4.67	4.23	3.56	3.39
Japan	0.25	0.32	0.39	0.45	0.59
EMU	3.50	3.02	2.37	1.85	1.83
US	4.88	4.16	3.57	2.96	2.81

Sources: Bloomberg L.P. and Thomson Reuters Datastream.

Notes: ECB data represented by the ECB overnight deposit rate. Feds funds target range is 4.75%-5.00%. The mid-point of 4.88% is used for future market expectations.

US Corporate Bonds

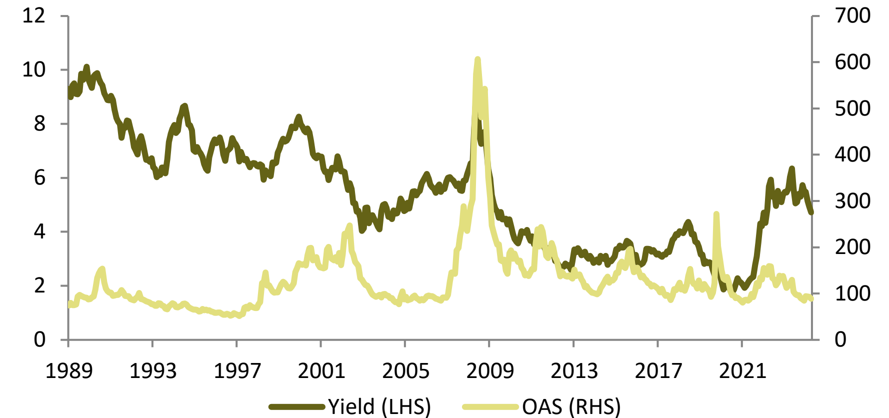
Facts & Figures Third Quarter 2024

US investment-grade corporate bonds returned 5.8% in 3Q, reversing minor first-half losses and putting the index firmly in the black YTD. Further Fed rate cuts could boost returns, but any upside surprises to inflation or growth could cool sentiment.

- The Bloomberg Corporate Investment-Grade Index returned 5.8% in 3Q and is now up 5.3% YTD 2024.
- Spreads tightened slightly in 3Q (by 5 bps to 0.89%) and look expensive on a historical basis (25th percentile). The index spread is a bit deceptive, however, as its average credit rating has declined over time. Looking at individual categories suggests IG bonds are more expensive; for example, the 46 bps OAS on AA-rated bonds is just 14th percentile.
- Yields have compressed around 100 bps since their highs earlier this spring as cooling inflation and economic growth caused medium-term benchmark yields to decline. In September, the Fed cut its benchmark interest rate by 0.50% and signaled that more easing is coming. The 4.72% index yield at the end of 3Q remains above its ten-year average.
- Spreads look expensive but IG corporate fundamentals look sound. Morgan Stanley reports the median interest coverage ratio for investment-grade corporate borrowers was 10.6x at the end of 2Q. IG issuer net income growth was modest during 1H 2024 but is expected to accelerate in 2025, leading to further improvement in debt coverage metrics.
- New issue supply has been elevated YTD with around $675B of net issuance through 3Q compared to FY 2023 IG issuance of $561B..

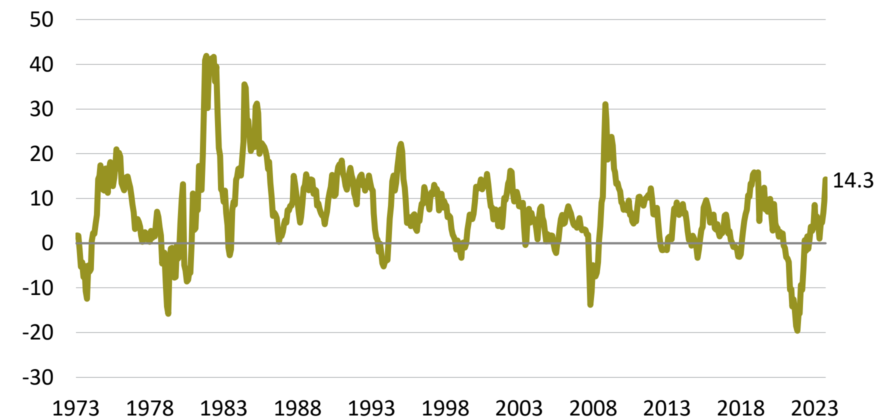
YIELD AND OPTION-ADJUSTED SPREAD: US INVESTMENT-GRADE CORPORATES

Jun 30, 1989 – Sep 30, 2024 • Percent (%)



TRAILING 12-MONTH RETURN: US INVESTMENT-GRADE CORPORATES

Dec 31, 1973 – Sep 30, 2024 • Percent (%)



Sources: Bloomberg Index Services Limited and Thomson Reuters Datastream.

US Tax-Exempt Bonds

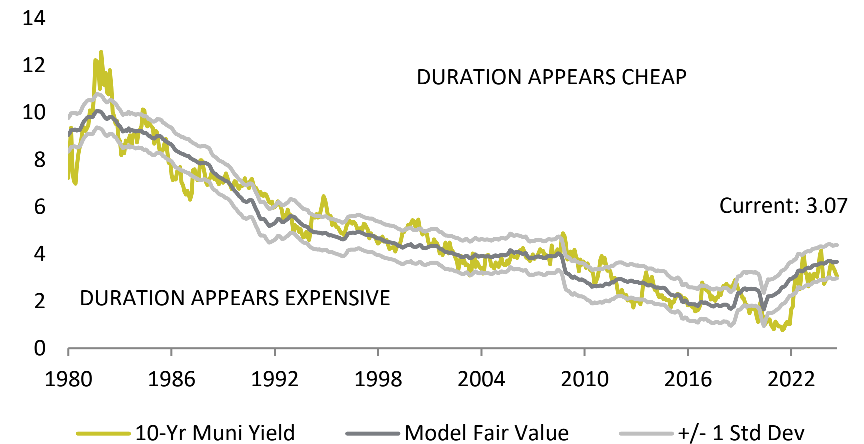
Facts & Figures Third Quarter 2024

US munis returned 2.7% in 3Q and 10.4% over the trailing 12-months, slightly outperforming taxable bonds over the latter period. The strong performance has occurred alongside a significant decline in Treasury yields and positive fundamentals and technicals for the muni market.

- US Treasury yields peaked in late-2023 as it became clear the Fed was done tightening. Since then, ten-year muni yields have declined from a peak of 4.2%, their highest level since 2009, to 3.1% as of Sept 30.
- Ten-year muni valuations are expensive based on current yields. While current yields are in the 60th percentile of their trailing 20-year distribution, they are well below their implied fair value of 3.7% based on the average muni/Tsy ratio and long-term economic fundamentals.
- As a buy-and-hold investment for high tax bracket individuals, ten-year munis still offer a reasonable 106 bps yield pick-up over Treasury securities after taxes, which is slightly below the trailing 20-year median of 141 bps.
- Munis are less appealing from a tactical perspective. The current ten-year muni/Tsy ratio of 0.81 is low (23rd percentile) and the spread (-74 bps) remains near the lower end of its trading range since 2000.
- The macro-environment remains uncertain, but both US economic data releases and inflation prints have moderated somewhat after surprising to the upside in the 1Q and the Fed began cutting rates in September. This should support high-quality bonds broadly.
- Retail investors, which own about 70% of the muni market, pulled a record $120B from muni mutual funds and ETFs in 2022. Flows stabilized last year and have become a tailwind in 2024, with total inflows of $26B through 38 weeks.
- Robust state and local finances have helped reign in issuance and support fundamentals. According to NASBO, combined state ending balances and rainy-day funds are projected to total 23% of proposed spending in 2024, well exceeding pre-COVID levels.
- Munis would still likely lag Treasuries in a flight to quality given their illiquid nature, but the risk of default among high-quality muni issuers is low and the sector is well prepared for a slowdown.

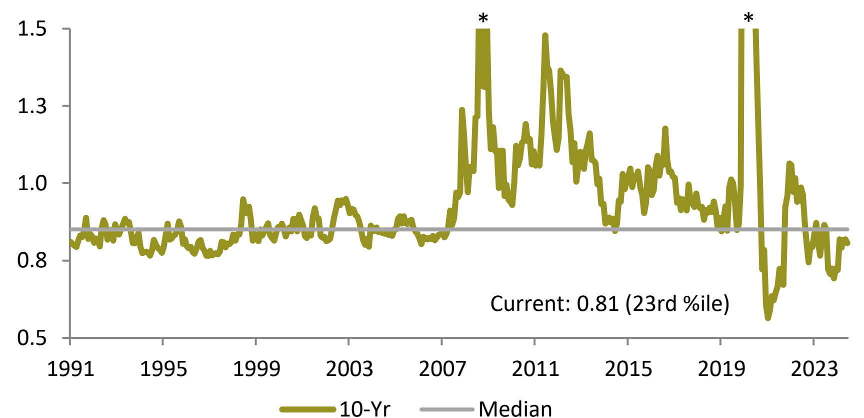
VALUATIONS: 10-YR MUNI

Jan 31, 1980 – Sep 30, 2024 • Percent (%)



RATIO OF 10-YR MUNI YIELDS TO TREASURY YIELDS

Apr 30, 1991 – Sep 30, 2024



* Axis is capped for scaling purposes. Ratio hit a high of 3.16 on 4/30/2020.

Sources: Bloomberg Index Services Limited and Thomson Reuters Datastream.

Note: The Model Fair Value is the predicted range of ten-year yields based on a multiple linear regression model that includes trailing ten-year real GDP and CPI change. CPI data are as of August 31, 2024.

US Inflation-Linked Bonds

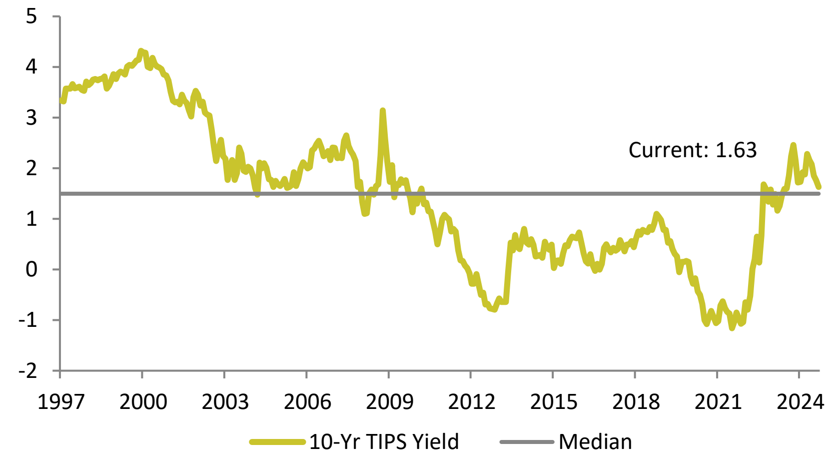
Facts & Figures Third Quarter 2024

US TIPS returned 4.1% in 3Q and 9.8% over the trailing 12-months, which is less than what nominal Treasury securities return in 3Q (4.7%) but in line with their return over the previous year (9.7%). TIPS have performed well amid a sharp decline in real yields, while inflation expectations have been rangebound.

- US ten-year TIPS were yielding 1.6% on Sept 30, which is over 40 bps below where they started the quarter and about 90 bps below their recent peak of 2.5% in 4Q 2023.
- US TIPS valuations are less attractive than they were a few months ago. Ten-year real yields are only slightly above their long-term median of 1.5% and their implied fair value yield of 1.4%, which is based on trailing ten-year real GDP growth.
- The decline in real yields accelerated following a soft patch of US economic data over the summer, highlighted by revisions to employment data that showed jobs growth was weaker than previously thought over the past year. At the same time, inflation has softened following upside surprises to start the year. Annual US core CPI is 3.3%, down from 4.4% a year ago.
- This prompted a reassessment of the future path of policy rates. The Fed, which began cutting rates in September with a larger than usual 50-bp cut, projects it will lower the target range for the Fed funds rate by another 150 bps by the end of 2025. That would bring the median rate from 4.9% to 3.4%. This is slightly less than what interest rate traders expect over this period (around 200 bps).
- Weaker data has put modest downward pressure on inflation expectations. The ten-year breakeven inflation rate is 2.2%, which is near the bottom-end of its trading range over the previous year.
- TIPS are contractually linked to CPI and less liquid than Treasuries, which has led to them underperforming Treasuries when inflation is falling and during periods of markets stress.
- TIPS are one of the few assets that provide defense against unexpectedly high inflation. TIPS may offer more value if inflation is stickier than expected given higher real yields and relatively subdued breakeven inflation rates for the current environment.

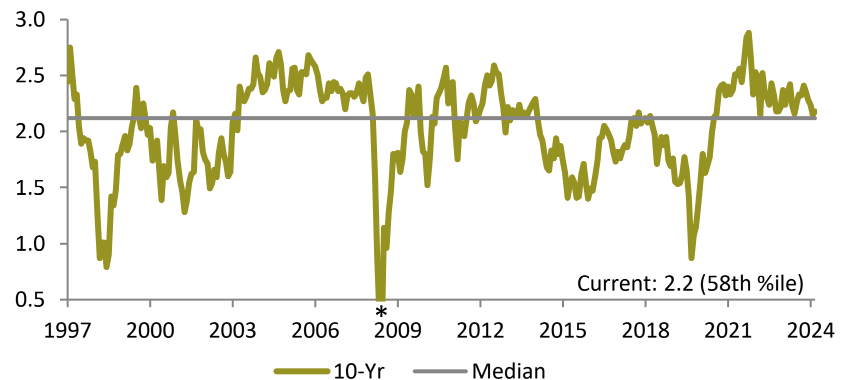
HISTORICAL YIELD: 10-YR TIPS

Jan 31, 1997 – Sep 30, 2024 • Percent (%)



10-YR BREAKEVEN INFLATION

Jul 31, 1997 – Sep 30, 2024 • Percent (%)



* Capped for scale purposes. 10-Yr BE Inflation hit a low of 0.11% on 12/31/2008.

Sources: Bloomberg Index Services Limited, Global Financial Data, Inc., and Thomson Reuters Datastream.

Global Inflation-Linked Bonds

Facts & Figures Third Quarter 2024

Global linkers returned 3.2% in 3Q and 8.1% over the trailing 12-months. The strong performance comes as major central banks have started to cut rates, which has driven real yields lower, while inflation expectations have been rangebound.

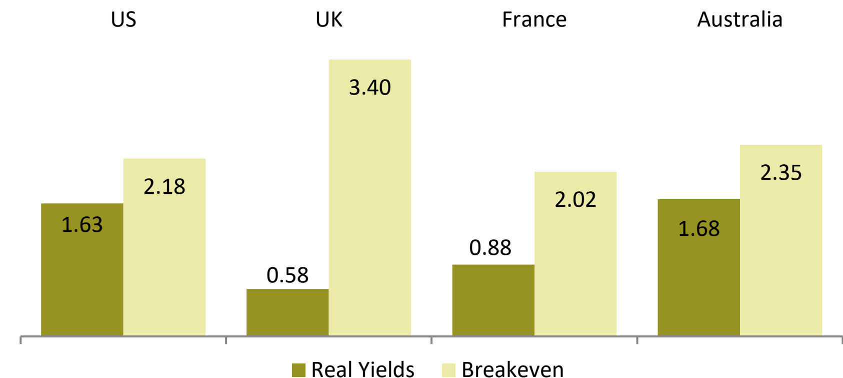
- Global treasury yields peaked in 4Q 2023, with real yields reaching as high as 1.9%, their highest level since 2009. Since then, there has been a sharp decline in yields and global real yields are currently 1.3%.
- Global linkers valuations are still relatively attractive based on current real yields. Global real yields have moved back in line with their long-term median for the first time since 2010 and are 0.7 standard deviation above their implied fair value yield of 0.7%, which is based on trailing ten-year real global GDP growth.
- Real yields have moved lower as inflation has eased and central banks have shifted from tightening to easing monetary policy in major economies. The ECB lowered its main policy rate by 25 bps in June, and again in September, the BOE cut rates 25 bps in August, and the Fed cut rates 50 bps in September. All three central banks are projected to cut rates by 140 bps–200 bps over the next 12 months.
- Consensus expects inflation in DMs will be 3.7% in 2024 and 2.7% in 2025, down from 5.7% in 2023. The anticipated continued decline in inflation has put modest downward pressure on inflation expectations in many DMs, which was a headwind to global linkers versus nominals treasury bonds in 3Q.
- While lower policy rates are positive for real yields, continued disinflation and/or weaker-than-expected growth are potential headwinds for linkers versus nominal treasury bonds. Linkers are contractually linked to inflation and less liquid than Treasuries, which has caused them to underperform when inflation is falling and in periods of economic/market stress.
- Linkers are one of the few assets that protect against unexpectedly high inflation. Linkers may offer more value if inflation continues to be stickier than expected given higher real yields and relatively subdued breakeven inflation rates in most DM countries.

HISTORICAL INDEX YIELD: BBG GLOBAL LINKERS

Dec 31, 1996 – Sep 30, 2024 • Percent (%)

10-YR REAL YIELDS AND BREAKEVEN INFLATION

As of Sep 30, 2024 • Percent (%)



Sources: Bloomberg Index Services Limited and Thomson Reuters Datastream.

Notes: France data are based on the underlying securities within the Bloomberg Global Agg Treasuries and Bloomberg World Govt Inflation-Linked indexes. All other data are based on the Bloomberg real yield and breakeven series.

UK Gilts

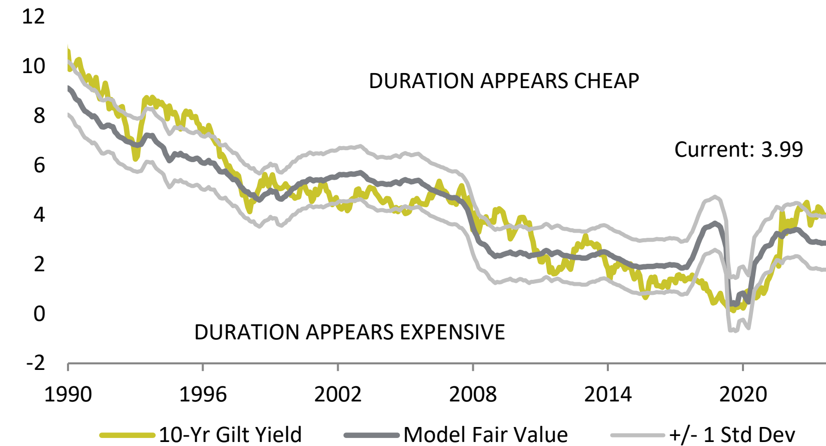
Facts & Figures Third Quarter 2024

UK gilts returned 2.4% in 3Q and 8.0% over the trailing 12-months in local currency terms, outperforming UK cash (1.4% and 5.4%) over both periods. The strong performance coincides with weaker domestic inflation and economic data, which raised odds the Bank of England (BOE) will ease policy more than previously anticipated.

- Ten-year gilts were yielding 3.99% as of Sept 30, which is roughly 40 bps above where they started the year but well below their trailing 12-month peak of 4.7%.
- Despite the decline in yields, gilt valuation remain somewhat attractive in absolute terms and relative to US Treasury securities. UK ten-year yields are 1.1 standard deviations above their implied fair value yield of 2.9%, which is based on the trend in the nominal growth rate of the economy.
- Performance is now positive on a trailing 12-month basis. However, performance remains deeply depressed on a trailing three-year basis, suggesting there may still be more upside to the recent rally.
- Additionally, stagnant domestic growth and lower inflation have opened the door to rate cuts, which should support gilt yields. The UK economy rebounded in 1H 2024 with GDP growing at a 2.3% annualized rate, which is above its ten-year average (1.3%), but it has flatlined for two straight months. UK annual core CPI was 3.6% in August, down from 6.2% a year ago.
- As a result, the BOE began cutting rates in August by lowering the main bank rate 25 bps to 5.0%. Interest rate traders expect it will lower rates by around 150 bps over the next 12 months.
- The combination of the UK's relatively small, open economy and its fiscal position is a risk for gilts markets. The OBR projects the UK debt-to-GDP ratio will rise to 274% over the next 50 years, compared with less than 100% today. Its unlikely the outcome of the recent UK election will materially impact the UK's fiscal outlook. At the same time, the BOE plans to keep reducing gilt holdings by £100B this fiscal year.
- The inverted gilt yield curve remains a headwind, but this should abate if the BOE cuts rates as much as expected and the curve steepens.

