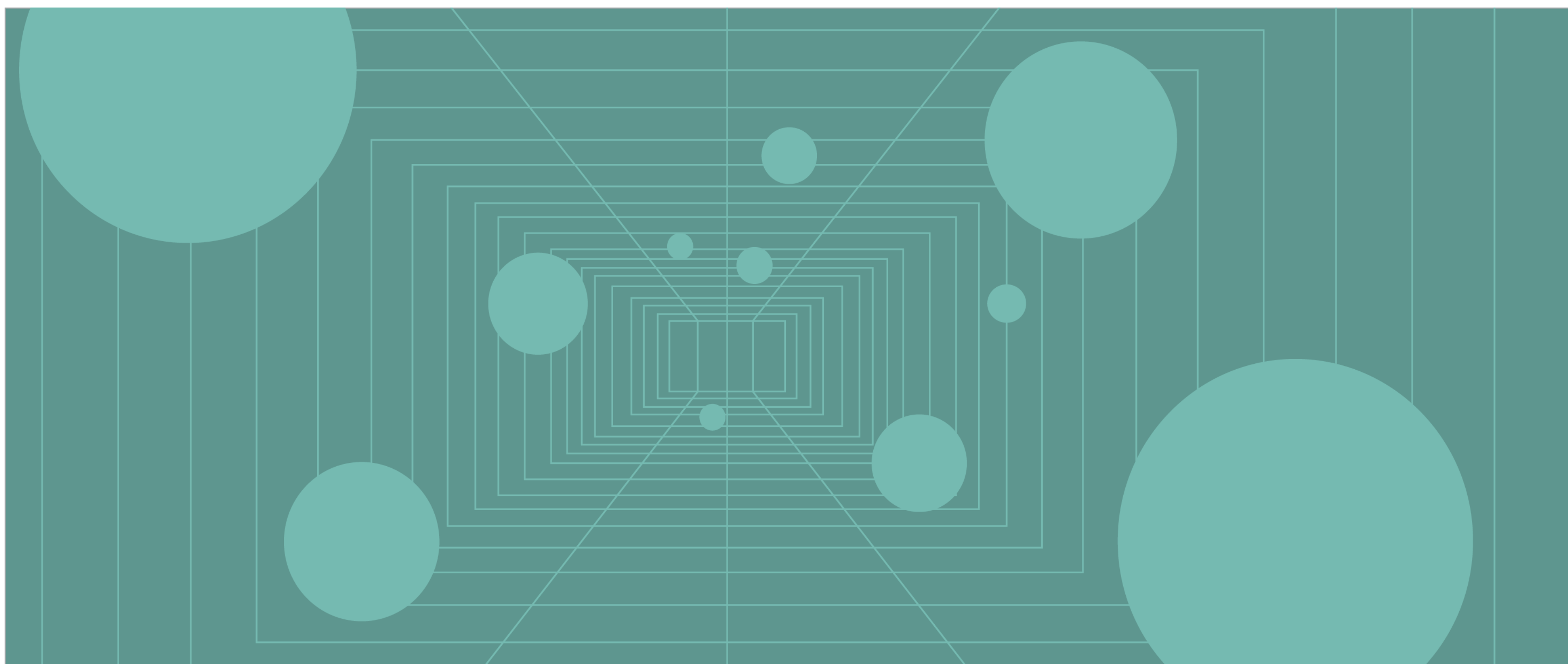
ASSET CLASS FACTS & FIGURES



CAMBRIDGE ASSOCIATES

SECOND QUARTER 2022

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EQUITIES

CAMBRIDGE
ASSOCIATES

Developed Markets Equities

Facts & Figures Second Quarter 2022

DM equities returned -14.3% in 2Q and -11.1% in the period since 2Q 2021, in local currency terms. High levels of inflation, rapid changes in interest rate expectations, and the ongoing war in Ukraine challenged equities in recent months. Countries with higher equity exposures to energy, such as the UK, and countries whose central banks have been more dovish, such as Japan, have performed better.

- The bloc trades at 13.8x cyclically adjusted cash earnings, which ranks higher than 84% of historical data dating back to 1979. The high valuation level masks dispersion across major DM blocs, with the US trading at levels particularly high relative to its history. In contrast, the UK's large exposure to cyclical companies has left the market's equities trading low relative to history.

- The global economy is expected to grow by 3.2% in 2022, according to analysts surveyed by Bloomberg in July. This forecast is slightly lower than what analysts expected in April (3.5%), likely given uncertainties related to the war in Ukraine and changes in monetary policy expectations. Growth expectations for 2022 are highest for China (4.1%), followed by the UK (3.4%), euro area (2.7%), US (2.4%), and Japan (1.7%), among major markets.

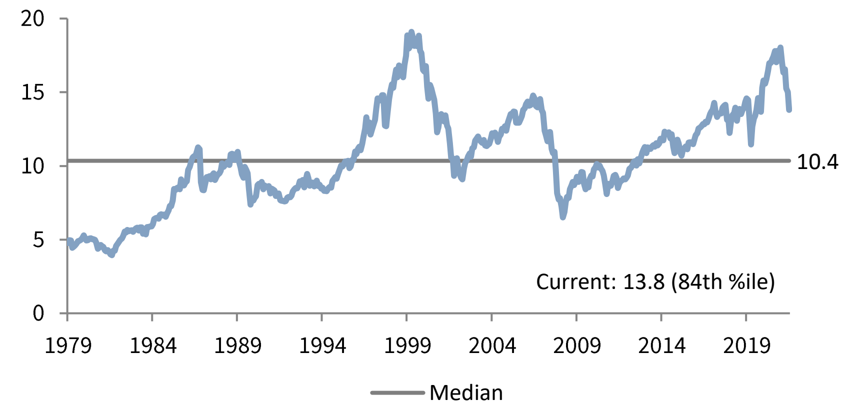
- Corporate earnings are expected to grow by 11.4% in 2022, which follows last year's dramatic 52% growth in earnings. Last year's growth came as companies rebounded from weak economic activity in 2020. Looking ahead, the UK and euro area are expected to grow at levels just above DM as a bloc. In contrast, Japan and US earnings are expected to grow at a lower rate.

- Earnings growth for 2022 is expected to come primarily from sales growth. Analysts expect sales to grow by 7% in 2022, which would be higher than the long-term average (2%–3%) but not unusual. To meet earnings growth expectations, DM companies will need to maintain profit margins, which are historically high.

- The pace of monetary policy tightening is a key risk for equities. Higher-than-expected inflation levels have prompted major DM central banks to revise rate expectations. While equity markets are discounting that rates will rise in the coming quarters, faster-than-expected increases or poor central bank messaging could further weaken equity prices.

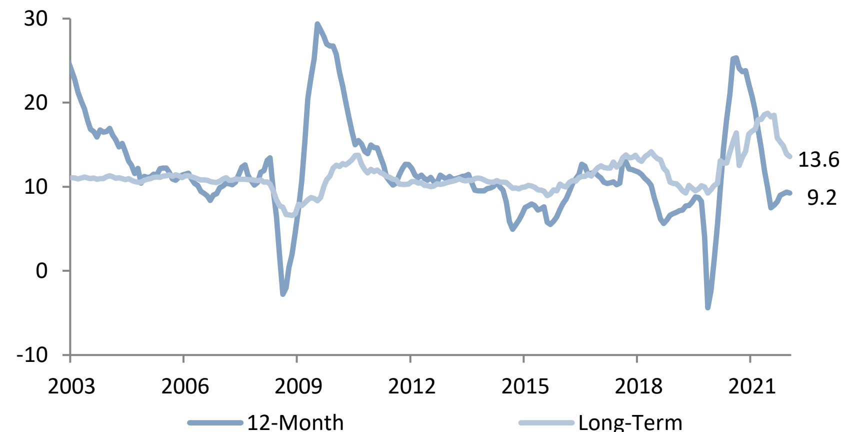
CYCLICALLY ADJUSTED PRICE-TO–CASH EARNINGS

Dec 31, 1979 – Jun 30, 2022



CORPORATE EARNINGS GROWTH EXPECTATIONS

Jun 30, 2003 – Jun 30, 2022 • 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