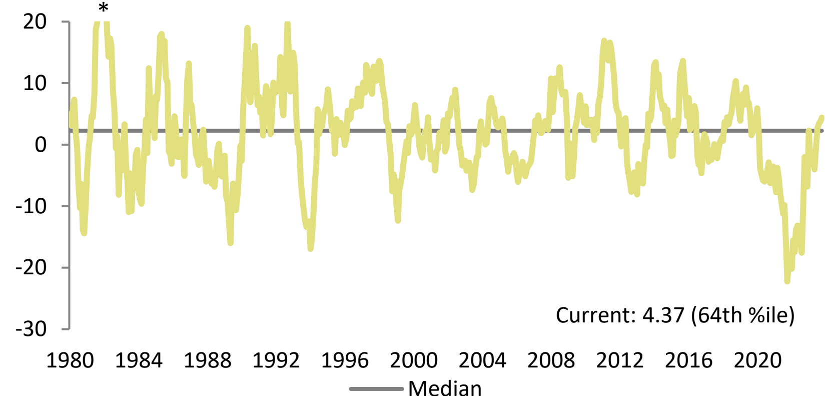
VALUATIONS: 10-YR GILTS

Jan 31, 1979 – Sep 30, 2024 • Percent (%)



12-MONTH PRICE MOMENTUM: 10-YR GILTS

Dec 31, 1980 – Sep 30, 2024 • Percent (%)



* Capped for scale purposes. The rolling 12-M Momentum was 44.5% in October 1982.

Source: Thomson Reuters Datastream.

Note: The Model Fair Value is the predicted range of ten-year yields based on a multiple linear regression model that includes trailing ten-year real GDP and RPI/CPI change. CPI data are as of August 31, 2024.

UK Corporate Bonds

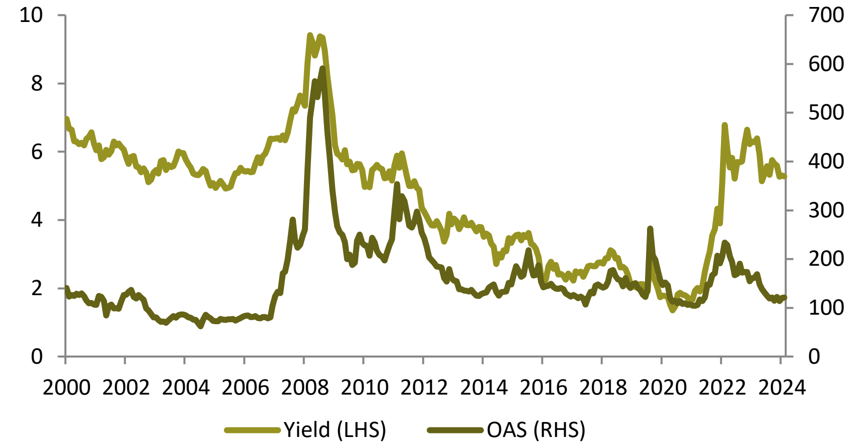
Facts & Figures Third Quarter 2024

Sterling-denominated investment-grade corporate bonds generated solid gains in 3Q, reversing first-half losses.

- Sterling investment–grade corporate bonds returned 2.4% in 3Q, putting them slightly in the black for 2024 YTD (2.0%).
- Yields fell around 30 bps in 3Q to 5.28% as underlying gilt yields were pulled lower by the August rate cut from the Bank of England (BOE)..
- The option-adjusted index spread has fallen 17 bps YTD to 121 bps, reflecting the 31st percentile of observed values.
- Investors may continue to be attracted by yields, which remain over 200 bps above their prior ten-year average (3.24%).
- The BOE cut its base rate to 5.0% in August. Declining inflation may allow scope for further easing at one of its remaining 2024 meetings. The August CPI reading of 2.2% was unchanged from July and close to the lowest in almost three years.
- The macro backdrop for UK corporate credit has slightly strengthened in recent months. In addition to easing inflation pressures and potential for further rate cuts, economic forecasts have been revised upward. The consensus now expects growth to hit 1.1% in 2024, below long-term averages but 40 bps above the level expected three months ago.
- Very low net issuance remains an ongoing technical tailwind for the market. Year to date issuance totals just GBP 19 billion.

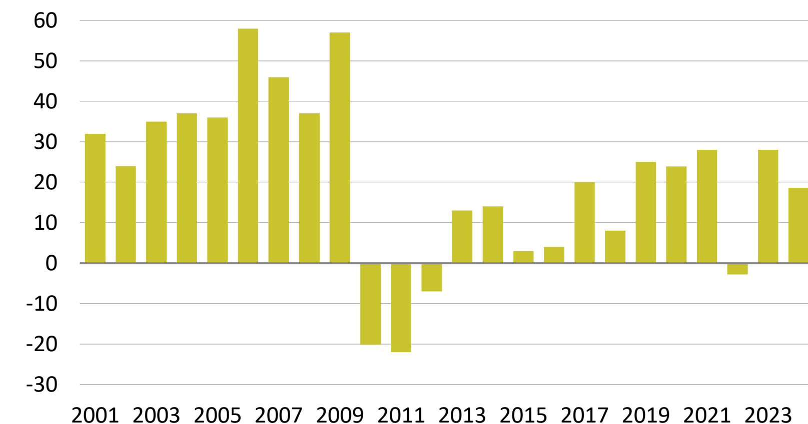
YIELD AND OPTION-ADJUSTED SPREAD: STERLING CORPORATES

Aug 31, 2000 – Sep 30, 2024 • Percent (%)



NET ANNUAL ISSUANCE: STERLING CORPORATES

2001-24 • Sterling (Billions)



Source: Bloomberg Index Services Limited.

Note: Issuance data for 2024 are through September 30.

Euro Area Sovereign Bonds

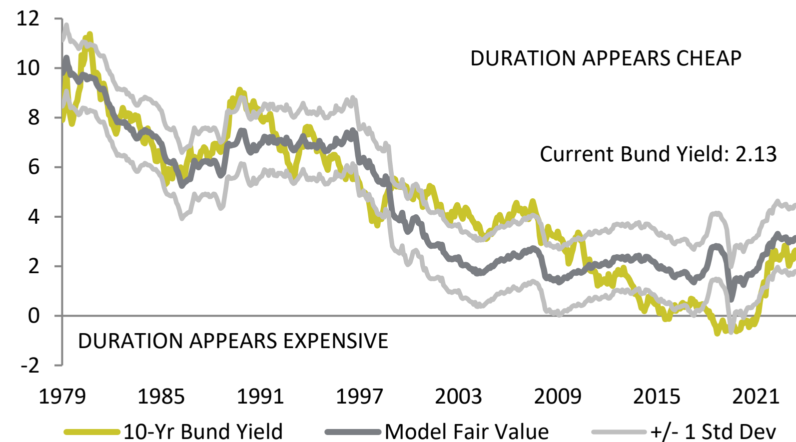
Facts & Figures Third Quarter 2024

Core EA sovereigns (i.e., German bunds) returned 3.2% in 3Q and 7.4% over the trailing 12-months in local currency terms, outperforming cash (1.0% and 4.2%) over both periods. The strong performance coincides with weaker domestic inflation and economic data, which raised odds the ECB will ease policy more than previously anticipated.

- Ten-year bunds were yielding 2.1% as of Sept 30, roughly 10 bps above where they started the year but off their trailing 12-month peak of 3.0%.
- Ten-year bund yields are well above their trailing 20-year median of 1.7%, but unlike other major DMs, valuations are unattractive. Ten-year yields are 0.7 standard deviations below their implied fair value yield of 3.1%, which is based on the trend in the nominal growth rate of the economy.
- Performance is now positive on a trailing 12-month basis. However, performance remains deeply depressed on a trailing three-year basis, suggesting there may still be more upside to the recent rally.
- Additionally, weak domestic growth and a sharp decline in inflation have opened the door to rate cuts, which should support bond yields. EA real GDP grew at a 1.0% annualized rate in 1H 2024, which is below its ten-year average monthly rate of growth (1.4%), and leading indicators are depressed. Preliminary annual EA core CPI was 2.7% in September, down from 4.5% a year ago.
- As a result, the ECB cut rates by 25 bps for the first time in June and a second time in September, bringing its deposit rate to 3.5%. Interest rate traders expect it will cut rates by another 165 bps over the next year.
- Increased coordination within the EA and structural reforms within the periphery have reduced fiscal risk and mostly kept EA spreads in check, despite the ECB reducing its bond holdings. According to Eurosystem projections, the EA budget deficit is estimated to steadily decline from 3.1% of GDP in 2023 to 2.6% in 2026.
- However, concerns about debt sustainability have risen in France following the recent election. The ten-year OATs-bunds spread has widened to just under 80 bps, one of the largest premiums outside of the 2011 debt crisis.
- The inverted bund yield curve remains a headwind, but this should abate if the ECB cuts rates as much as expected and the curve steepens.

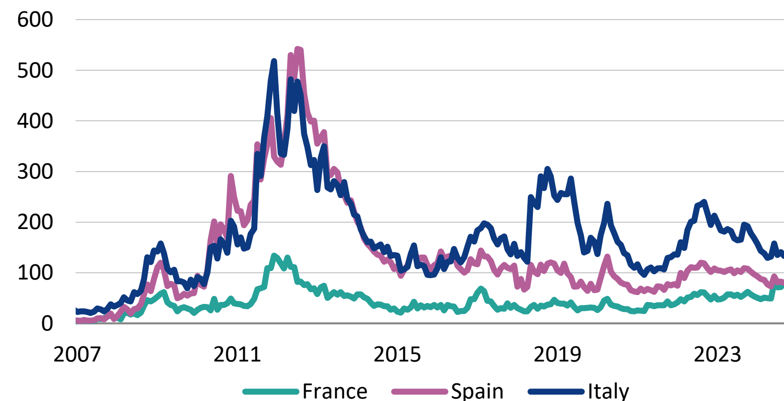
VALUATIONS: 10-YR BUNDS

Dec 31, 1979 – Sep 30, 2024 • Basis Points (bps)



HISTORICAL 10-YR SPREADS OVER BUND YIELDS

Jan 31, 2007 – Sep 30, 2024 • Basis Points (bps)



Source: Thomson Reuters Datastream.

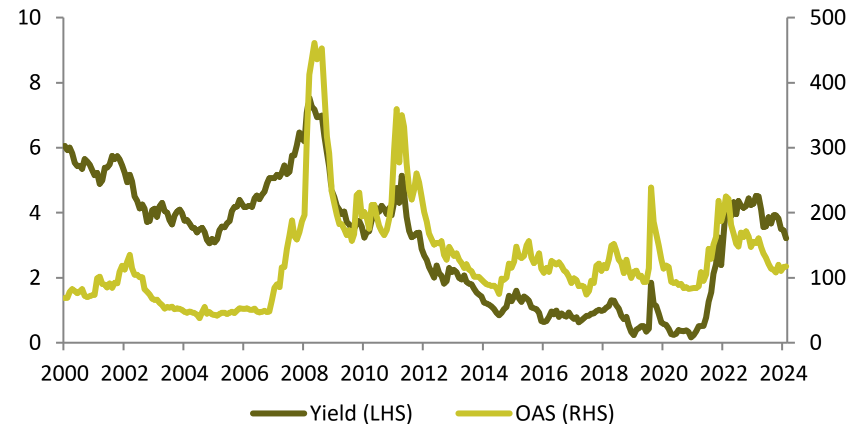
Note: The Model Fair Value is the predicted range of ten-year yields based on a multiple linear regression model that includes trailing ten-year real GDP and CPI change.

Euro Area Corporate Bonds
Facts & Figures Third Quarter 2024

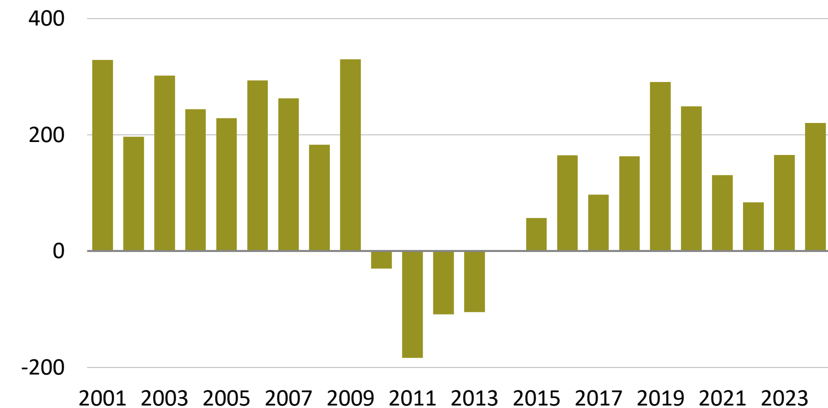
The Bloomberg Euro-Aggregate Corporate Index generated a solid 3.3% return in 3Q, lifting its year-to-date return to 3.8%. Yields are collapsing as the ECB embarks on a rate easing cycle.

- The Bloomberg Euro-Aggregate Corporate Index returned 3.3% in 3Q, boosting its YTD return to 3.8% after a relatively flat first half.
- Yields on euro corporate bonds fell 60 bps in 3Q to 3.22%. Yields have declined around 130 bps since their cyclical peaks last fall.
- The corporate bonds OAS of 117 bps is very close to its historical median. This spread looks fairly valued relative to other international fixed-rate IG bond markets (e.g., the US) but declining index credit quality means there isn't a significant cushion for investors if fundamentals weaken.
- The macro backdrop is mixed for corporate bonds. The ECB has cut rates twice in 2024 to 3.5% given ebbing inflationary pressures. Lower rates should boost debt servicing capabilities. On the other hand, weak economic growth is not supportive for corporate earnings. The current consensus estimate for 2024 Eurozone GDP growth is just 0.7%.
- According to Morgan Stanley, Euro IG issuer Ebitda growth was flat in 2Q while debt levels grew slightly, resulting in slightly higher leverage ratios. Still, the main threat for investors in Euro corporate bonds is shifts in base rates, which result in mark-to-market losses as opposed to credit fundamentals. At the end of 2Q, median interest coverage for a Euro IG issuer was almost 9x.
- Issuance of Eurozone corporate bonds continues to rebound and totaled €153B during the first half, a pace well above that of full-year 2023.

YIELD AND OPTION-ADJUSTED SPREAD: EUROPEAN CORPORATES
Aug 31, 2000 – Sep 30, 2024 • Percent (%)



NET ANNUAL ISSUANCE: EUROPEAN CORPORATES
2001-24 • Billions (EUR)



Source: Bloomberg Index Services Limited.
Note: Issuance data for 2024 are through September 30.

Structured Finance

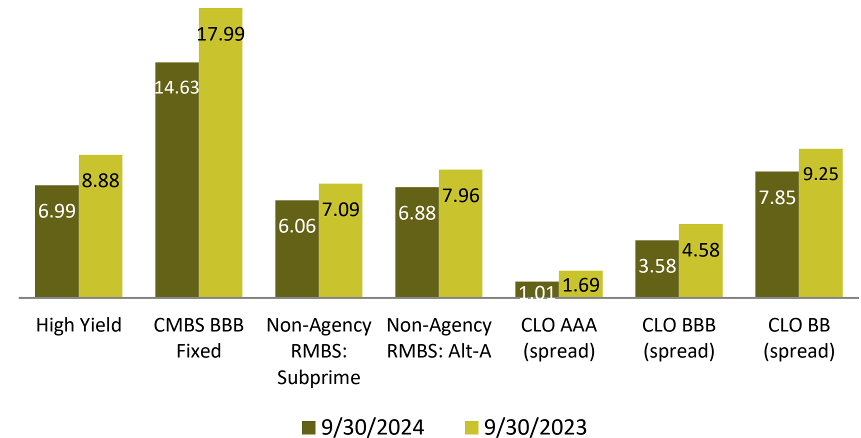
Facts & Figures Third Quarter 2024

Most parts of the structured credit market have generated healthy returns in 2024. Underlying corporate credit fundamentals have been boosted by resilient economic growth and some property-backed bonds have seen sentiment improve amid signs that fundamentals may be stabilizing.

- Most structured credit indexes posted positive returns in 3Q. Examples included CMBS bonds, with the Bloomberg US CMBS 2.0 Index returning 4.6%, lifting its YTD return to 7.8%.
- CMBS bonds are bouncing back despite write-downs being taken on specific transactions. Lower prices at the start of 2024 priced in a fair amount of bad news. The average price for bonds in the Bloomberg US BBB-rated CMBS Index has risen from 62 cents on December 31, 2023, to around 74 cents at the end of 3Q.
- Cooling inflation and labor market data have allowed the Fed to begin easing interest rates, in turn lowering coupons on floating-rate assets like CLO debt. Spreads on these assets remain above those on comparably rated corporate credit, providing an offset for investors.
- Fundamentals have held up reasonably well, but caution is warranted in some quarters. As examples, while defaults thus far in CLO pools have been limited, rising interest costs mean the leveraged loan default rate has risen to 3.7%. In a similar vein, delinquency rates on underlying loans in CMBS pools have risen around 130 bps over the past year to 5.7% given well-publicized struggles in categories like office and retail.
- Some structured credit assets are less liquid than corporate equivalents and often require specialized systems to analyze. Many also have indefinite maturities given amortizing loan pools. The result is a spread premium to similarly rated corporate debt.
- Investors can access structured credit through several vehicles and mandates, including mutual funds, hedge funds, and closed-end funds.

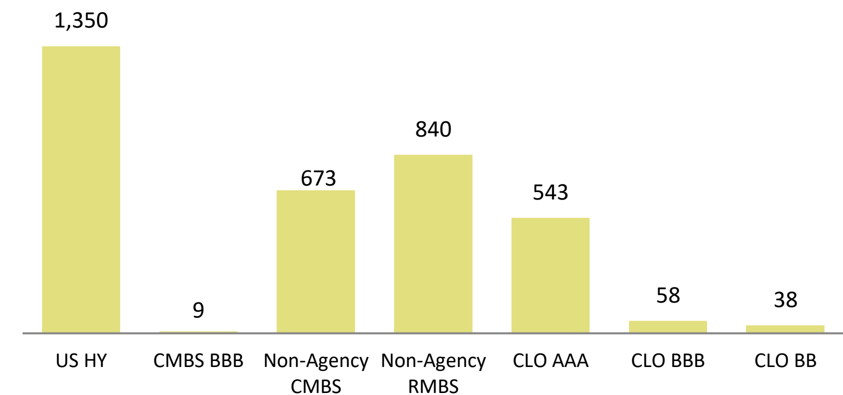
YIELD: SELECT STRUCTURED CREDITS

Percent (%)



MARKET CAP: SELECT STRUCTURED CREDITS

As of September 30, 2024 • US$B



Sources: Bloomberg Index Services Limited, ICE BofA Merrill Lynch, J.P. Morgan Securities, Inc., Securities Industry and Financial Markets Association(SIFMA), and Thomson Reuters Datastream.

Notes: CLOs yield data are represented by discount margins. Non-Agency CMBS and Non-Agency RMBS market-cap data are as of December 31, 2021.

US High-Yield Bonds

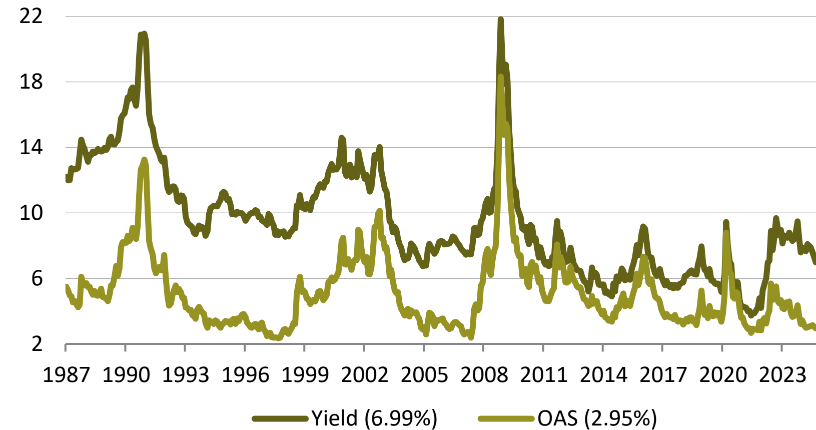
Facts & Figures Third Quarter 2024

US high-yield bonds returned 5.3% in 3Q, lifting their YTD return to 8.0%. Rising prices have lowered yields to around 7%—close to their average from the past decade.