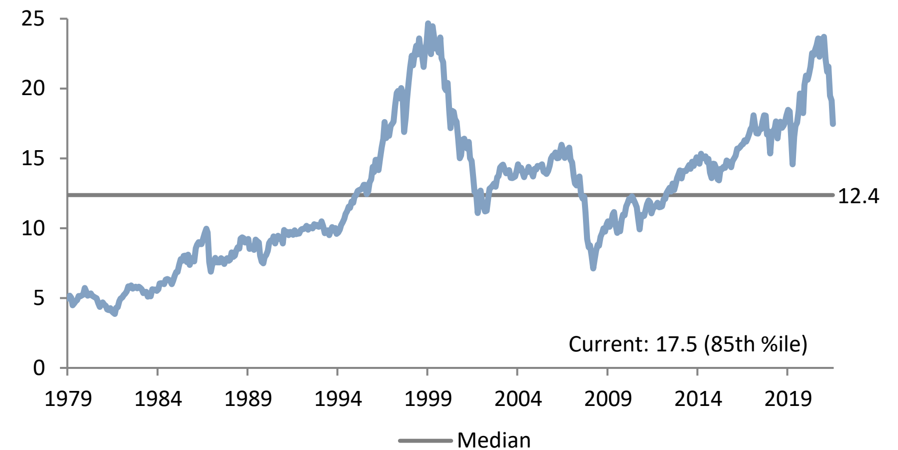
Facts & Figures Second Quarter 2022

US equities returned -16.9% in 2Q and -13.2% since 2Q 2021, in local currency terms. Inflation remained stubbornly high in 2Q, which contributed to expectations of tighter monetary policy. The war in Ukraine has also added considerable uncertainty to US equity markets and led to disruptions in many commodity markets.

- US equities trade at 17.5x cyclically adjusted cash earnings, which ranks higher than 85% of historical data dating back to 1979. That valuation multiple is almost twice the same multiple for DM ex US equities, which represents one of the widest valuation gaps in their shared history. Even after adjusting for sector differences, the gap in equity valuations remains stark.
- The US economy is expected to grow by 2.4% in 2022, according to analysts surveyed by Bloomberg in July. This growth is lower than last year's estimated economic growth (5.6%), but it is high relative to the US' average growth since 2000 (1.8%). Still, the growth expectation for this year is vulnerable to how the war in Ukraine evolves and decisions made by the Fed.
- Corporate earnings are expected to grow by 10% in 2022, which follows last year's dramatic 51% growth rate. Last year's growth came as companies rebounded from weak economic activity in 2020. Analysts expect this earnings growth to come primarily from sales growth, which are pegged to grow 7.6% in 2022, and stable profit margins. Collectively, the profit margin for US equities reached 13.0% at the end of last year, which is a record high level.
- The pace of monetary policy tightening is a key risk for equities. Higher-than-expected inflation has prompted the Fed to revise rate expectations higher and to accelerate its tapering of asset purchases. While equity markets has so far digested this reality well, faster-than-expected rate increases, or poor central bank messaging could undercut equity prices.

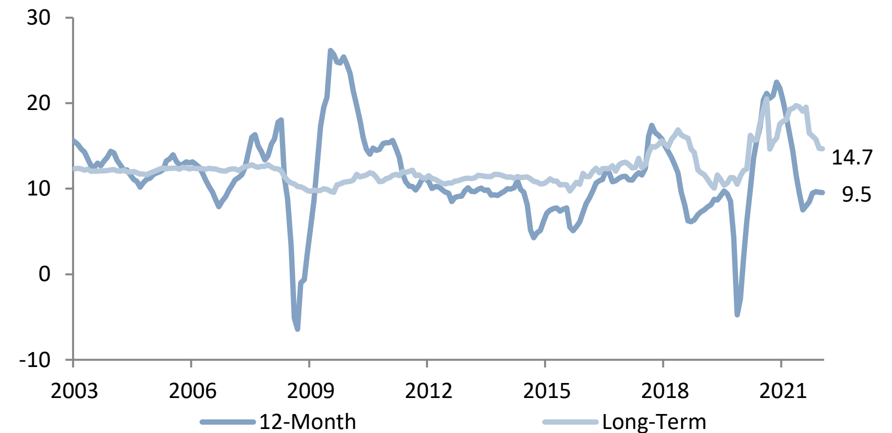
CYCLICALLY ADJUSTED PRICE-TO–CASH EARNINGS

Dec 31, 1979 – Jun 30, 2022



CORPORATE EARNINGS GROWTH EXPECTATIONS

Jun 30, 2003 – Jun 30, 2022 • 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