- The Bloomberg High-Yield Index returned 5.3% in 3Q, outperforming benchmarks like US leveraged loans (2.1%) but not quite keeping pace with a 70/30 MSCI ACWI/30% Bloomberg Govt/Credit portfolio (6.2%) for US dollar investors.
- Significant yield compression drove returns—the high-yield index yield fell over 90 bps in 3Q as the Fed embarked on an easing cycle.
- The index OAS fell 14 bps in 3Q to 295 bps and is in the bottom decile of observed values. Investors have limited cushion if defaults rise further or if market expectations of further Fed cuts are disappointed.
- High-yield borrowers have grown earnings and handled the strain from higher rates in recent years. Moody's reported a speculative-grade default rate of 1.7% at the end of August, below its long-term median of 2.3%. The distressed ratio has fallen, suggesting market concerns about an elevated default cycle are starting to fade.
- Credit fundamentals have improved in recent months for many borrowers. Morgan Stanley reports the median interest coverage for HY borrowers rose 0.2x QOQ to 4.8x at the end of 2Q, the first improvement since the end of 2022.
- HY credit fundamentals have held up better than loan borrower metrics given fixed-rate HY borrowers have been more insulated from rising short-term rates. Interest coverage for B-rated HY borrowers was 3.4x at the end of 2Q, a full multiple higher than for B-rated loan issuers.
- Strong new issuance market conditions are allowing companies to boost credit fundamentals by refinancing debt at more attractive yields and spreads. According to J.P. Morgan, roughly 78% of YTD issuance in the high-yield market reflects refinancing.

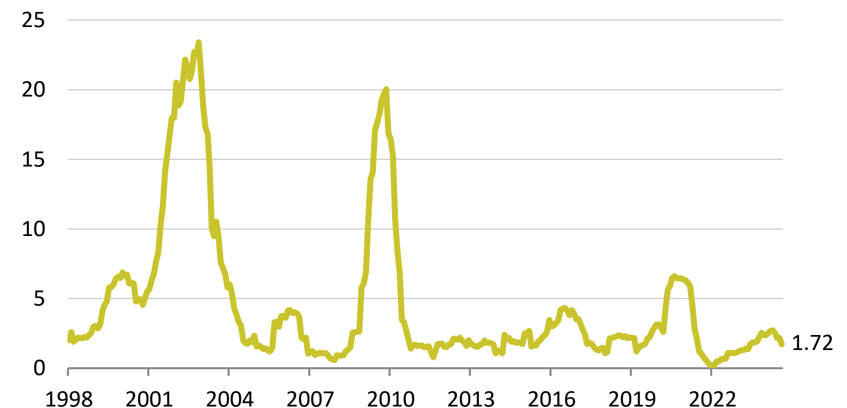
YIELD AND OPTION-ADJUSTED SPREAD: US HIGH-YIELD INDEX

Jan 31, 1987 – Sep 30, 2024 • Percent (%)



PAR DEFAULT RATES: US HIGH-YIELD

Jan 31, 1998 – Aug 31, 2024 • Percent (%)



Sources: Bloomberg Index Services Limited, Deutsche Bank Credit Strategy, and Moody's Investors Service.

Notes: Data prior to June 30, 2017, are represented by Moody's default rates as provided by the Deutsche Bank US Credit Strategy Chartbook. All default rate data on and after June 30, 2017, are sourced from the Moody's Investor Services Default Report.

C|A

Leveraged Loans

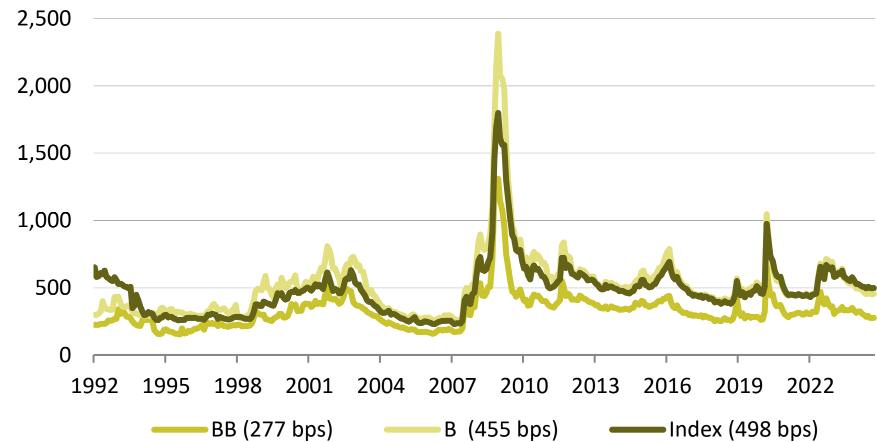
Facts & Figures Third Quarter 2024

US leveraged loans returned 2.1% in 3Q, bringing their YTD return to 6.6%. Credit fundamentals are stable for most borrowers and may get a further boost from the recent Fed cut, though rising defaults reflect that not all firms have been able to handle the stress of higher rates.

- Leveraged loans returned 2.1% in 3Q, underperforming US high-yield bonds. Loans had outperformed high-yield (HY) bonds in recent years, given their floating rate coupons insulated them from mark-to-market issues associated with rising rates. However, that performance headwind for HY bonds has turned into a tailwind as the Fed begins to cut rates.
- Discount margins for leveraged loans have hovered in a narrow range over recent months and ended 3Q at 498 bps, above their long-term median of 473 bps.
- Current short-term rates (one-month SOFR is around 4.9%) mean the current yield on leveraged loans is over 8%.
- Fundamentals have stabilized for loan issuers after softening given the Fed hiking cycle over the course of 2022-2023. According to Morgan Stanley, the median interest coverage ratio (ICR) for loan issuers stood at 4.0x at the end of 2Q. This ratio should rise further as earnings rebound and the September rate cut translates into lower coupon payments.
- Still, 12% of the index has an interest coverage ratio of less than 1.5x, reflecting how some companies struggle with higher rates. This ties with higher default rates. J.P. Morgan reports the trailing default rate for leveraged loans was 3.7% at the end of 3Q, more than 200 bps higher than the rate for HY bonds—the largest such gap in over 20 years. Looser documentation means these defaults are more painful for loan owners as recoveries are below historical averages.
- The loan index has lower average credit quality than the HY index, leaving it more vulnerable to future downturns. According to LCD, just 30% of the S&P loan index has at least one BB rating.
- Loan supply has been strong YTD as issuers have rushed to refinance loans given declining credit spreads. After totaling just $370B gross in 2023, loan issuance reached $908B YTD through September 30.

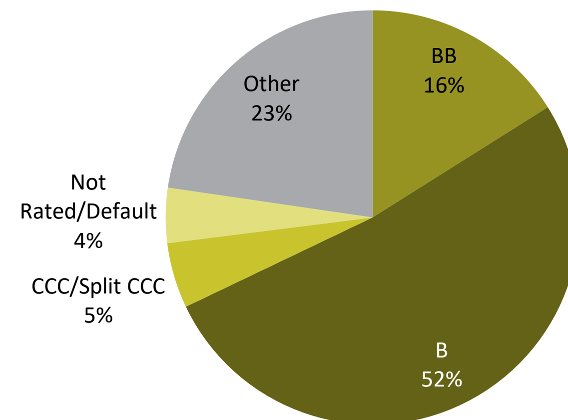
DISCOUNT MARGIN: CS LEVERAGED LOAN INDEX

Jan 31, 1992 – Sep 30, 2024 • Basis Points



RATINGS BREAKDOWN: CS LEVERAGED LOAN INDEX

As of September 30, 2024



Source: Credit Suisse.

Notes: Discount margin assumes a three-year life, assuming all loans are paid off at par with no defaults. Other category includes Split BBB, Split BB, and Split B. Not Rated/Default includes CC, C, and Not Rated/Default loans.

Pan-European High-Yield Bonds

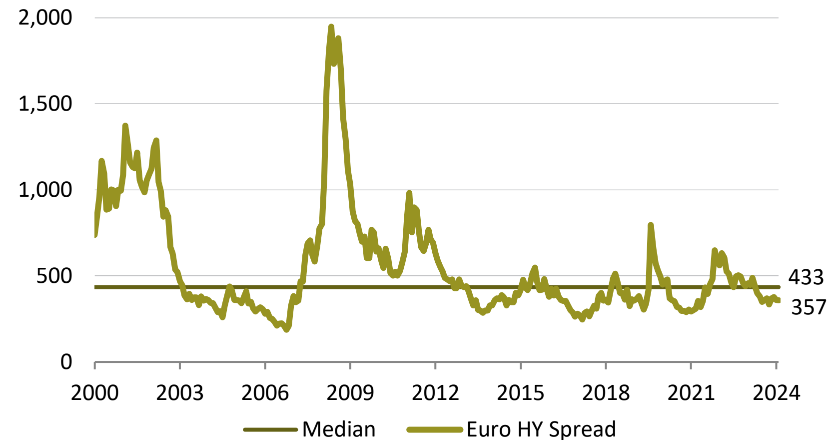
Facts & Figures Third Quarter 2024

European high-yield bonds have posted solid gains in 2024 as central banks embark on a rate cutting cycle and coupon income remains healthy. Spreads continue to compress despite lackluster economic data and softening credit fundamentals.

- The Bloomberg Pan-European High-Yield Index returned 3.7% in 3Q 2024, lifting its YTD return to 7.0%.
- YTD returns had been driven mainly by carry though yield compression boosted returns in 3Q. The index yield fell 70 bps in 3Q to 6.3%.
- The 357-bps index OAS fell slightly in 3Q and is well below its historical median. Investors seem to be accepting below average spreads given yields remain higher than historical averages.
- Declining inflation and growth in European economies are allowing central banks to begin an easing cycle. The ECB has cut its base rate twice in 2024 and the Bank of England made its first 25 bps cut in August.
- European HY credit metrics are tracking growth prospects and have deteriorated yet remain in line with historical averages. Morgan Stanley reports the median interest coverage ratio for European HY borrowers was 4.1x at the end of 2Q, down 1.1x from early 2023 highs. The flipside is that growth in interest expense is slowing and should start to turn downward given recent rate cuts.
- Defaults have been contained in recent years as low rates reduced interest expenses. According to Moody's the trailing 12-month European HY default rate was just 1.2% at the end of August, down slightly from 1.4% at year-end 2023.
- Looking ahead, distressed ratios are below historical averages and don't suggest an imminent spike in default risk. Another positive signal is that the tail of borrowers with leverage ratios above 6x has roughly fallen in half to around 13% of the index over the past 12 months.
- On a relative basis, European borrowers are less levered than those in the United States. More than 65% of the European HY Index carries at least one BB rating.

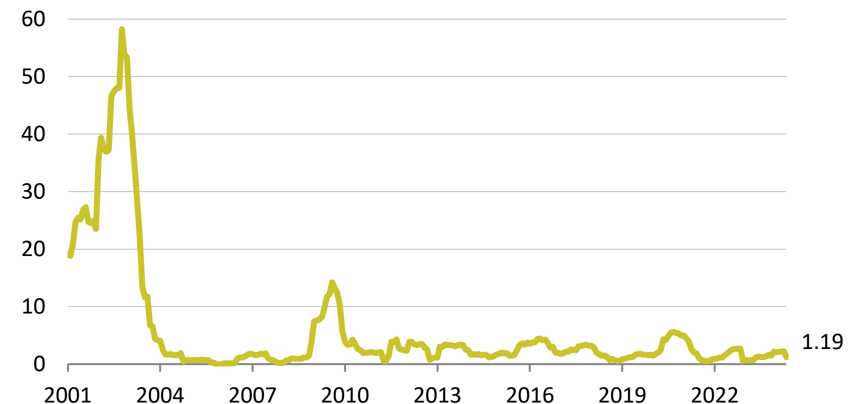
OPTION-ADJUSTED SPREAD: EUROPEAN HIGH YIELD

Aug 31, 2000 – Sep 30, 2024 • Basis points (bps)



PAR DEFAULT RATES: EUROPEAN HIGH YIELD

Apr 30, 2001 – Aug 31, 2024 • Percent (%)



Sources: Bloomberg Index Services Limited and Moody's Investor Services.

Notes: The European high-yield option-adjusted spread peaked in December 31, 2008, at 1,949 bps. The European high-yield default rate peaked on January 31, 2003, at 58.2%.

Distressed Investing: Non-Control

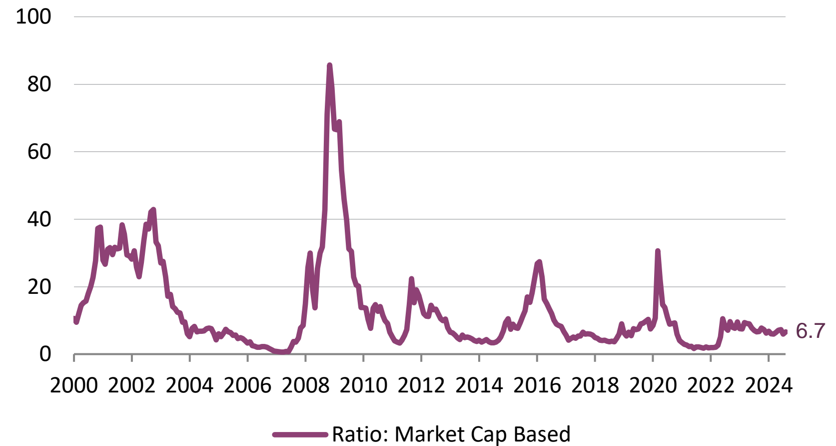
Facts & Figures Third Quarter 2024

Distressed hedge funds have generated consistent returns in recent quarters. Distressed ratios remain low, but credit markets have grown in size and funds are finding opportunity amid discounted bond and loan prices as some companies struggle with elevated borrowing costs.

- The HFRI Event Driven: Distressed/Restructuring Index returned 3.7% in 3Q, lifting its YTD return to 8.5%. Returns from distressed hedge funds have compared favorably to those of fund-of-funds and many other hedge fund categories over the past 12 months.
- Distressed funds have seen their opportunity set fluctuate over the past couple of years. Only 7% of the $1.4 trillion face value HY index trades with a spread above 1,000 bps. The flipside is that the combined US HY and leveraged loan market has more than doubled in size since the GFC, so the overall opportunity set is large.
- Rising bond prices have boosted returns but create a headwind to future returns. The average price of CCC-rated bonds rose from 82 cents to 89 cents over the course of 3Q.
- The proportion of troubled high-yield borrowers (i.e., those with interest coverage ratios under 1.5x) has remained stable at between 8%–10% over the last couple of years, creating ample opportunities for distressed funds.
- Some of these borrowers may get a reprieve given the Fed has begun to cut rates and may accelerate the pace of easing in 2025. The flipside is that struggling companies may have difficulties in refinancing debt and weak loan documentation means recoveries after default may be lower.
- There are a variety of ways to invest in distressed debt, including hedge funds and lock-up vehicles, which will do everything from trade existing securities to provide rescue finance for troubled companies. Skilled managers may find opportunities beyond traditional focus areas, including structured credit and property-backed credit.

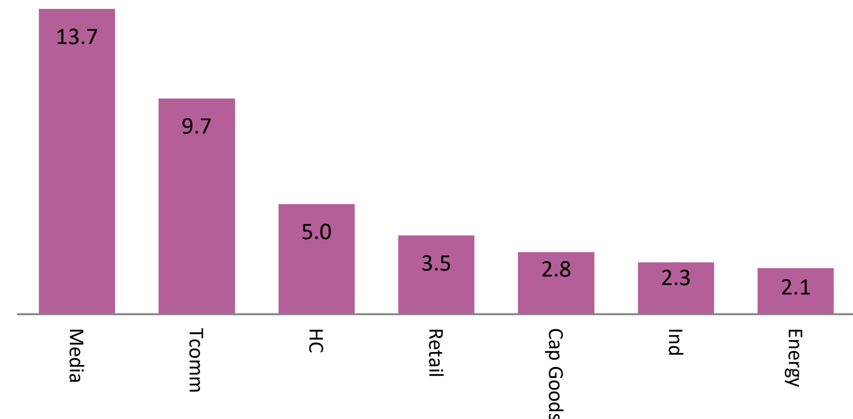
DISTRESSED RATIO: BOFA ML HIGH YIELD MASTER II INDEX

Jan 31, 2000 – Aug 31, 2024 • Percent (%)



MARKET VALUE OF DISTRESSED PAPER FOR SELECT INDUSTRIES

As of September 30, 2024 • US$B



Source: ICE BofA Merrill Lynch.

Notes: Bottom chart represents the ICE BofA Merrill Lynch US High Yield Index universe. Distressed bonds are defined as bonds with option-adjusted spreads greater than 1,000 basis points. Only industries with a market value equal or greater than $2 billion are shown.

USD-Denominated Emerging Markets Debt

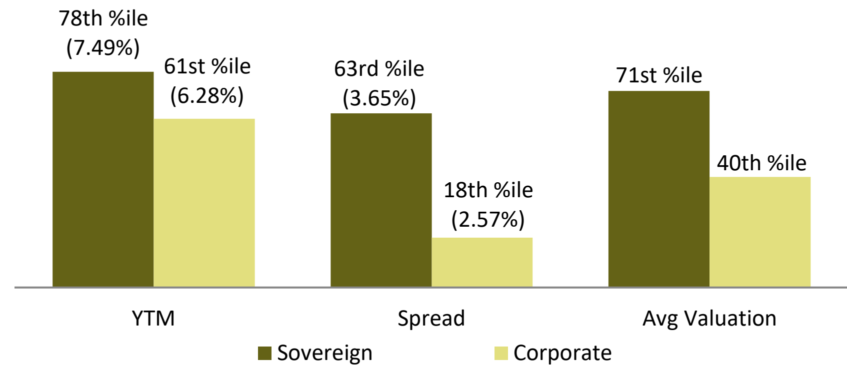
Facts & Figures Third Quarter 2024

EM debt rallied in 3Q, bringing YTD performance for the (sovereign) JPM EMBI Global Diversified and (corporate) CEMBI Broad Diversified indexes to 8.6% and 8.5%, respectively. The 3Q rally was supported by softening US labor market data and growing momentum for Fed rate cuts. Indeed, the Fed delivered an outsized 50-bp cut in September.

- YTD performance built on strong returns in 2023 for both the sovereign (11.1%) and corporate (9.1%) segments. Still, the sovereign and corporate indexes returned just -0.4% and 1.1% annualized, respectively, over the latest three-year period, after seeing heavy drawdowns in 2022 as inflation and interest rates spiked.
- EM debt yields have risen around 200 bps over the past three years, pushed higher by the backup in Treasury yields, which rose as growth and inflation forced the Fed to hike its target rate by 500 bps. Sovereign yields fell nearly 40 bps YTD given the more dovish Fed pivot, with corporate yields also down roughly 70 bps.
- EM sovereign debt spreads compressed in 3Q, ending at the 63rd percentile. Corporate spreads were flat in 3Q at the 18th percentile but were down roughly 50 bps YTD.
- Sovereign yields look elevated from a historical perspective, but the asset class faces unique risk factors. For example, following Russia's invasion of Ukraine, EM index providers responded to the uninvestable nature of Russian assets by eliminating them from many indexes (from their prior 3% weight). In addition, debt from Ukraine and surrounding countries also plunged.
- Broader EM debt index stats disguise wide variation in underlying fiscal health across borrowers. For example, the main EM sovereign index includes several CCC/CC-rated borrowers (Argentina, Ukraine, Sri Lanka, etc.) whose optically cheap debt will only prove attractive if coupons and principal payments are repaid.
- About 50% of the sovereign index has an investment-grade rating, which is similar for corporates. The wide dispersion of fundamentals and possible political outcomes suggests an active management approach to these assets may generate more successful outcomes.