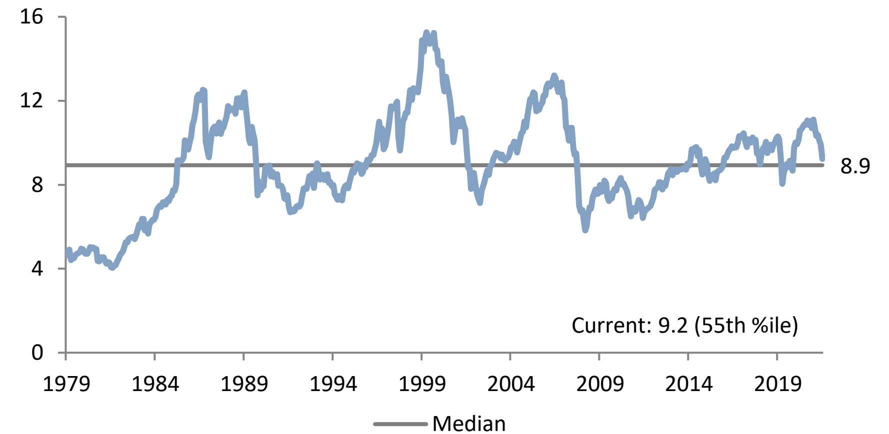
Facts & Figures Second Quarter 2022

DM ex US equities returned -8.5% in 2Q and -6.4% in the period since 2Q 2021, in local currency terms. High levels of inflation, rapid changes in interest rate expectations, and the ongoing war in Ukraine challenged equities in recent months. Countries with higher equity exposures to energy, such as the UK, and countries whose central banks have been more dovish, such as Japan, have performed better.

- The bloc trades at 9.2x cyclically adjusted cash earnings, which ranks higher than 55% of historical data dating back to 1979. That valuation multiple is roughly half the same multiple for US equities, which represents one of the widest valuation gaps in their shared history. Even after adjusting for sector differences, the gap in equity valuations remains stark.
- The global economy is expected to grow by 3.2% in 2022, according to analysts surveyed by Bloomberg in July. This forecast is slightly lower than what analysts expected in April (3.5%), likely given uncertainties related to the war in Ukraine and changes in monetary policy expectations. Growth expectations for 2022 are highest for China (4.1%), followed by the UK (3.4%), euro area (2.7%), US (2.4%), and Japan (1.7%) among major markets.
- Corporate earnings are expected to grow by 14.6% in 2022. That expectation follows the bloc's dramatic growth in 2021 (55.5%), which came as companies recovered from the 2020 pandemic-linked downturn. Within this bloc, the UK (16.4%) and euro area (13.3%) are expected to grow faster than Japan (9.9%), among major countries. This is partly due to UK equities high underlying exposure to commodities, which have performed well this year.
- Corporate earnings growth for 2022 is expected to come primarily from changes in sales, which are expected to grow by 7.6%, with the balance coming from improvement in profit margins. At the end of 2021, the DM ex US profit margin was 9.8%, which is a record high-level, according to MSCI data. But this margin is below the same metric for the US (13.0%).

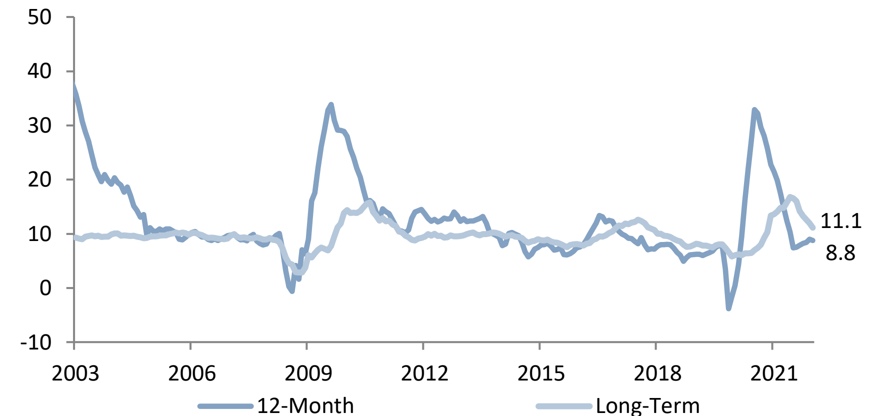
CYCLICALLY ADJUSTED PRICE-TO-CASH EARNINGS

Dec 31, 1979 – Jun 30, 2022



CORPORATE EARNINGS GROWTH EXPECTATIONS

Jun 30, 2003 – Jun 30, 2022 • 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.

UK Equities

Facts & Figures Second Quarter 2022

UK equities returned -2.9% in 2Q 2022, continuing to outperform every other major developed markets (DM) and outperforming broader DM by over 11 ppts in local terms. The strength of the dollar made the USD returns slightly less impressive, at -10.5%, versus -16.2% for broader DM. Outperformance during the quarter was driven primarily by sectoral differences between the UK index and the DM index, with value-oriented sectors outperforming growth-oriented sectors. The UK has now also vastly outperformed broader DM on a trailing one-year horizon; however, it has still underperformed over longer horizons as long-term earnings growth has lagged its peers and is expected to continue to do so beyond this year.