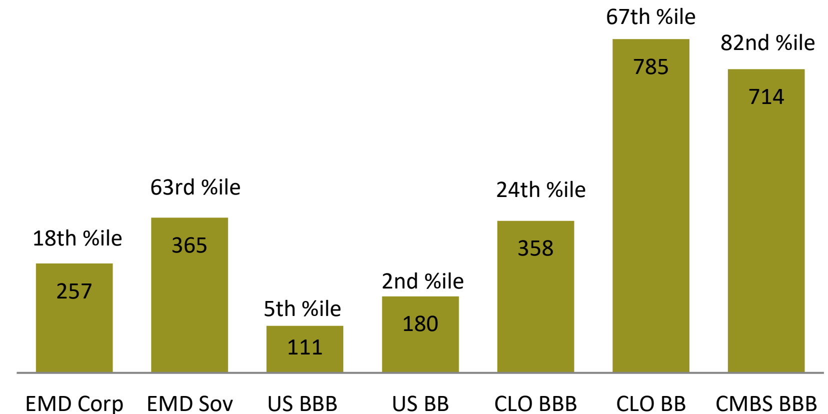
PERCENTILE RANK: USD EM DEBT

As of Sep 30, 2024 (Based on Post-2003 Data)



PERCENTILE RANK: OPTION-ADJUSTED SPREAD

As of Sep 30, 2024



Sources: Bloomberg Index Services Limited, J.P. Morgan Securities, Inc. and Thomson Reuters Datastream.

Notes: Composite Valuation Indicator is the average of YTM percentile and spread percentile. Asset classes represented by J.P. Morgan Emerging Market Bond Index (EMD Sov), J.P. Morgan Corporate Emerging Markets Bond Index (EMD Corp), Bloomberg US Corporate Investment Grade BBB Index (US BBB), Bloomberg US High Yield BB Index (US BB), J.P. Morgan CLOIE BBB Index (CLO BBB), J.P. Morgan CLOIE BB Index (CLO BB), and Bloomberg US CMBS Baa Index (CMBS BBB).

Local Currency Emerging Markets Debt

Facts & Figures Third Quarter 2024

Local currency EM debt returned 4.1% in local currency terms in 3Q 2024. A weakening US dollar saw stronger USD returns with the index rising 9% on the quarter. This now brings year-to-date USD performance to 4.9%. Yields declined during the quarter, primarily in sympathy with moves in developed markets bond markets.

- EM local currency bonds once again took their cues from their DM counterparts. US Treasury yields declined as softer labor market data allowed the Fed to emphasize the employment side of its mandate with inflation back near target. The fact that economic activity is holding up even as extra rate cuts get priced in was of particular advantage to EM assets. This was especially beneficial for USD returns as it also spurred a softening dollar. The interest rate differential between EM and DM is toward the bottom end of historical precedent, presenting a possible risk were sentiment to shift and a severe risk-off episode to eventuate.

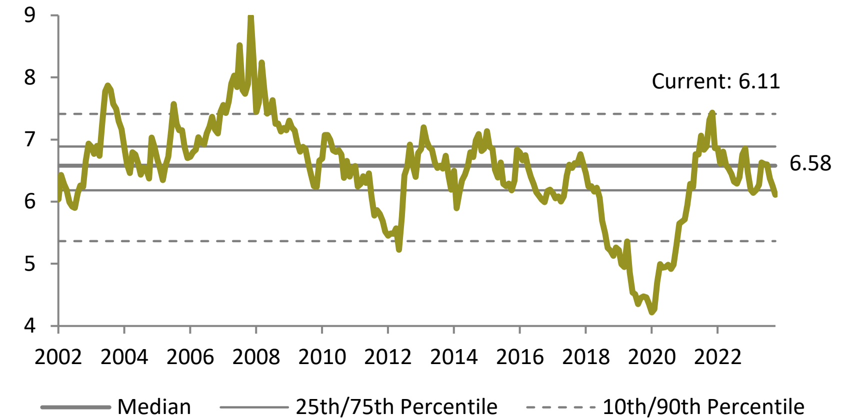
- EM currencies are highly sensitive to global growth prospects. Therefore, various inter-related factors have proved to be headwinds in the post-COVID era including impaired global supply chains, geopolitical risks, and fears of a policy-induced slowdown. More recently, the idiosyncratic slowdown and data deterioration in China have weighed on EM. In the last quarter; however, the easing of rates expectations in the US, in addition to policy easing announcements in China, have supported EM assets.

- EM-LC bond yields fell by 49 bps during the quarter. The yield now sits back at the 22nd percentile of historical observations. The spread to the Global Agg rose by 8 bps but remains relatively low at 2.78 ppts. As a result, EM currencies are likely to remain the larger driver of returns for unhedged investors. While the currency valuation has risen from the 2022 low, it remains relatively depressed, with the REER of EM fixed income–weighted currencies sitting at the 18th percentile.

- On a medium-term outlook, EM currencies look well placed to appreciate. Global growth will eventually improve more materially, risk appetite will pick up, and the dollar should secularly decline. Shorter-term headwinds could appear if the extent of the Fed's easing cycle disappoints, or if recessionary fears rematerialize. The level of dispersion between the underlying countries suggests there are opportunities for active managers with broad mandates to add value.

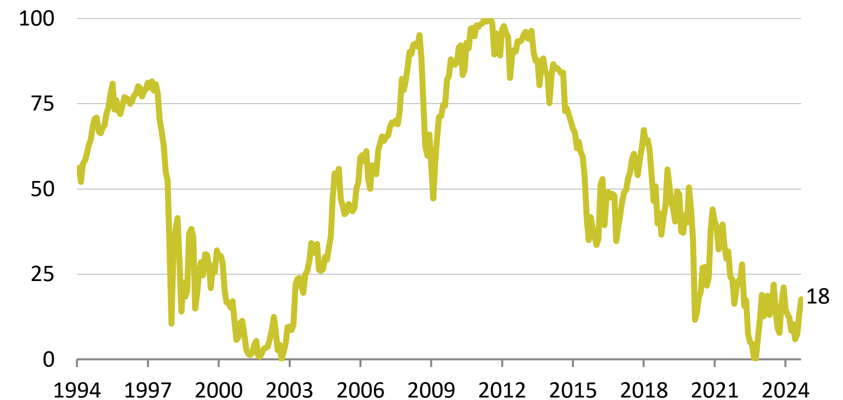
NOMINAL YIELD: JPM GBI-EM GLOBAL DIVERSIFIED INDEX

Dec 31, 2002 – Sep 30, 2024



FI-WEIGHTED EM REAL EXCHANGE RATE VS US: PERCENTILE

Jan 31, 1994 – Sep 30, 2024



Sources: Directorate-General of Budget, Accounting and Statistics, Executive Yuan, Taiwan; INE - National Institute of Statistics, Chile; International Monetary Fund; J.P. Morgan Securities, Inc.; MSCI Inc.; National Bureau of Statistics of China; Thomson Reuters Datastream; and US Department of Labor - Bureau of Labor Statistics. MSCI data provided "as is" without any express or implied warranties.

PRIVATE EQUITY/VENTURE CAPITAL

CAMBRIDGE ASSOCIATES

US Private Equity

Facts & Figures Third Quarter 2024

US PE returned 3.4% YTD through 2Q 2024, building on the 9.3% return in 2023. While performance has trailed broader public markets more recently, the US PE index still outperformed by at least 200 bps in every trailing period three years or longer. While the fundraising pace has largely held up in 2024, investment and exit activity have stabilized after slowing considerably in 2023.

- US-based PE funds raised $242B YTD, suggesting the recent fundraising pace has slowed marginally. Cumulatively, between 2021–23 nearly $1.2T was raised. Fundraising has become increasingly concentrated, with average fund sizes topping $1B YTD. Funds of $5B or more have accounted for roughly half the 2023 and YTD fundraising totals. Eight such funds, totaling $107B, already closed as of 3Q 2024, while ten remain open. US PE secured almost 70% of capital raised globally over the past two years, which is higher than recent averages (54% in decade ended 2021). However, the US share dropped to 52% YTD.

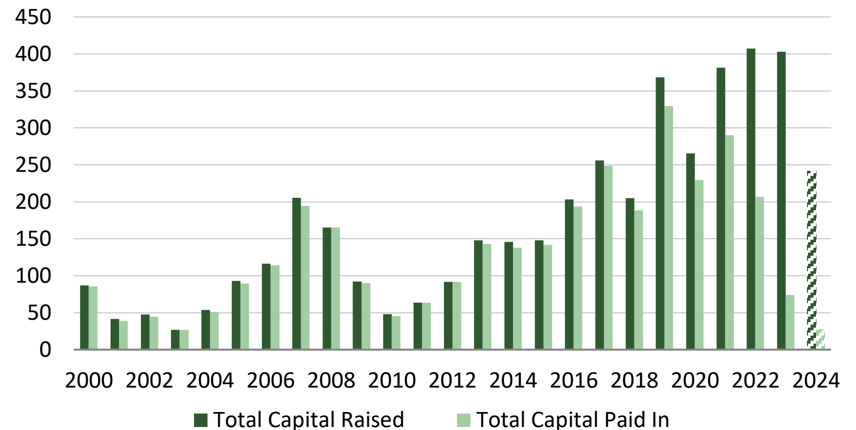
- Capital invested in US buyout and growth equity deals was $245B YTD, tracking at the lowest level since 2020. This compares to average capital invested of $520B over the past three years. Amid tighter credit conditions, add-on and growth equity deals—which tend to be smaller than buyouts—accounted for a greater share of deal activity, and carveouts have also rebounded. IT companies attracted one-quarter of investment YTD, in-line with recent averages. Healthcare's share fell to 6% YTD, which is tracking at the lowest since 2013.

- According to PitchBook LCD data, purchase price multiples for large buyout transactions rose to 11.2x YTD, around the levels seen in 2018. Looking at EV/Revenue multiples, valuations were roughly halved in the year ending June 2024 relative to their peaks in 2021–22 (1.7x vs 3.0x) but inched higher in 3Q to 2.0x. Leverage levels increased to 5.1x YTD after falling to multi-year lows in 2023.

- Total US PE-backed exit value was around $270B YTD, remaining below pre-COVID levels. Still, excluding the exceptional 2020–21, exits are tracking at their best year since 2018. M&A accounted for around 90% of all exit value YTD, whereas IPO exit value ($25B) has tripled relative to 2023. The ratio of exits-to-entry deals has been historically low, falling to 0.34x in 3Q, versus ~0.55x roughly ten years ago.

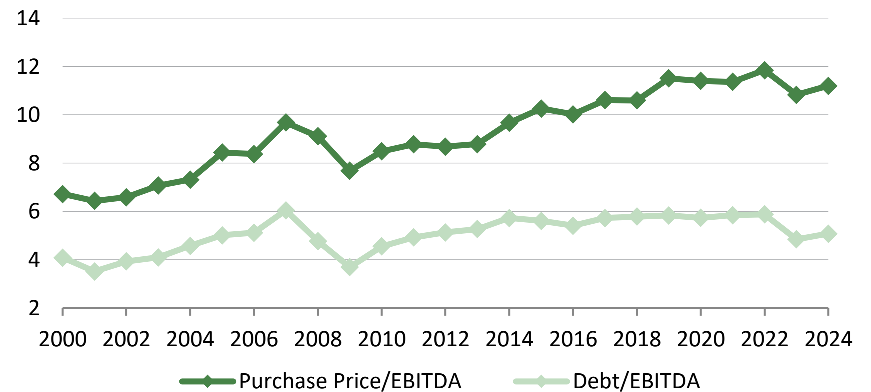
FUNDRAISING AND PAID-IN CAPITAL: US PE

2000–24 (Sep 30) • US$B



AVERAGE PURCHASE PRICE AND DEBT MULTIPLES: US PE

2000–24 (Aug 31)



Sources: Cambridge Associates LLC and PitchBook.

Notes: Historical fundraising and paid-in capital data revise. Paid-in capital data for 2024 are through March 31.

US Venture Capital

Facts & Figures Third Quarter 2024

US VC returns turned modestly positive YTD as of 2Q (1.4%), following declines in 2022 and 2023. Recent returns lagged public markets, but US VC generally outperformed over longer time horizons. Valuations plummeted in 2023, as fundraising and deal activity normalized. Exits were limited as the IPO market remained mostly closed. These trends showed nascent signs of stabilization YTD in 2024.

- US-based VC funds raised $62B YTD in 2024, on pace with the $86B in 2023. Recent activity followed the exceptional prior two years (2021-22), when more than $360B was raised. PitchBook noted that larger, established managers secured more than 80% of YTD fundraising, with first-time funds on pace for their weakest year in a decade. Indeed, the average fund size YTD of nearly $180M remained elevated, while the median fund size has hovered between $25M–$30M for the past decade. US funds attracted 42% of global VC capital raised YTD. For the decade ended in 2023, US VC accounted for around 36% of global fundraising flows.

- US VC deal activity has leveled off YTD, with total deal value of $131B on pace to exceed 2023 ($161B). This follows records of $350B and $240B in 2021 and 2022, respectively. Although investment activity has slowed, it remains above pre-COVID five-year average (2015–19, $110B). More than 70% of deal activity was concentrated in the IT and healthcare sectors Year-to-date, tracking ahead of their trailing five-year average share (~60%). Late-stage VC deals made up 60% of activity, among their largest shares in the past decade.

- US VC valuations dropped almost across the board in 2023 but have rebounded YTD. The declines were most acute at later funding rounds, with median series C and D+ deals declining 42% and 47% in 2023, respectively. Valuations have stabilized YTD, although valuations at later funding rounds remain below their 2021–22 highs.

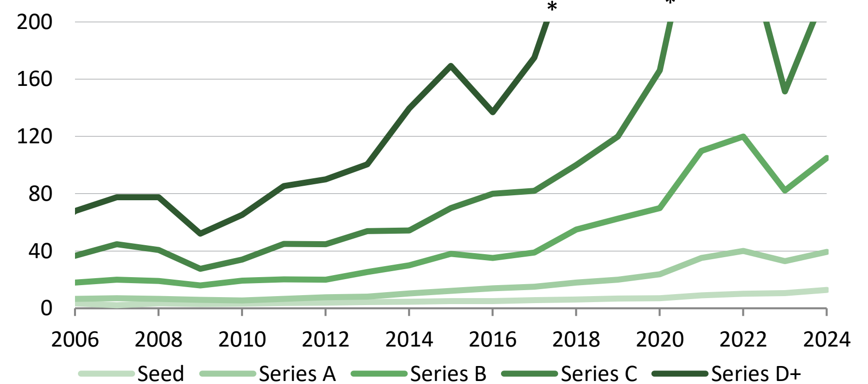
- Exit activity has recovered somewhat YTD, with ~$70B of exit value on pace to exceed that of 2022 ($89B) and 2023 ($72B). Exits in 2024 have been bolstered by the successful Q1 IPOs of Astera Labs and Reddit. Still, exit pace is down from the extraordinary activity in 2021 ($780B) and pre-COVID levels. While IPO activity was just $29B in 2023, it has already exceeded that YTD ($32B).

FUNDRAISING AND PAID-IN CAPITAL: US VC

2000–24 (Sep 30) • U$B

MEDIAN PRE-MONEY VALUATIONS BY SERIES: US VC

2006–24 (Sep 30) • U$M



* Y-axis capped for scale purposes. Latest value for Series C is 223 and 650 for Series D+.

Sources: Cambridge Associates LLC and PitchBook.

Notes: Historical data revise. Paid-in capital data for 2024 are through March 31.

European Private Equity

Facts & Figures Third Quarter 2024

European PE posted positive returns YTD through 2Q 2024 (1.3% in USD, 4.4% in EUR), building on 2023 performance (9.8% in USD, 6.0% in EUR). While returns have underperformed public markets recently, European PE has outperformed over longer time periods historically. Fundraising activity was on pace for a new record in 2024, while deal and exit activity have normalized to around pre-COVID averages.

- Fundraising by Europe-based PE funds reached nearly €120B YTD, on pace to surpass 2023's record of €129B. Recent fundraising has been concentrated in fewer funds, with median and average fund size both increasing to a record of €290M and €1.1B, respectively, YTD. With the recently higher fundraising volumes, European funds attracted nearly 30% of global PE capital raised YTD, tracking ahead of their share in the decade ended 2023 (~23%).

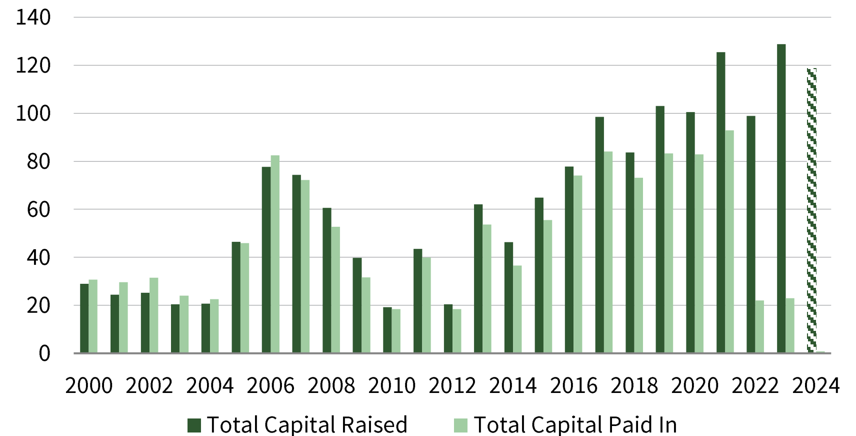
- Investment activity directed at European-based companies reached a total deal value of €354B YTD, on track to exceed 2023 (€425B), but down from just under €600B in both 2021 and 2022. Still, activity remains well-ahead of pre-COVID averages. According to PitchBook data, median deal sizes are up 40% YTD, while carveouts are gaining share of overall deal value. Among sectors, IT comprised 26% of deal value YTD, achieving its highest share over the past decade.

- According to PitchBook LCD, purchase price multiples (PPMs) declined for a fourth straight year to 10.0x EBITDA YTD. PPMs are now in-line with their trailing ten-year average and back to 2014–15 levels. Leverage multiples turned lower YTD at 5.5x. Equity contributions to LBOs turned higher in 2023 to 50%, back to levels last reached in 2020 (52%) and 2009–10 (53%).

- Total exit value slowed to €167B YTD, on pace to lag the prior three years, which averaged more than €300B. Still, 2024 was tracking broadly in line with pre-COVID averages. The value generated by IPO exits rebounded in 2023, although this was largely driven by the Arm public listing at just under €45B. Corporate acquisitions and secondary buyouts continue to account for the majority of exit value, which is the usual exit route for European PE.

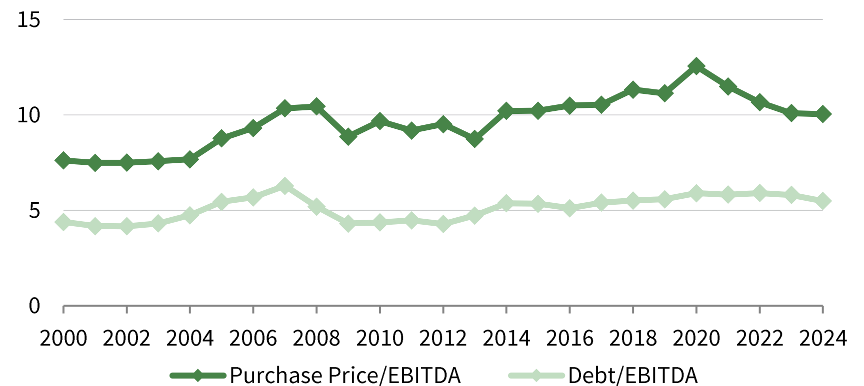
FUNDRAISING AND PAID-IN CAPITAL: EUROPEAN PE

2000–24 (Sep 30) • Euro (Billions)



AVERAGE PURCHASE PRICE AND DEBT MULTIPLES: EUROPEAN PE

2000–24 (Aug 31)



Sources: Cambridge Associates LLC and PitchBook.

Notes: Historical fundraising and paid-in capital data revise. Paid-in capital data for 2024 are through March 31.