- The UK has seen some rise in relative valuations albeit it remains relatively cheap on all trailing valuation bases. The ratio of the UK's cyclically adjusted price-to–cash earnings (CAPCE) to that of DM stands at just 0.53, in the 5th percentile of observations. When adjusting for the substantial sectoral differences between the indexes, the relative CAPCE stands at 0.70. However, when the weaker expected earnings are considered, i.e., by looking at forward PEs, the ratio of sector-neutral forward PEs stands at 0.9.

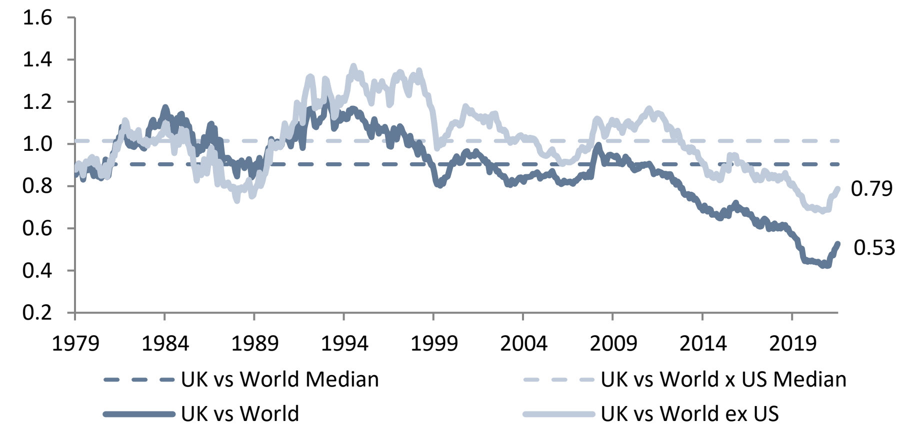
- In general, the UK index has an underweight to growth stocks and an overweight to value stocks. This has been a significant drag on relative performance in recent years, however it was a boon in recent quarters. The four top-performing sectors in DM equities during the quarter were all sectors where the UK enjoys a relative overweight. This list was led by energy, which declined by just 2.7%. This value tilt may help the UK in periods of rising global inflation and yields, particularly when the former are partially driven by rising commodity prices.

- UK EPS are forecast to outperform broader DM by 5 ppts this year (16.4% vs 11.4%) due to the strong performance of commodity markets. However, a material underperformance is currently anticipated in the following two years, though long-horizon earnings forecasts tend to get heavily revised.

- Similar to the case of EPS, UK GDP is expected to outperform most peers in 2022 as a result of having continued scope for post–COVID-19 normalization, given the greater than average GDP decline in 2020. However, 2022 growth forecasts have been revised down by a further 0.4% to 3.6% in 2Q, due to economic exposure to the conflict in Ukraine and tightening by the BOE. Longer-term consensus growth estimates have also been impacted by post-Brexit concerns.

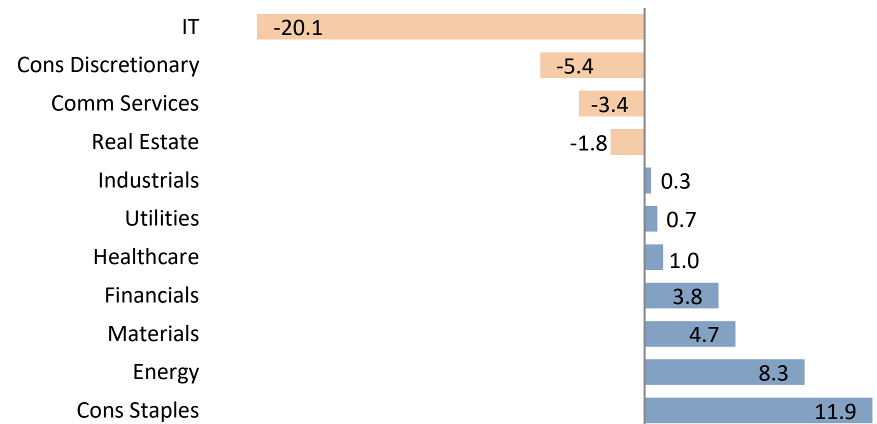
RELATIVE CAPCE: MSCI UK VS WORLD

Dec 31, 1979 – Jun 30, 2022



RELATIVE SECTOR WEIGHTS: UK MINUS WORLD

As of Jun 30, 2022 • 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 Second Quarter 2022

Europe ex UK equities outperformed in 1Q 2022, returning -10.5% in local currency terms versus -14.3% for developed markets equities. However, the strength of the dollar saw most of that performance advantage dissipate in USD terms, as Europe ex UK returned -15.7% versus -16.2% for broad DM equities. On a trailing one-year horizon, the region's performance is comparable to that of broader DM, though it trails by 7.1 ppts in USD terms. While index composition and profitability lie behind the long-run underperformance, exposure to the war in Ukraine was a large headwind in 2Q. Looking forward, earnings growth is expected to lag that of broad DM in 2023.