European Venture Capital

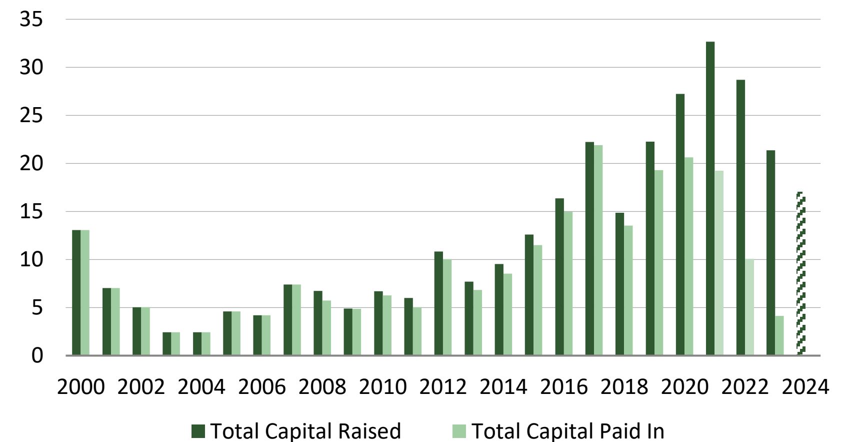
Facts & Figures Third Quarter 2024

European VC returns turned modestly positive YTD as of 2Q (2.1% in USD, 5.3% in EUR), following declines in 2022 and 2023. While returns lagged public markets, European VC has generally outperformed over longer time periods historically. Broader activity slowed in recent years but has normalized YTD. However, pre-money valuations have largely held up better than their US counterparts.

- Europe-based VC funds raised €17B of fresh capital YTD, on-pace with the €21B raised in 2023. From 2020–22, VC funds in Europe raised on average €30B per year. Larger fund sizes have bolstered activity in recent years—with the average fund size of $143M in 2024 setting a new high. Median fund size also rose to a record of €84B YTD. Among all VC funds globally, European managers secured 12% of capital raised in 2024, which is in-line with recent averages.
- Deal activity directed at Europe-based VC companies came in at €41B YTD, tracking slightly behind 2023 (€61B). This follows an average of more than €100B in the prior two years but was still well ahead of the pre-COVID norms. According to PitchBook, late-stage venture saw the largest slowdown in 2023, whereas seed deals have slowed the most in 2024, followed by late stage. IT accounted for nearly 40% of deal flow in 2024, in line with recent averages.
- Valuations decreased modestly in 2023, although not as severely as in the US, and have largely recovered. Seed, early-, and late-stage valuations hit new highs YTD in 2024, according to median pre-money valuations. The drivers of the longer-term uptrend in later-stage valuations were some very large financing rounds (evidenced by average valuations coming in at almost 14x the median valuation in 2021).
- Exit activity picked up YTD, with €26B of exit value generated, increasing from €17B in 2023. Exit activity is now tracking in-line with pre-2021 averages after surging to €155B in 2021. IPO activity was exceptional in 2021, hitting €125B in value, an eleven-fold increase over 2020. While IPO activity had moderated, it climbed to €15B YTD, on track for its strongest year since 2018 (excluding 2021). Value generated by M&A transactions was halved in 2023 (€26B in 2022 versus €15B in 2023) and held at that level YTD in 2024.

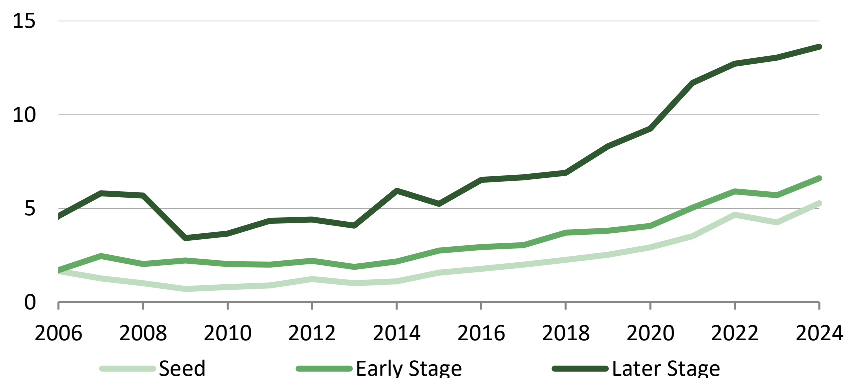
FUNDRAISING AND PAID-IN CAPITAL: EUROPEAN VC

2000–24 (Sep 30) • Euro (Billions)



MEDIAN PRE-MONEY VALUATIONS BY STAGE: EUROPEAN VC

2006–24 (Sep 30) • Euro (Millions)



Sources: Cambridge Associates LLC and PitchBook.

Notes: Valuations are shown by stage (as defined by PitchBook) rather than by series due to small sample sizes. Historical fundraising and paid-in capital data revise. Paid-in capital data for 2024 are through March 31.

Asian Private Equity

Facts & Figures Third Quarter 2024

Asian PE returns were flat YTD as of 2Q, after gaining 4.2% in USD terms in 2023. Despite underperforming public markets in recent quarters, Asian PE has outperformed by a wide margin over longer time periods historically. Fundraising activity rebounded YTD in 2024, although deal activity continued slowing from prior years, with the share of deals in China-based business increasing.

- Asian PE funds raised $81B of new capital YTD, rebounding from just $41B raised in 2023, which was the lowest amount since 2013. In the five years prior to 2023, annual fundraising by Asian PE funds averaged $90B per year. Recent fundraising has been driven by larger funds, with median fund size climbing to new records. Asian PE funds secured 18% of global capital raised in 2024, roughly in line with the average of 16% during the decade ending in 2023.

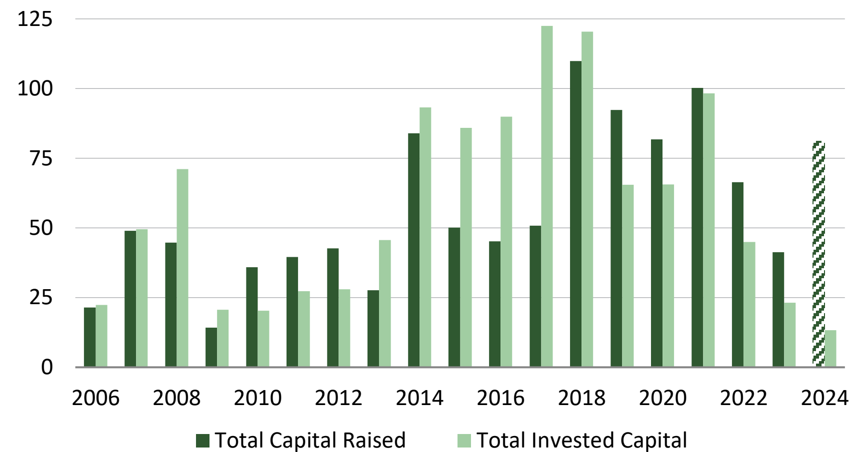
- Asia-based businesses attracted $72B of capital YTD, compared to the prior three years when deal activity averaged around $150B. According to PitchBook, India-based companies received 24% of deal flow in 2023, followed by Japan (23%), Australia (23%), and China (11%). China's share of investment rebounded YTD, comprising nearly 50% of capital invested in 2024, followed by India. China and India have gained in terms of share of overall investment at the expense of other Asian countries over the past five years.

- Buyout strategies have historically been more prevalent than growth equity in Australia, Korea, and Japan, while the reverse has been true in China. Regardless of strategy, leverage has historically been modest or low, while valuations, especially in growth sectors, have been as high as those in other regions.

- Exit activity faltered in 2023. After averaging $130B of exit value per year in 2021–22, this value fell to $36B in 2023 (the lowest since 2013), according to Dealogic. M&A activity (the typical exit path in Asia) continued to account for the majority of exit activity (85%), which was squarely in-line with historical averages.

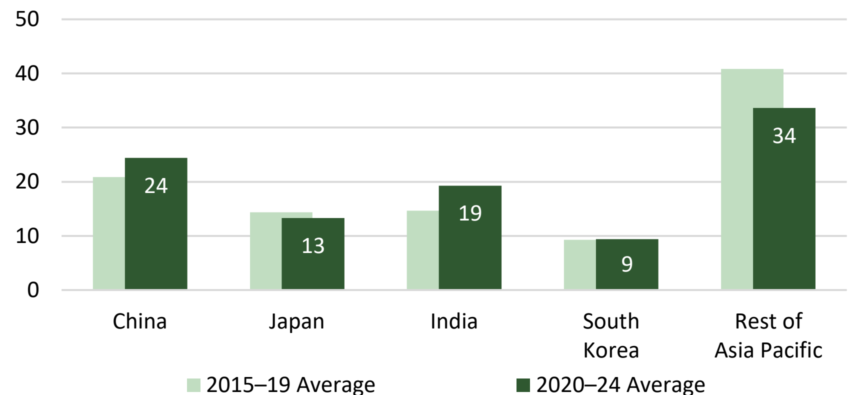
FUNDRAISING AND INVESTED CAPITAL: ASIA-PACIFIC PE

2006–24 (Sep 30) • US$B



PERCENT (%) OF INVESTED CAPITAL BY COUNTRY OF TARGET COMPANY

As of Sep 30, 2024



Source: PitchBook.

Notes: Total Capital Raised does not include Softbank Vision funds. For the top chart, invested capital includes deals where the investor is an Asia-based PE fund. For the bottom chart, invested capital includes PE deals where the target company is headquartered in Asia; data may not sum to 100 due to rounding. Historical data revises.

Asian Venture Capital

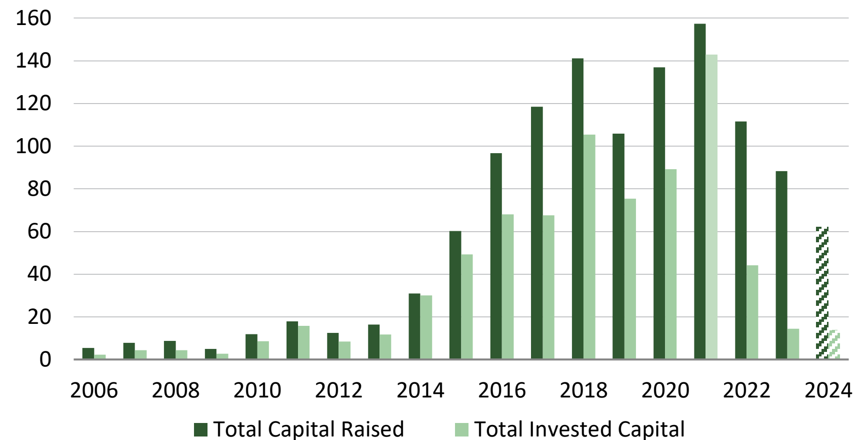
Facts & Figures Third Quarter 2024

Asian VC returned -2.7% in USD terms YTD in 2024, extending negative performance that started in 2H 2021. While VC in Asia has lagged public indexes in recent quarters, it has outperformed by a wide margin over longer periods historically. Activity has continued to moderate as later-stage valuations have come down.

- Asian VC funds raised $62B YTD in 2024, tracking the pace of $88B in 2023. Still, between 2016–22, Asian VC funds raised an average of $124B per year. Average fund sizes have steadily pushed higher over this time period, hitting a near record at more than $160M YTD. Asia's share of global VC fundraising held steady YTD at 43%, which was roughly in-line with more recent averages.
- Global investors closed deals totaling around $60B in Asia-based venture companies YTD in 2024, on track for the lowest since 2015. In the prior five years, deal activity averaged roughly $150B per year. Asian VC managers invested just $14B in 2023 and YTD, the lowest since 2013 and nearly $80B lower than the annual average of the previous five years. Chinese companies received 50% of invested capital YTD, followed by India, Singapore, and Japan. IT accounted for more one-third of deal activity.
- Median pre-money valuations have fallen since 2021 across later-stage VC deals but continued climbing at earlier rounds. Later-stage valuations, which are most impacted by public markets, contracted $26M from their 2021 peak to 3Q 2024. Consumer and IT valuations reached a new high YTD as of 3Q, whereas health care valuations have rebounded but remain off their 2021 highs. These three sectors have historically dominated the Asia VC landscape.
- Exit activity slowed to around $147B in 2023, which was the slowest pace in four years. YTD 2024 activity slowed further to just $46B. Although these exit values were down from the prior three-year average of around $290B, the exit environment looks healthy relative to pre-COVID levels. Additionally, VC-backed IPOs in Asia have held up better than their US and European counterparts, where public listings were mostly frozen over the past couple years. In fact, IPOs accounted for roughly 90% of exit value on average over the past five years.

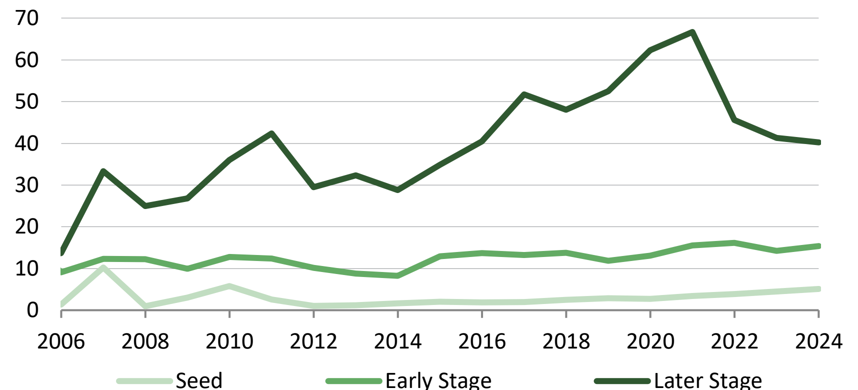
FUNDRAISING AND INVESTED CAPITAL: ASIA-PACIFIC VC

2006–24 (Sep 30) • U$B



MEDIAN PRE-MONEY VALUATIONS BY STAGE: ASIA-PACIFIC VC

2006–24 (Sep 30) • U$M



Source: PitchBook.

Notes: Total Capital Raised does not include Softbank Vision funds. Invested capital includes deals where the investor is an APAC-based VC fund. Valuations are shown by stage (as defined by PitchBook) rather than by series, due to small sample sizes. Historical data revises.

REAL ASSETS

CAMBRIDGE ASSOCIATES

Developed Markets Property Securities

Facts & Figures Third Quarter 2024

DM property securities returned 16.3% in USD terms in 3Q marking the best quarterly return for the asset class since 3Q 2010. Easing monetary policy lead rates lower driving performance for the quarter. The strong quarter significantly improved 2024 performance bringing YTD returns to 12.6%. However, DM property securities have still lagged broad DM equities on both a YTD and trailing one-year basis underperforming by 6.2 and 2.2 ppts, respectively.

- DM property securities trade at 16.0x normalized funds from operations, which is higher than 68% of historical data going back to 1990. Furthermore, property securities offer a yield spread of just 0.6% over government bonds, well below the long-term median of 1.7%. Spreads were relatively unchanged over the quarter as lower bond yields were offset by lower DM property securities dividend yields.

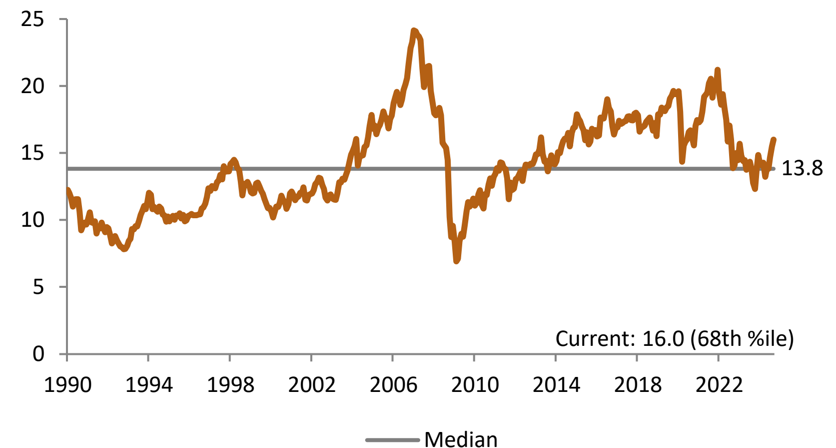
- The global economy is expected to grow 3.1% in 2024, according to analysts surveyed by Bloomberg in September. This is up 10 bps from the 3.0% forecast last quarter. Furthermore, DM economies have also had 2024 upside growth surprises increasing 10 bps over the quarter and 60 bps since the start of the year.

- A key concern for property investors is the pandemic's long-term impact on consumer and business preferences. For instance, while funds from operations of broad DM property securities have recovered from the pandemic, some sectors such as offices, hotels, and retail, remain below 2019 levels. Conversely, other sectors such as industrials and residential, have fared far better growing funds from operations.

- Real estate is a capital-intensive business, which uses debt to finance its growth to a greater degree than other sectors. Still, developed property securities' leverage has fallen since the GFC, with net debt as a percentage of total assets at 39% at the end of 3Q relative to the 42% at the beginning of 2010. The current level of leverage is below the average over the last two decades and reflects more discipline in capital markets.

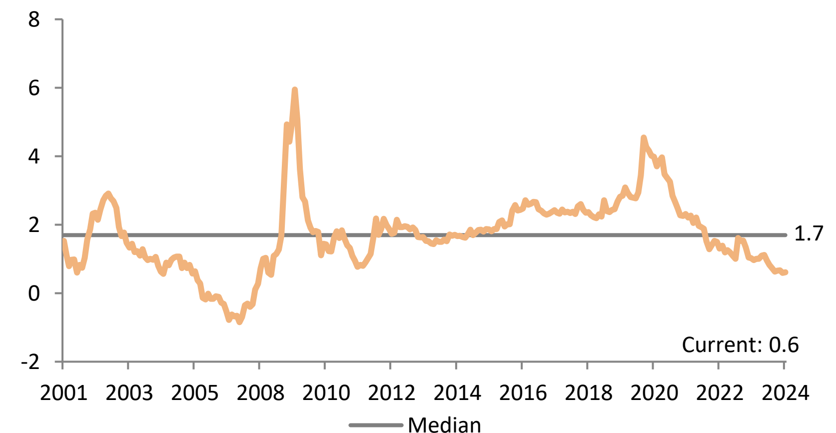
NORMALIZED PRICE-TO–FUNDS FROM OPERATIONS MULTIPLE

Jan 31, 1990 – Sep 30, 2024



SPREAD BETWEEN DY AND GLOBAL GOVT BONDS

Oct 31, 2001 – Sep 30, 2024



Sources: EPRA, FTSE International Limited, J.P. Morgan Securities, Inc., National Association of Real Estate Investment Trusts, and Thomson Reuters Datastream.

US Private Property

Facts & Figures Third Quarter 2024

US property returned 2.4% annualized over the last three-year period at the asset level, according to NCREIF Property Index data as of 2Q. Sequentially, returns are broadly softer as tighter financial conditions, ongoing trend of working-from-home and supply/demand dynamics weigh on the sector. Considerable return dispersion among sectors remains, with industrial properties returning 11.5% annualized over the same period, while office returned -8.1%.

- Capitalization rates, or cap rates, have steadily fallen since the end of the GFC. While levels remain relatively low, cap rates are sharply higher than the recent 2022 low as tighter financial conditions weighed on the sector. Across sectors, cap rates are lowest within industrial (4.0%) and apartments (4.2%) and highest within office (5.75%) and retail (5.43%).

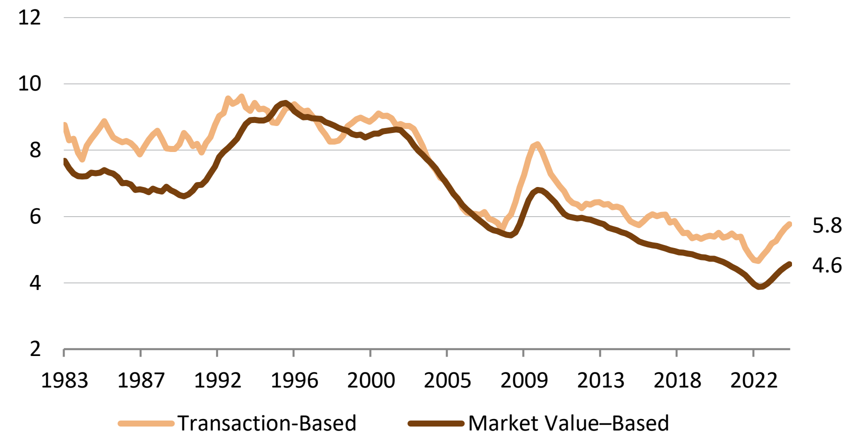
- Four-quarter NOI growth rate, at an aggregate level, declined nearly 70 bps versus 1Q 2024 at 3.7% recent lows seen in 2Q, 2023. The retail sector has rebounded from years of stress, with growth generally stabilizing near 1.4%, albeit slowing in recent quarters. Office NOI inflected negative (-0.8%) for the first time since late 2021, as the sector continues to work through supply/demand imbalances. Industrials NOI growth of 8.7% has declined for two consecutive quarters but remains one of the highest growth rates in the sector. Apartment NOI growth at 4.7%, improved sequentially, as the market works through higher supply in select markets.

- Most major central banks have begun monetary easing as inflation has moderated. The global economy is widely expected to achieve a soft landing and expected to grow by 3.1% in both 2024 and 2025, according to analysts surveyed by Bloomberg in September. Among major global economies, growth expectations for 2024 are highest for Asia ex Japan (4.6%), while modest for developed markets at 1.8%, led by the US (2.6%), and contrasted by Japan at 0.0% on the low-end. Earnings growth is expected to rebound globally increasing to 9.4% and 13.3% for 2024 and 2025, respectively.

- New commercial real estate construction collapsed following the GFC, and, while it has been minimal for most of this cycle, construction has picked up in recent years. YOY total non-residential construction ending in August is 5.2% higher than the same period in 2023.

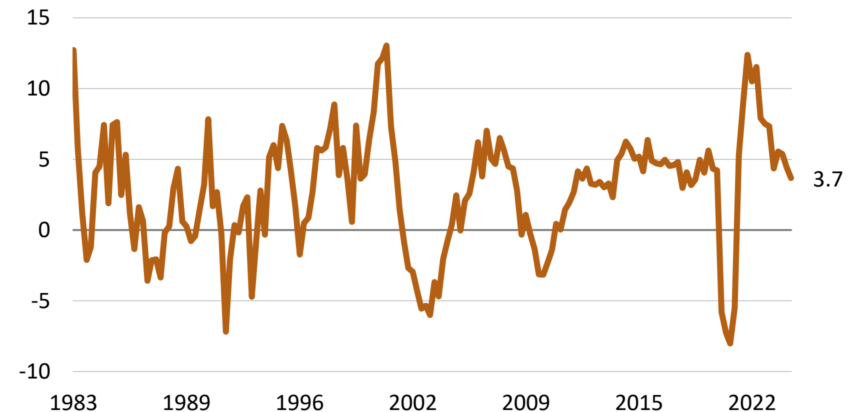
ALL PROPERTY CAP RATES

Second Quarter 1983 – Second Quarter 2024 • Percent (%)



FOUR-QUARTER ROLLING NOI GROWTH

First Quarter 1983 – Second Quarter 2024 • Percent (%)



Source: National Council of Real Estate Investment Fiduciaries.

UK Private Property

Facts & Figures Third Quarter 2024

UK private property returned 0.5% annually over the last three-year period at the asset level, according to the unlevered MSCI UK Quarterly Property Index as of 2Q in GBP terms. Lower returns highlight the impact from monetary tightening. Industrial performance was strongest at 3.4%, albeit notably lower than recent quarters, while office lagged at -6.1%.

- After dipping to a low of 5.1% in mid-2022, yields across all UK investment properties increased to 7.1% as the BOE monetary policy remained restrictive. Although, rate cuts did begin this quarter, it is still early in the easing cycle. According to data from the UK government, YTD non-residential monthly transactions are 5% higher versus 2023, on a seasonally adjusted basis, and running 2% lower than 2015. Vacancy rates have stabilized near 8%. Ongoing affordability concerns and higher government yields may mean transaction activity continues to be modest in 2024.

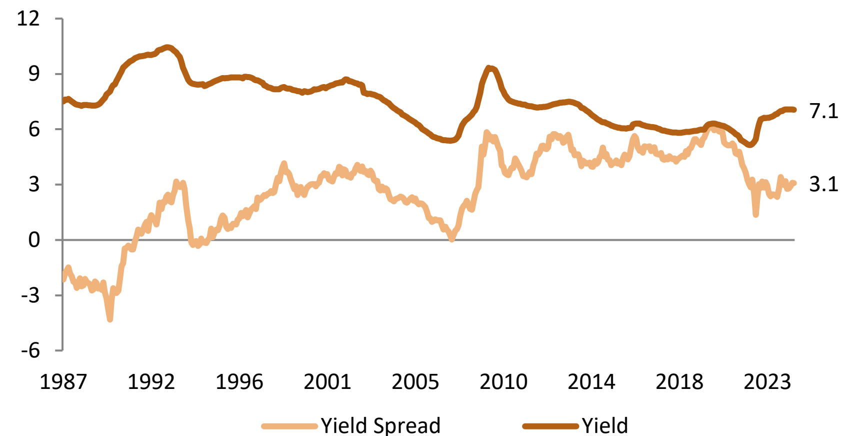
- Property yields can be sensitive to changes in government rates. As government rates have increased, property's yield spread has fallen to 3.1 ppts. The current spread is lower than the ten-year average (3.8 ppts), which suggests the asset class's attractiveness relative to gilts has declined in recent quarters.

- Most major central banks have begun monetary easing as inflation has moderated. The global economy is widely expected to achieve a soft landing and expected to grow by 3.1% in both 2024 and 2025, according to analysts surveyed by Bloomberg in September. Among major global economies, growth expectations for 2024 are highest for Asia ex Japan (4.6%), while modest for developed markets at 1.8%, led by the US (2.6%), and contrasted by Japan at 0.0% on the low-end. Earnings growth is expected to rebound globally increasing to 9.4% and 13.3% for 2024 and 2025, respectively.

- As of 2023, the UK commercial real estate market is estimated to be roughly $937B, according to MSCI Real Estate—$56B higher YOY. It is the largest market in Europe and is followed by Germany's roughly $777B market (down $16B YOY). The UK commercial real estate market is composed primarily of retail, office, and industrial properties, with the industrial sector being the largest sector in the country.

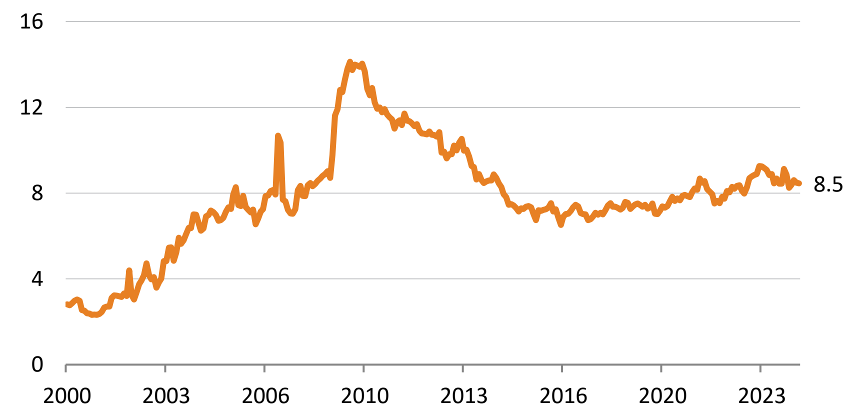
ALL PROPERTY EQUIVALENT YIELDS AND SPREADS

Dec 31, 1987 – Aug 31, 2024 • Percent (%)



VACANCY RATE

Jan 31, 2000 – Aug 31, 2024 • Percent (%)



Sources: MSCI Real Estate and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

Notes: The MSCI Real Estate index measures returns to direct investment in commercial property. Initial yield is current net income divided by gross capital value.

Europe ex UK Private Property

Facts & Figures Third Quarter 2024

Continental property returned 3% annually over the last three-year period at the asset level, according to the unlevered MSCI Global Property Fund Index data as of 1Q 2024 in local currency terms. Returns reverted to positive returns after a notable decrease in the prior quarter. At a sector level, retail returned 2.9%, while residential, industrial properties, and office returned 1%, 5.2%, and –0.7%, respectively. Properties face challenges, including affordability, given the impact of higher interest rates and tighter lending conditions.

- Property yields across most of Europe have steadily decreased over the last decade. Top markets, such as Germany and France, have property yields near the lowest level for which data are available, according to MSCI Real Estate. However, property yields have moderately increased versus 2022, given the increase in sovereign yields.

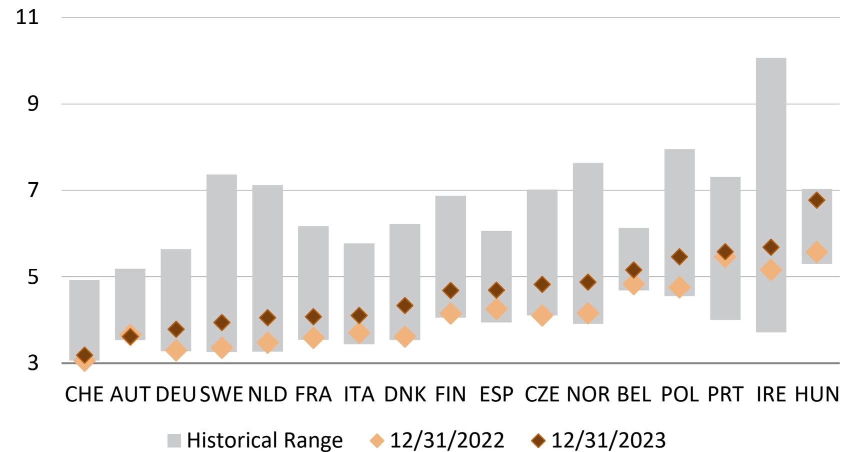
- Most major central banks have begun monetary easing as inflation has moderated. The global economy is widely expected to achieve a soft landing and expected to grow by 3.1% in both 2024 and 2025 according to analysts surveyed by Bloomberg in September. Among major global economies, growth expectations for 2024 are highest for Asia ex Japan (4.6%), while modest for developed markets at 1.8%, led by the US (2.6%), and contrasted by Japan at 0.0% on the low-end. Earnings growth is expected to rebound globally increasing to 9.4% and 13.3% for 2024 and 2025, respectively.

- Although investment in European commercial real estate in 2Q remained below its ten-year average, it inflected positive, increasing by 16% relative to 2023 according to CBRE. The increase was largely led by hotels, while other sub-sectors declined, Of the top seven countries in the region, France, Germany, and Netherlands saw the worst declines in investment, down 46%, 30% and 21%%, respectively.

- The top two largest commercial real estate investment markets across Europe, excluding the UK, are Germany and France. MSCI estimates the size of all commercial real estate in 2023 in those two markets to be roughly $777B and $617B, respectively. German market fell by $16B, while France grew by $7B. Offices make up a large portion of both Germany and France's commercial real estate markets. Indeed one-year rents in these countries have led and outpaced three-,five- and ten-year growth rates.

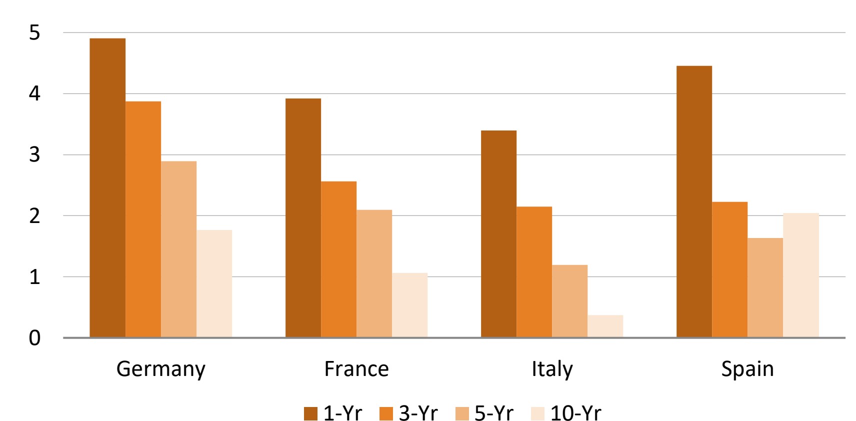
EUROPEAN PROPERTY NET OPERATING INCOME YIELDS

As of Dec 31, 2023 • Percent (%)



ANNUALIZED RENT GROWTH

As of Dec 31, 2023 • Percent (%)



Source: MSCI Real Estate. MSCI data provided "as is" without any express or implied warranties.

Asian Private Property

Facts & Figures Third Quarter 2024

Asian property returned 3.2% annually over the last three-year period at the asset level, according to MSCI Global Property Fund Index data as of 1Q 2024 in USD terms. At a sector level, retail delivered the best results, returning 4.0%, whereas industrials had the lowest returns of 2.7%, over the same period.

- Property yields in many markets have steadily decreased since the GFC. Within two top markets, Japan continues to see property yields near or at the lowest level for which data are available, according to MSCI real estate data, while yields have notably marched up in Australia as monetary policy will likely remain tight.

- Vacancy rates held mostly steady through the pandemic for many markets. But many properties have multi-year leases, so they make not reflect changed consumer and work life preferences. In some geographies with higher frequency data, higher office and retail vacancy rates have been observed.

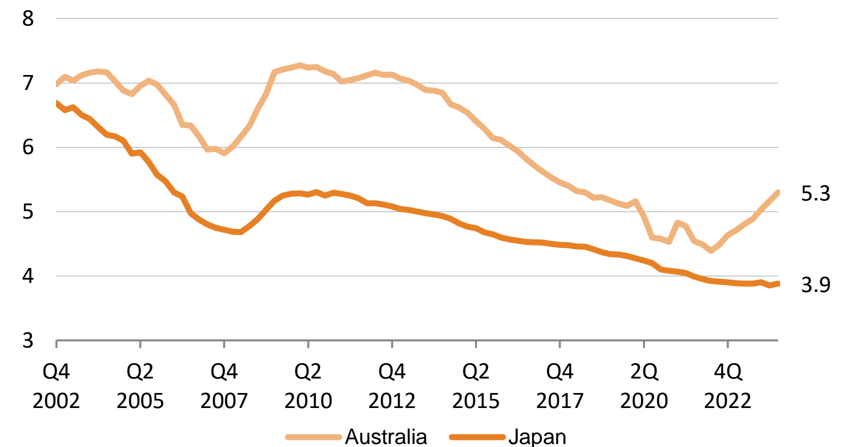
- The global economy is widely expected to achieve a soft landing and expected to grow by 3.1% in both 2024 and 2025, according to analysts surveyed by Bloomberg in September. Among major global economies, growth expectations for 2024 are highest for Asia ex Japan (4.6%), while modest for developed markets at 1.8%, led by the US (2.6%), and contrasted by Japan at 0.0% on the low-end. Earnings growth is expected to rebound globally increasing to 9.4% and 13.3% for 2024 and 2025, respectively.

- Asia-Pacific real estate total investment volume fell by 19% QOQ in 2Q according to CBRE. This was largely due to declines in China (-34% QOQ) and Japan (-53% QOQ), as investors awaited clarity on monetary policies. Industrials primarily drove the weakness, and excess supply in office remains a pain-point for the region, with vacancies jumping to a record high of 19%. Low consumer confidence weighed on the retail sector.

- Property investors continue to focus on six primary locations in Asia Pacific: China, Japan, Hong Kong, Australia, South Korea, and Singapore, which account for most of the property transactions in the region. The focus as it relates to Asian properties (ex Australia) has been primarily from investors within Asia.

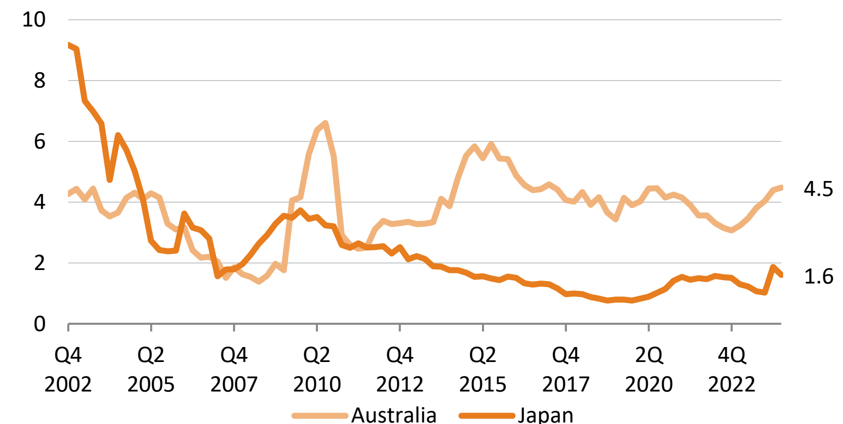
PROPERTY YIELDS

Fourth Quarter 2002 – Second Quarter 2024 • Percent (%)



VACANCY RATES

Fourth Quarter 2002 – Second Quarter 2024 • Percent (%)



Source: MSCI Real Estate. MSCI data provided "as is" without any express or implied warranties.

Note: Japan second quarter 2024 data are as of May 31.

Private Infrastructure

Facts & Figures Third Quarter 2024

Private infrastructure returned 10.34% annualized over the last three-year period, according to the Cambridge Associates Infrastructure Index as of 1Q 2024. This index, which calculates horizon internal rates of return, net of fees, expenses, and carried interest, returned 10.15% annualized over the last ten-year period. Albeit more recent returns have been relatively modest in the face of tighter financial conditions and increased competition. Developed markets contributed the bulk of the return. The industry benefited from stable demand and increased interest among institutional investors.

- Infrastructure companies transacted at 10.7 times EBITDA over the prior 12-month period, which is slightly below the industry's long-term average level. Broadly speaking, institutional investors have been increasingly attracted to brownfield infrastructure investments, as an effort to generate portfolio income and protect against inflation.

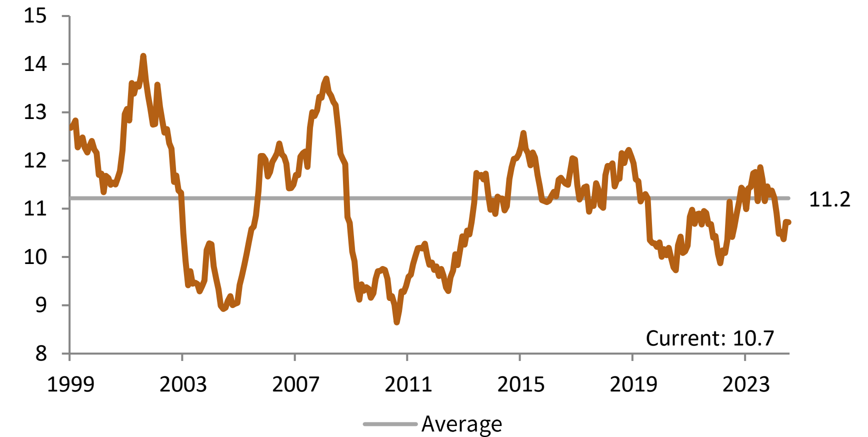
- Most major central banks have begun monetary easing as inflation has moderated. The global economy is widely expected to achieve a soft landing and expected to grow by 3.1% in both 2024 and 2025, according to analysts surveyed by Bloomberg in September. Among major global economies, growth expectations for 2024 are highest for Asia ex Japan (4.6%), while modest for developed markets at 1.8%, led by the US (2.6%), and contrasted by Japan at 0.0% on the low-end. Earnings growth is expected to rebound globally increasing to 9.4% and 13.3% for 2024 and 2025, respectively.

- Global infrastructure 2023 transaction values trailed 2022. Thus far in 2024, global refinancing, greenfield, and brownfield deals accounted for 20%, 26%, and 53% of deal volume, respectively. Energy and telecommunications were the top two sectors for investment, accounting for 22% and 20%, respectively, of deal volume followed by renewables.

- Global infrastructure PE fundraising slowed considerably, declining by nearly 40% YOY in 2023. Annualizing 2024 activity points to another decline this year. Direct investments by pension funds and sovereign wealth funds in infrastructure assets have increased in recent years. Direct investments can offer attractive return potential, given fees are generally lower, and they allow investors to build custom exposures.