- The region's cyclically adjusted PE ratio declined from 11.2 to 9.7 during the quarter, standing now at the 68th percentile. Its CAPCE relative to DM is 0.70, in the 28th percentile. 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 x US is 1.05, in the 81st percentile.

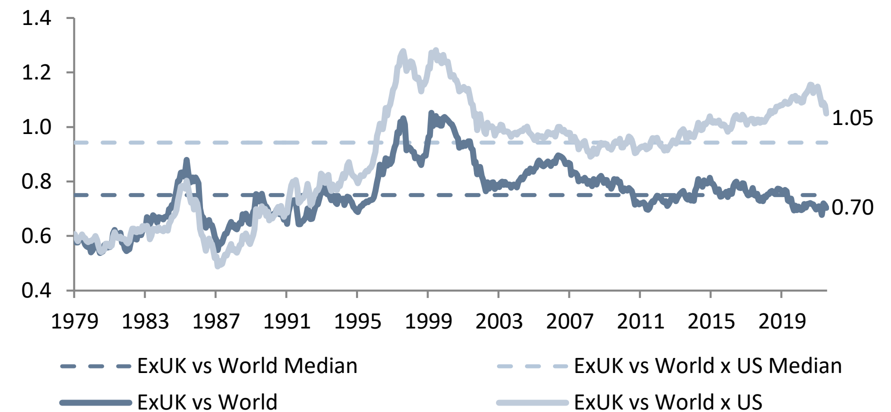
- The longer-term underperformance of the Europe ex UK region versus DM more broadly is down to a lower underlying profitability. The return on equity (ROE) for the region has been below that of broader DM for the last decade and the ratio of their ROEs declined further in the last quarter to 0.78. This 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 moderately outpace broader DM in 2022, at 13.7% compared to 11.4%, before lagging next year (4.8% vs 7.4%). Projections for 2023 likely reflects the impact that high energy prices, as a result of the war, will have on consumers and industry.

- The war in Ukraine is having a material impact on GDP growth expectations in Europe for 2022. So far this year, consensus GDP growth for 2022 was revised down from 4.2% to 2.8%, primarily as a result of the region's energy exposure to Russia. Embargoes on Russian oil and Russian manipulation of gas supplies are causing large spikes in domestic energy costs. The ECB has a tough trade-off to make, balancing high inflation against slowing growth, and are likely to begin tightening in 3Q.

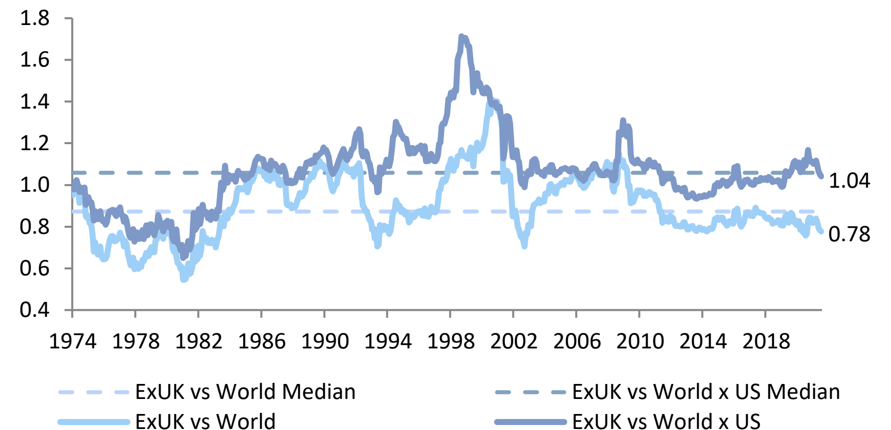
RELATIVE CAPCE: MSCI EUROPE EX UK VS WORLD AND WORLD EX US

Dec 31, 1979 – Jun 30, 2022



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

Dec 31, 1974 – Jun 30, 2022 • Percent (%)



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

Japanese Equities

Facts & Figures Second Quarter 2022

Japanese equities outperformed their developed markets peers YTD in local currency terms, but lag in USD terms given the recent weakness in the yen. Valuations are fair in absolute terms, but low relative to other developed markets. Improving corporate earnings and a focus on shareholder returns should help to serve as tailwinds for the market.

- The MSCI Japan Index returned -4.4% in 2Q 2022 and -5.9% YTD in local currency terms, versus DM equities which returned -14.3% and -18.3%, respectively. However, Japanese equities lagged DM equities in USD terms, as the yen has declined 15.2% YTD against the US dollar to a 24-year low after the BOJ continued to signal its dovish stance.

- The market trades at 9.9x cyclically adjusted cash earnings, which ranks higher than 52% of historical observations since 1979. Relative to other developed markets, Japanese equities are at the 29th percentile of historical observations.

- Accommodative monetary and fiscal policies may continue to support Japanese equity performance, albeit weigh on the currency. In 4Q 2021, the Kishida administration announced a record stimulus package and budget to counteract ailing economy recovery, while additional stimulus was made in 2022 in response to rising energy costs.

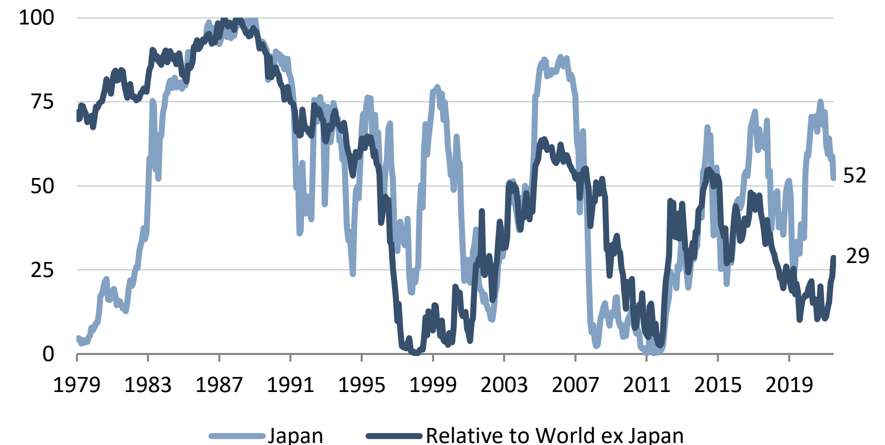
- Japanese corporate earnings have rebounded strongly from pandemic lows, growing by 42% YOY in fiscal year 2021 (ended March 2022). The latest bottom-up analyst estimates show growth moderating to 10% in fiscal year 2022 (ending March 2023).

- The ROE on Japanese equities currently stands at 9.8%, above the historical median of 8.2%. Although Japan's ROE has historically been lower than that of DM counterparts, the gap has narrowed in recent years due to an increased focus on corporate governance and shareholder returns in Japan.

- As of the end of June 2022, the MSCI Japan Index trailing dividend yield was 2.5%, above the 1.7% historical median. Japanese companies retain significant cash balances and have increased shareholder payouts (dividends plus buybacks) in recent years. As a result of their strong balance sheets, dividend payouts have held up relatively well and may continue to serve as a tailwind for Japanese equities.

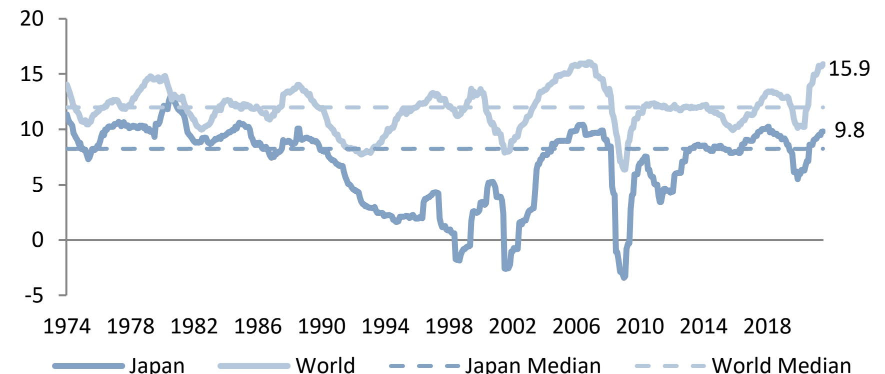
CYCLICALLY ADJUSTED PRICE-TO-CASH EARNINGS

Dec 31, 1979 – Jun 30, 2022 • Percentile (%)



ROE: MSCI JAPAN VS WORLD

Dec 31, 1974 – Jun 30, 2022 • Percent (%)



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

Emerging Markets Equities

Facts & Figures Second Quarter 2022

EM equities declined 11.4% in USD terms in 2Q, bringing YTD performance to -17.6%. However, EM stocks outperformed DM peers for the first time in six quarters and now lead YTD. Chinese equities buoyed the broader index, delivering the only gains among EM countries of any size. All other major EM countries declined by double-digits, with Taiwan, Korea, and India detracting the most.