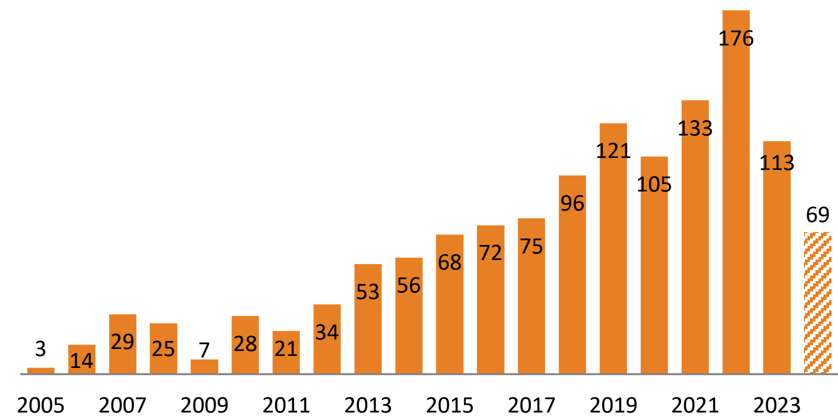
PRICES OF TRANSACTIONS (EV/EBITDA)

Mar 31, 1999 – Sep 30, 2024 • Rolling 12M Average



GLOBAL CAPITAL COMMITMENTS TO INFRASTRUCTURE PE FUNDS

2005–24 • US$B



Sources: Dealogic and InfraDeals.

Notes: Data are monthly and represent the trailing 12-month average EV/EBITDA for all infrastructure transactions. Historical data revise. 2024 capital comitments data are through September 30.

Natural Resources Equities

Facts & Figures Third Quarter 2024

Natural resources equities returned 0.4% in 3Q according to the MSCI World Natural Resources Index in USD terms. Performance during the quarter was dragged down by softer oil prices and disappointing earnings results.

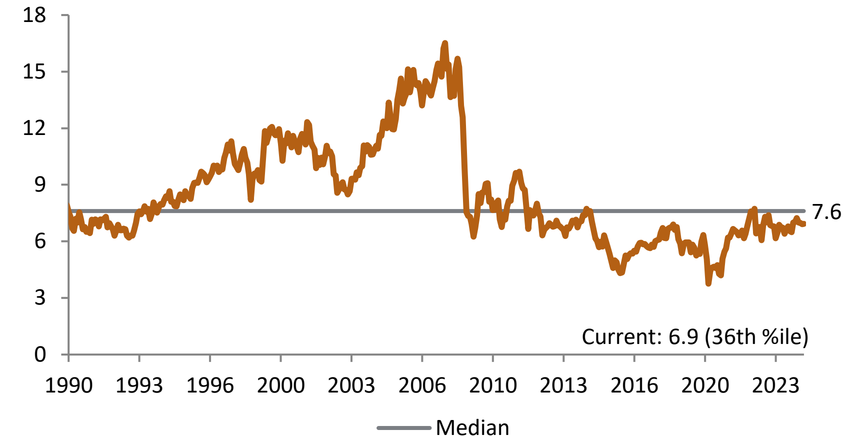
- Natural resources firms trade at 6.9 times cyclically adjusted price-to–cash earnings, which ranks in the 36th percentile of month-end observations dating back to 1990. Valuations remain rangebound and slightly below the median level of 7.6x. NREs faltered as oil declined 17% on concerns of excess supply, even as geopolitical tensions rose. Rumors that Saudi Arabia may abandon its $100 "price target" and refocus efforts on gaining market share also depressed oil prices. A poor earnings seasons also weighed on performance. However, news of several stimulus measures by the Chinese government to boost the economy did help drive copper prices higher late in 3Q.

- Low investment levels contributed to the rise in oil & gas prices in recent years, with capital expenditures hitting at trough of 4.5% of total assets in 2021. However, as prices have recovered, capital expenditures have rebounded to levels not seen since late 2016. Increased spending resulted in the number of rotary rigs operating around the world in 2023 to increase by nearly 4% versus 2022 and 34% versus 2020. However, the rig count only increased by 2% in 3Q sequentially, driven by an 8% increase North America, while international rigs decreased by 3%. Spending levels remain lower than those that led to a severe glut in energy commodities and the rig count remains far lower than the ~3,000 rigs that operated on average between 2010 and 2016.

- A key consideration for investors is the extent that renewable energy could undercut future hydrocarbon demand. Indeed, the recent COP28 called for a possible tripling of renewables capacity by 2030, while encouraging a phase down of fossil fuel usage. Some long-term energy analyses, such as the US Energy Information Administration's 2023 Annual Energy Outlook reference case, highlight that oil and natural gas may continue to be a dominant energy source for decades. Still, long-term energy forecasts have wide confidence intervals, and investors would be wise to carefully consider how different future energy scenarios may impact their portfolios. On the other hand, natural resources equities may attract more investor interest, as weaning off fossil fuels supports demand for certain metals to facilitate the transition to net zero.

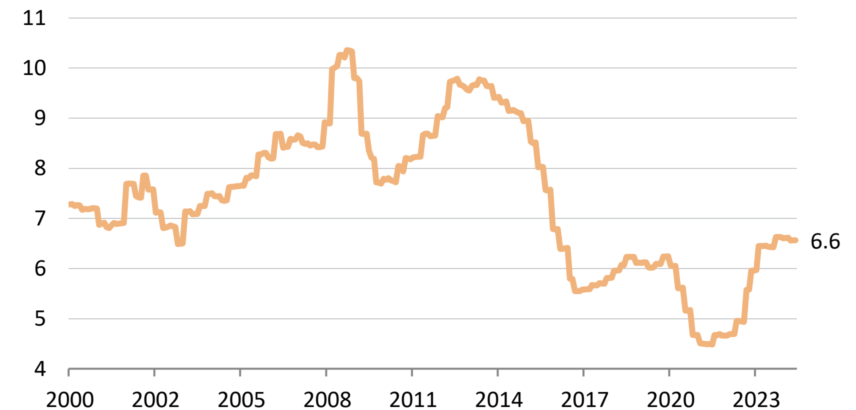
CYCLICALLY ADJUSTED PRICE-TO–CASH EARNINGS

Dec 31, 1989 – Sep 30, 2024



CAPITAL EXPENDITURES

Jan 31, 2000 – Sep 30, 2024 • Percent (%) of Total Assets



Source: Thomson Reuters Datastream.

Notes: Natural resources equities are made up of constituents in the Datastream World Energy Index and the Datastream World Basic Resources Index, weighted on a market-capitalization basis. Historical data revise.

Commodity Futures

Facts & Figures Third Quarter 2024

The Bloomberg Commodity Index returned 0.7% in 3Q in USD terms, while the more energy-heavy index S&P GSCI™ was down 5.3%, on lower oil prices. Energy prices were the main detractor as oil prices fell 17% despite heightened geopolitical risks on fears of excess supply. Copper prices rose late in the quarter on positive news of stimulus measures to help boost the Chinese economy.

- Commodity spot prices are just above the ten-year inflation-adjusted mean, using the constituents and weights associated with the Bloomberg Commodity Index. Prices reflect supply/demand issues unique to commodities. Oil markets declined on excess supply concerns and rumors that Saudi Arabia may no longer attempt to defend prices and renew a focus on gaining market share.

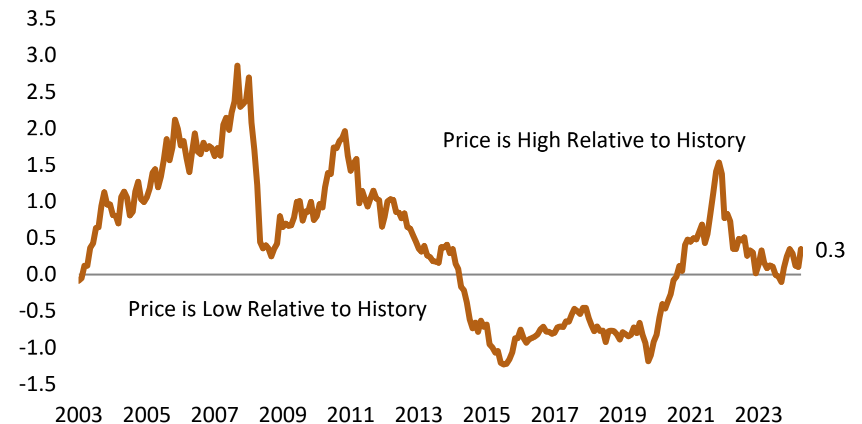
- Most major central banks have begun monetary easing as inflation has moderated. The global economy is widely expected to achieve a soft landing and expected to grow by 3.1% in both 2024 and 2025, according to analysts surveyed by Bloomberg in September. Among major global economies, growth expectations for 2024 are highest for Asia ex Japan (4.6%), while modest for developed markets at 1.8%, led by the US (2.6%), and contrasted by Japan at 0.0% on the low-end. Earnings growth is expected to rebound globally increasing to 9.4% and 13.3% for 2024 and 2025, respectively.

- The performance of commodity futures consists of the returns linked to spot price changes, rolling a futures contract forward as it comes due, and the cash used to collateralize the contracts. When the markets are in contango, meaning near-dated contracts are cheaper than contracts dated farther out, the roll return can detract from commodity index returns. After being in backwardation since late 2020 markets are in hovering near contango again, reflecting expectations of economic uncertainty and weaker demand in the near term.

- Two frequently referenced commodity benchmarks are the Bloomberg Commodity Index and the S&P GSCI™. The former is a world production- and liquidity-weighted index, with restrictions on individual commodity and commodity subsector sizes to promote diversification. The latter is a world production-weighted index of liquid futures contracts, which has most of its exposure in energy. While both indexes only hold near-month futures contracts, many active managers have the capability to buy contracts all along futures curves.

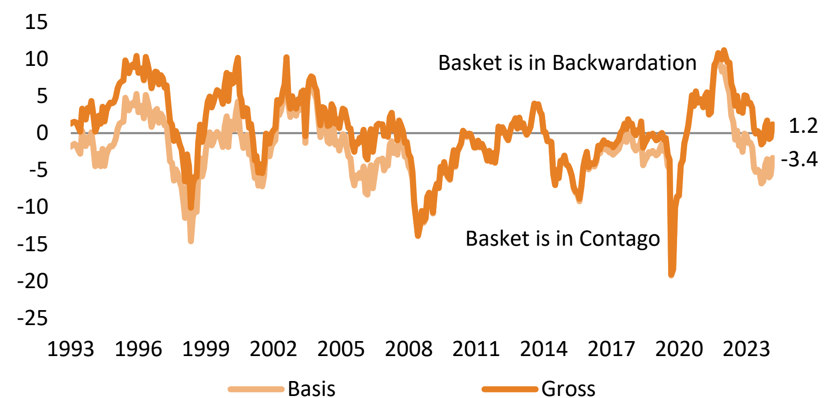
COMMODITY FUTURES BASKET PRICE DEVIATION

Jun 30, 2003 – Sep 30, 2024 • Z-Score



COMMODITY FUTURES BASKET INDICATIVE ROLL YIELD

Jul 31, 1993 – Sep 30, 2024 • Percent (%)



Sources: Bloomberg L.P. and Thomson Reuters Datastream.

Notes: Exhibits are based on the current futures and weights of the Bloomberg Commodity Index. Price deviation is the weighted z-score of commodity futures using ten years of trailing data. Basis is the roll yield's weighted percentage difference of front month contract relative to contracts one year later. Gross is the roll yield plus cash yield.

Gold

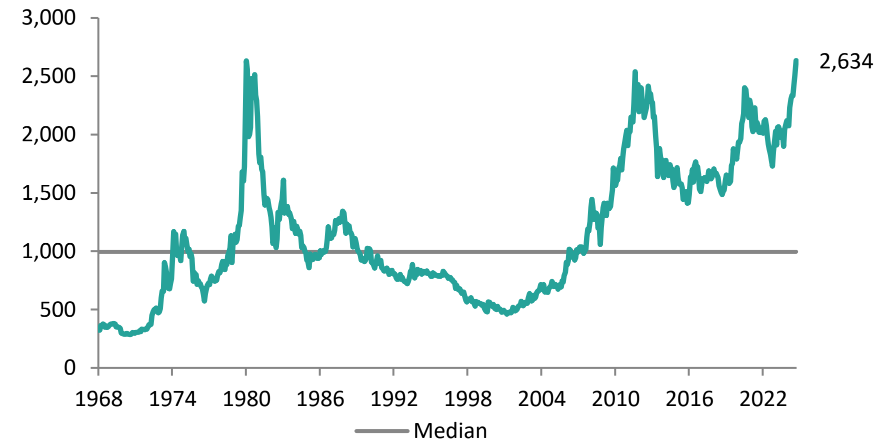
Facts & Figures Third Quarter 2024

The price of gold climbed 13% in 3Q and hit record highs in both nominal and real terms. In the past year, gold has advanced 42%, the highest 12-month return since August 2011. Gold's rally was supported by escalating geopolitical tensions and monetary easing driving yields lower.

- Gold has surged in 2024 even as the dollar has strengthened, and yields have moved higher. Typically, those moves would create challenging backdrop for gold—specifically the rise in real yields, which raises the opportunity cost of holding a non-interest–bearing asset like gold. But gold has defied these negative fundamentals, suggesting that other factors are at play.
- Investors may also be looking ahead to future rate cuts as a supportive factor for gold. The global economy has started showing signs of softening, and futures markets are pricing one Fed policy rate cuts by December—albeit far fewer than what was priced in earlier this year. If inflation remains stubborn and the Fed is forced hold rates at current levels or hike again, this would be expected to negatively impact gold.
- In addition, geopolitical tensions remain elevated. They increased last year with the outbreak of the Israel-Hamas conflict, and measures of geopolitical risk are elevated. Historically, the price of gold has often climbed during periods of geopolitical uncertainty, given its reputation as a safe-haven investment.
- There are several low-cost, physically backed gold ETFs that track the price of gold without requiring physical storage. While these "paper gold" products offer liquidity, they also carry counterparty risk. Physical gold, which provides investors with a tangible asset, is subject to purchase premiums and storage fees. However, these fees are typically in the low-single digit basis point range.
- Gold has an expected real return of zero over the long term, which makes it problematic for institutions tasked with meeting a real spending objective. However, it provides a hedge against conditions that are hostile to capital markets.

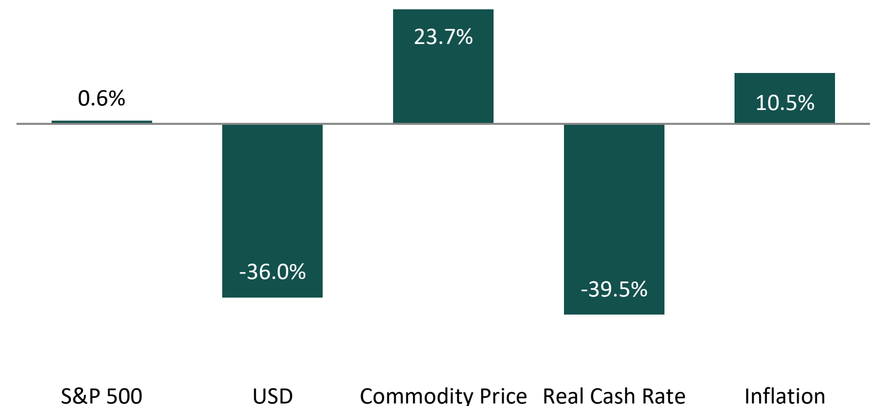
GOLD BULLION REAL PRICE

Jan 31, 1968 – Sep 30, 2024 • US Dollars per Troy Oz



LONG-TERM CORRELATION VS GOLD PRICES

Dec 31, 1970 – Sep 30, 2024



Sources: Intercontinental Exchange, Inc., Standard & Poor's, and Thomson Reuters Datastream.

Notes: Real prices are inflation adjusted to today's dollar. Data for CPI-U are through August 31, 2024.

CURRENCIES

C|A CAMBRIDGE ASSOCIATES

USD vs Developed Markets Currencies

Facts & Figures Third Quarter 2024

The US dollar declined by 4.4% in 3Q 2024 in nominal trade-weighted terms, nudging its YTD performance into negative territory at -0.1%. Interest rate differentials narrowed substantially during the quarter and were the major driver of the dollar's softness. The still-rich real valuation of the dollar suggests the multi-year direction of travel will likely be lower. However, a continuation of growth outperformance or an eventual recessionary environment could yet offer support over shorter horizons.

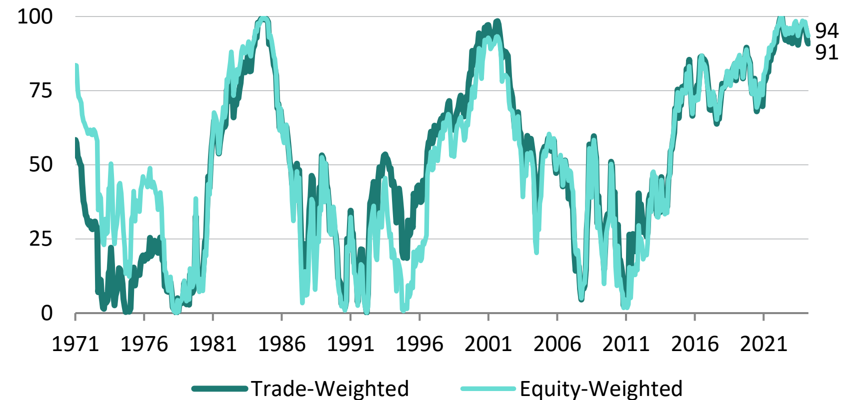
- A widening in interest-rate differentials between the US and its peers, as a result of an earlier rise in inflation and a more hawkish Fed, was the main plank of dollar strength since this rally began in mid-2021. The bulk of this widening had played out by October 2022 and there has been something of a range trade since. We are back at the bottom of that range currently as softening labor market data in the US saw an increasing number of rate cuts priced in. Further convergence should occur in time, though diverging activity data between the US and Europe in particular could result in some re-widening in the short run as a greater degree of easing gets priced in to the latter.

- Risk aversion has also played a role in the post-COVID dollar rally. This was initially due to factors such as COVID-induced inflation and the war in Ukraine, and at times due to risk market declines. While the cumulative impact of delivered tightening still holds some chance of a more pronounced slowdown eventuating (the dollar has rallied during each of the past seven US recessions, by a median of 4.5%), a soft landing looks like the more likely outcome for now. The signaling of the Fed by delivering a 50-bp rate cut has helped to mitigate the likelihood of the worst left tail economic outcomes occurring. Indications from Chinese authorities that they will ease policy has also helped risk ex US sentiment, somewhat offset by the return of a European deceleration.

- While there has been some retreat in the past quarter, the US dollar remains richly valued on a longer horizon. Its real effective exchange rate stands at the 91st and 94th percentiles for the trade- and equity-weighted series respectively. Further easing of US rate expectations versus peers, but absent any serious global or US recessionary fears, would be the most potent potential catalyst for USD weakness. A hawkish pivot by the Bank of Japan would be an alternative source of dollar selling.

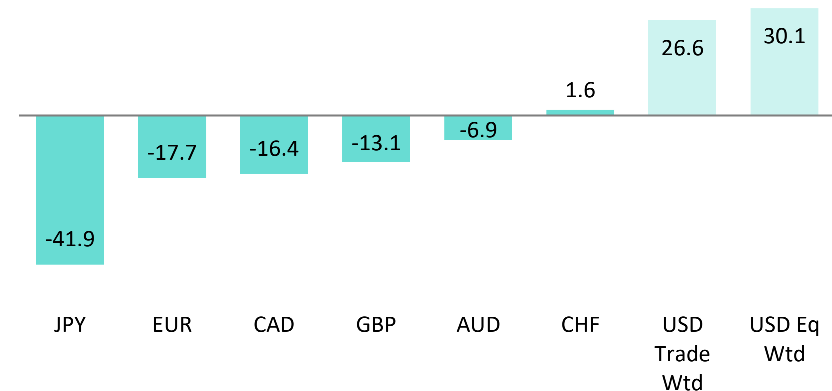
USD BASKET REAL EXCHANGE RATE PERCENTILE

Jun 30, 1971 – Sep 30, 2024



REAL EXCHANGE RATE VS THE USD: % FROM MEDIAN

As of Sep 30, 2024



Sources: MSCI Inc., National Sources, OECD, Refinitiv, Thomson Reuters Datastream, and US Federal Reserve. MSCI data provided "as is" without any express or implied warranties.

Notes: Australian inflation data are quarterly and as of June 30, 2024. All other inflation data are as of August 31, 2024.

Emerging Markets Currencies

Facts & Figures Third Quarter 2024

EM currencies, as measured by an equal-weighted basket, rose by 3.2% in 3Q 2024, bringing their YTD decline to 1.7%. US labor market data has allowed an increasing number of rate cuts to be priced into the US market, weighing on the dollar and supporting EM currencies. The medium-horizon outlook should be helped by a continued slide in the dollar, though risks around global growth, politics, and interest rate policy introduce some shorter horizon uncertainty.

- EM currencies are highly sensitive to global growth prospects. Therefore, various inter-related factors have proved to be headwinds in the post-COVID era including impaired global supply chains, geopolitical risks and fears of a policy-induced slowdown. More recently, the idiosyncratic slowdown and data deterioration in China has weighed on EM. In the last quarter however, the easing of rates expectations in the US even as growth holds up, in addition to policy easing announcements in China, have supported EM assets.

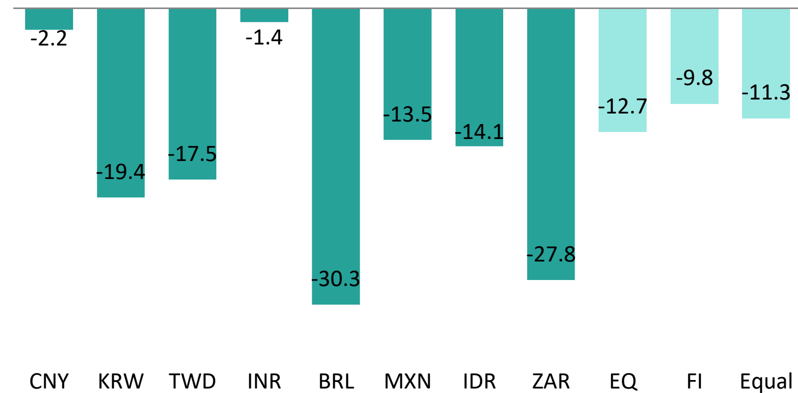
- EM central banks acted earlier and more aggressively in response to the post-COVID surge in inflation. These actions paid dividends in early 2023 when inflation rolled over and growth-supportive rate cuts were priced into several interest rate markets. However, other factors soon overwhelmed this advantage, particularly political uncertainty in Mexico and Brazil. The two countries saw their currencies pressured by the unwinding of popular carry trades earlier this year and a slight shift toward more hawkish central bank policies.

- Asian inflation has tended to be lower than peers, including post-COVID. As a result, Asian bonds and currencies have traded with a lower beta than their peers during broad risk-on and risk-off periods, including the above-mentioned positioning washout. This, in addition to the Chinese stimulus announcements, has seen the Asian heavy equity–weighted index outperform equal- and debt-weighted comparisons this year, returning 2.8%.

- The carry of EM currencies has declined since the end of 2021 as interest rate differential with DM markets has narrowed; however, the increased easing expected of the Fed has seen some re-widening more recently. The cost of hedging out the FX exposure of EM equities is now essentially 0.0% for a USD-based investor. It costs 2.2% to do likewise for EM local bonds.

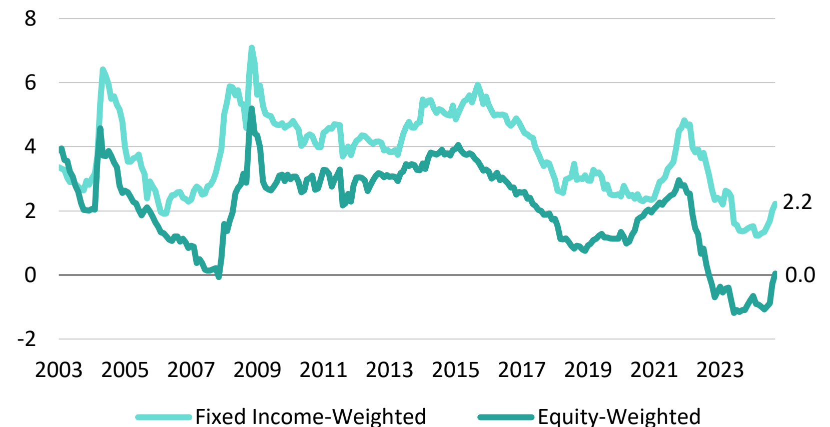
EM REAL EXCHANGE RATE VS USD: % FROM MEDIAN

Jan 31, 1994 – Sep 30, 2024



EMFX IMPLIED CARRY

Jan 31, 2003 – Sep 30, 2024 • Percent (%)



Sources: Directorate-General of Budget, Accounting and Statistics, Executive Yuan, Taiwan; INE - National Institute of Statistics, Chile; International Monetary Fund; J.P. Morgan Securities, Inc.; MSCI Inc.; National Bureau of Statistics of China; Refinitiv; Thomson Reuters Datastream; and US Department of Labor - Bureau of Labor Statistics. MSCI data provided "as is" without any express or implied warranties.

GBP vs Developed Markets Currencies

Facts & Figures Third Quarter 2024

The pound rose by 2.8% in trade-weighted terms in 3Q 2024, bringing the YTD rise to 4.7%. A substantially wider rates differential versus its peers, amidst sticky services inflation, helped to lift sterling back to just above its median valuation on a trade-weighted basis. The consensus full-year outlook for the UK economy has improved but it is still expected to lag that of its peers.

- The Bank of England (BOE) commenced its rate cutting cycle during the quarter, lowering its policy rate by 25 bps to 5%. Core inflation has continued to prove somewhat stubborn in the UK, both on an annualized and sequential basis. This, combined with sticky wage growth has caused the BOE to be somewhat more cautious regarding the pace of their expected rate cutting cycle. As a result, UK interest rates rose materially against peers, with fewer cuts priced in for the UK than elsewhere.

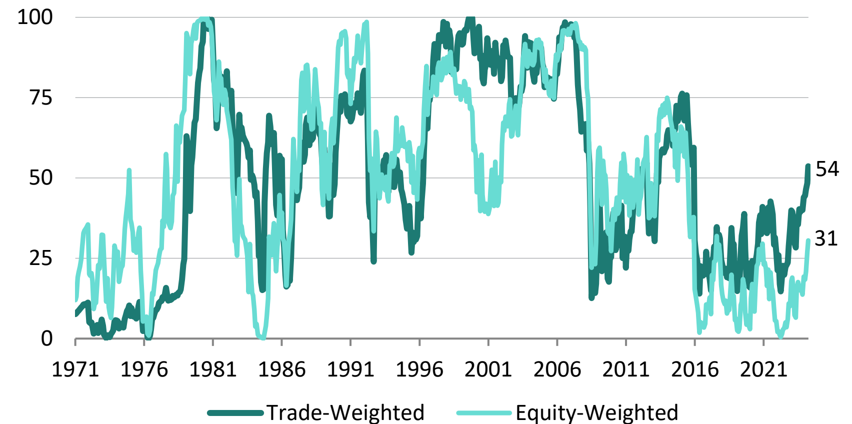
- The UK's structural current account deficit and the greater prevalence of cyclical sectors in the country's asset markets, gives sterling a propensity to behave as a risk-on/risk-off currency. Therefore, with risk assets continuing to perform on hopes of an ongoing and globally broadening economic expansion, this contributed toward sterling appreciating against most peers during the quarter.

- The USD dominates the equity-weighted index, with a weight of 76%, given its dominance of the MSCI World index. The dollar could receive support in the near term on US growth outperformance, however, in the medium term, improved global growth, an extended Fed cutting cycle, or further Bank of Japan tightening are all potential catalysts for a continuation of the dollar's recent reversal. The euro dominates the trade-weighted index, at 56%.

- Strong 1H GDP growth underlines some abatement of the headwinds which the UK has contended with. Positive real wage growth and a rate cutting cycle should help foster the UK's recovery. Nonetheless, monthly GDP prints for June and July showed flat growth. Consensus 2024 GDP growth expectations for the UK (1.1%) still lag that of broad DM (1.8%), while a smaller differential is expected in 2025 (1.4% vs 1.7%). A period of political and economic stability may yet help cultivate an improved growth and markets environment. The fact that sentiment toward the UK and its risk assets remains depressed could prove supportive in the event of any improvement in fundamentals.

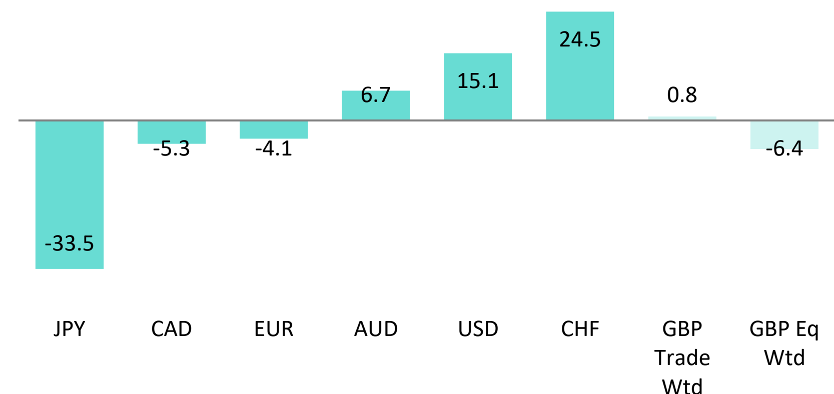
GBP BASKET REAL EXCHANGE RATE PERCENTILE

Jun 30, 1971 – Sep 30, 2024



REAL EXCHANGE RATE VS THE GBP: % FROM MEDIAN

As of Sep 30, 2024



Sources: Bank of England,MSCI Inc., National Sources, OECD, Refinitiv, and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

Notes: Australian inflation data are quarterly and as of June 30, 2024. All other inflation data are as of August 31, 2024.

EUR vs Developed Markets Currencies

Facts & Figures Third Quarter 2024

The euro rose by 0.2% in trade-weighted terms in 3Q 2024 with its performance now flat on the year. A rise against the dollar was offset by declines against the yen, sterling and the Swiss franc. In the medium term, a weakening dollar may be a tailwind. However, in the short run, growth conditions continue to be challenging with a fresh deceleration in activity.

- The ECB began a rate cutting cycle by reducing rates by 25 bps in June, followed by a second cut in September. Sticky services inflation dissuaded them from cutting at consecutive meetings, preferring a more gradual quarterly pace. Core inflation is slowing but remains above target, while headline inflation has recently dipped below 2%. With economic activity decelerating again recently, the ECB may be inclined to cut rates more aggressively.

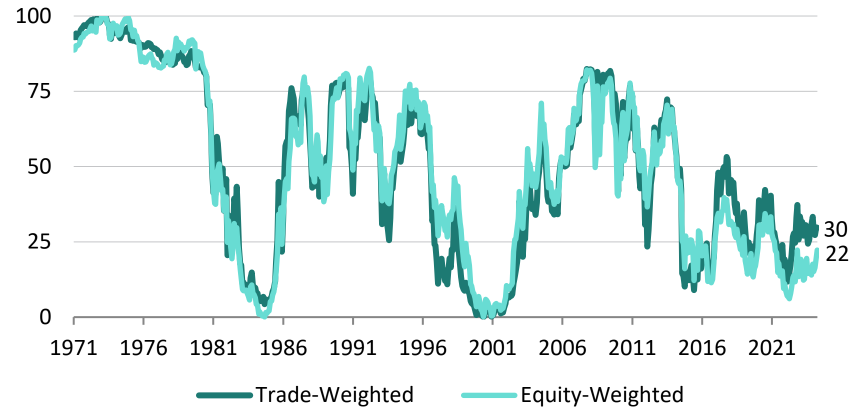
- After five quarters of essentially flat GDP growth, the euro area experienced somewhat of a rebound with GDP expanding by 0.3% and 0.2% in 1Q and 2Q, respectively. More recently; however, indicators such as PMIs are indicative of a return to lackluster growth. In a reversal of the typical post-GFC trend, peripheral countries have been holding up well, while Germany is the weak spot. Eurozone wide, growth is expected to come in at 0.7%, underperforming the 1.8% expected of broader DM. Growth is expected to continue to lag in 2025, albeit by a narrower margin (1.3% versus 1.7%).

- On an equity-weighted basis, the REER stands at the 22nd percentile, while it is at the 30th percentile on a trade-weighted basis. These values are 12.3% and 4.1% below median, respectively. The direction of the dollar remains key for the euro outlook, especially for the equity-weighted index which has an 80% weight to the USD. The greenback may stay supported in the near term if the US continues to outperform economically, or if recession fears emerge. However, in the medium term, improved global growth, further BOJ tightening and a continued Fed cutting cycle are likely catalysts for an eventual dollar reversal.

- To see sustained, domestically generated outperformance of the euro we likely need to see increased fiscal and regulatory convergence, particularly between periphery and core, to boost potential growth. This includes delivering on the NextGenerationEU and REPowerEU plans, but also completing the capital markets union, growing issuance of jointly issued bonds and increasing budgetary flexibility.

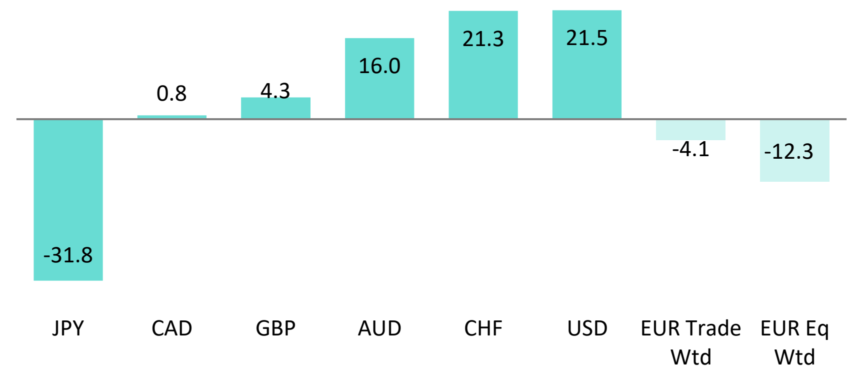
EUR BASKET REAL EXCHANGE RATE PERCENTILE

Jun 30, 1971 – Sep 30, 2024



REAL EXCHANGE RATE VS THE EUR: % FROM MEDIAN

As of Sep 30, 2024



Sources: European Central Bank, MSCI Inc., National Sources, OECD, Refinitiv, and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

Notes: Australian inflation data are quarterly and as of June 30, 2024. All other inflation data are as of August 31, 2024.

Digital Assets

Facts & Figures Third Quarter 2024

The price of bitcoin rallied 5% in 3Q, bringing YTD gains to 50%. Still, bitcoin prices remained 13% off the all-time highs achieved in 1Q 2024. Other cryptocurrency prices remained weak following the 2Q drawdown, with the S&P Cryptocurrency Broad Digital Market Index declining 1.4%.

- Bitcoin recovered some of its 2Q losses (-14%) as the Fed initiated an easing cycle with an outsized rate cut of 50 bps. Lower rates reduce the opportunity cost of holding assets with yield or cash flow. Bitcoin remains below the all-time nominal highs reached in 1Q, which were catalyzed by the spot bitcoin ETF approval and anticipation of Fed policy rate cuts. Futures markets have pared the odds of a deeper rate cutting cycle in recent weeks given ongoing resilience of the US economy, which may have contributed to a relatively mild rebound for the highly volatile cryptocurrency in 3Q.

- There are few reliable options for valuing digital assets. One metric—price-to-transactions per coin (P/TC)—can be viewed as a crude valuation metric for bitcoin. Transactions per coin offers a way to gauge the utility of coins in circulation. Thus, a high P/TC could indicate speculation, with bitcoin being priced expensively for every unit of its transaction volume. But transactions per coin only show bitcoin's utility as a medium of exchange and doesn't inform on how users "stake" bitcoins, which can indicate bitcoin's utility as a store of wealth.

- Digital asset investing carries numerous risks; the most obvious is high price volatility. Indeed, the annualized standard deviation of bitcoin has been nearly 5x that of major equity indexes in the past five years. Other less established digital assets are likely to have even higher volatility. Other pertinent risks for investors include complicated tax considerations and the negative environmental impacts of proof-of-work cryptocurrency mining.

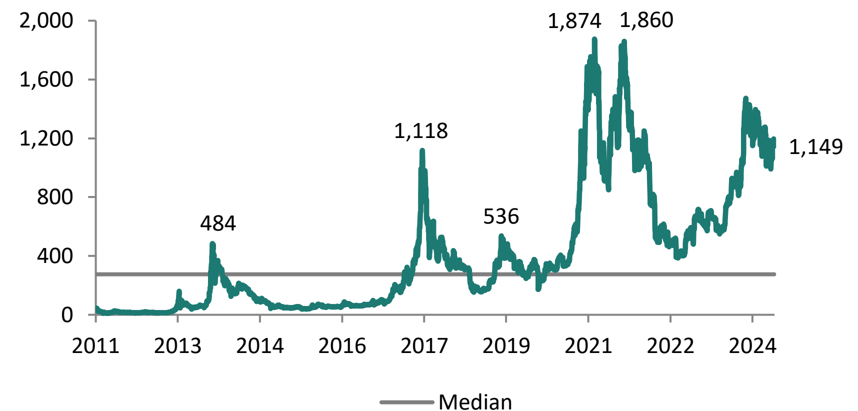
- Bitcoin is just one of thousands of different cryptoassets that utilize blockchain technology. Implementation options have historically been limited, but passive and active options—including dedicated custodians, cryptoasset trusts, and venture capital and hedge funds—continue to be introduced.

BITCOIN PRICE

Dec 31, 2015 – Sep 30, 2024 • US Dollars

RATIO OF BITCOIN PRICE TO TRANSACTIONS PER COIN

Aug 31, 2011 – Sep 30, 2024



Sources: Blockchair.com and Thomson Reuters Datastream.

Notes: Bottom chart represents the USD price of bitcoin divided by the number of transactions per coin outstanding. All data are daily.

Notes on Data

Third Quarter 2024

Note on CA House Views

- All performance data is quoted in US dollars unless otherwise noted.

Notes on Our Cyclically Adjusted Price-to–Cash Earnings Calculations

- For most equity markets, we construct a cyclically adjusted price-to–cash earnings (CAPCE) ratio. The cyclically adjusted price-to–cash earnings (CAPCE) ratio is calculated by dividing the inflation-adjusted index price by trailing ten-year average inflation-adjusted cash earnings. Cash earnings are defined as net income from continuing operations plus depreciation and amortization expense. MSCI does not publish cash earnings for banks and insurance companies and therefore excludes these two industry groups from index-level cash earnings.
- EM is cyclically adjusted by trailing five-year data.
- On our equity valuation charts, we use a consistent approach to our median and percentile calculations for valuation ratios across all regions. All charts are labeled to indicate the current valuation's percentile versus the historical median. We typically consider the range from the 25th to the 75th percentile as fairly valued. Valuations in the 75th to 90th percentile are typically overvalued relative to history, and in the 10th to 25th percentile, undervalued. The top 10th and bottom 10th percentiles generally represent very overvalued and very undervalued relative to history, respectively. An asset class's valuation call takes into account valuations, fundamentals, momentum, sentiment, and other factors, and calls do not mechanistically change with percentiles; rather these ranges are used as guides for our valuation calls.

Notes on the 12-Month Absolute and Relative Price Momentum

- The 12-month absolute momentum is the trailing 12-month index price return in local currency terms.
- The 12-month relative momentum is calculated as the geometric difference between each market's trailing 12-month price return in local currency terms.

Notes on Specific Data Providers

- Dealogic updates its database on a regular basis; therefore, historical data may change.
- Hedge Fund Research data are preliminary for the preceding five months.
- Total return data for all MSCI indexes are net of dividend taxes.
- US CPI data lag by one month.

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