- EM momentum remained weak in 2Q, but outperformance vis-à-vis DM during the quarter pushed relative momentum metrics higher. In the TTM period, EM stocks declined 25.3%, trailing DM by 11 ppts. This underperformance margin has narrowed from 21 ppts as of 1Q-end. Looking longer term, EM has generally trailed DM since 2010. This period coincided with strong USD appreciation, highlighting that the USD outlook is a key factor to the EM/DM relative performance cycle.

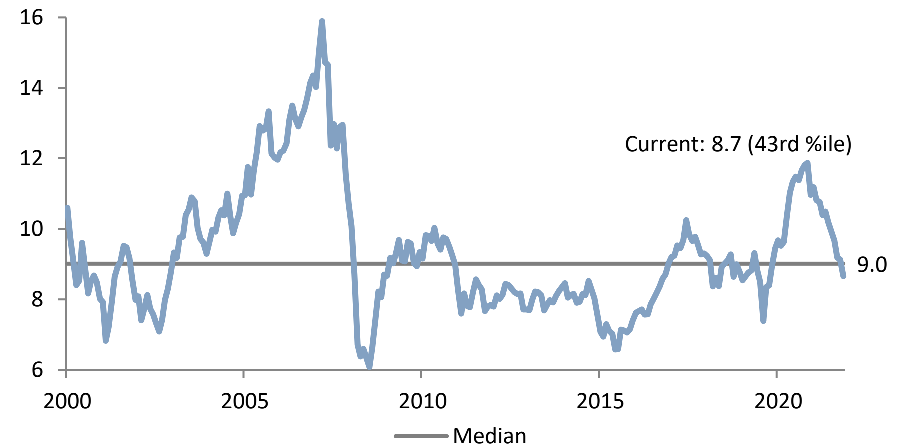
- EM equities' valuation derating continued in 2Q. The EM index CAPCE fell 27% compared to its peak last June, one of the sharpest 12-month valuation contractions on record. Valuations relative to DM ticked up in 2Q but remined in the bottom quintile, sitting 16% below median.

- Chinese equities rallied and were a bright spot among global stocks. Several recent headwinds abated, and economic data rebounded: COVID-19 containment measures were rolled back, policy eased, and signs emerged of softening regulatory pressure on technology firms. Other EMs fared worse, with LatAm (-21.9%), Asia ex China (-17.4%), and EMEA (-17.1%) all underperforming. Falling commodity prices, slowing export growth, and tightening monetary policy amid continued high inflation all factored in the weak performance. Analysts have reduced their broader 2022 EM GDP grow estimates by 1.4 ppts this year to 3.6%, according to Bloomberg consensus estimates.

- The modest EM fundamental picture held steady in 2Q. EM ROE increased 20 bps to 13.2% (73rd percentile); however, ROE relative to DM remained roughly 20% below median levels at the 19th percentile. Analysts expect EM forward 12M EPS growth of 9.5%, which is low relative to history (10th percentile.) Analysts upgraded LatAm and EMEA forward 12-month growth expectations by roughly 2 ppts in Q2, whereas Asia was downgraded 1.4 ppts.. Although analysts expect EM EPS growth to edge that of DM, the anticipated growth spread is nearly three turns below average.

CYCLICALLY ADJUSTED PRICE-TO–CASH EARNINGS: MSCI EM

Aug 31, 2000 – Jun 30, 2022



EM/DM EQUITY RELATIVE CUMULATIVE WEALTH

Dec 31, 1987 – Jun 30, 2022 • 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.

Asia ex Japan Equities

Facts & Figures Second Quarter 2022

Asia ex Japan equities returned -9.0% in USD terms in 2Q, bringing YTD performance to -16.3%. Asia ex Japan stocks were buoyed by China, which gained 3.4% on the quarter. Other major Asia ex Japan countries fell by double-digits, including Korea (-20.9%), Taiwan (-19.8%), and India (-13.6%).

- Outperformance in 2Q was driven largely by China and technology stocks. The index's 16% weighting to the consumer discretionary sector added 1.2 ppts to the broad index return, and a 32% combined allocation to IT and communication services also outperformed global peers. Further, the top ten stocks make up 28% of index market cap, of which China accounts for roughly half.

- The Asia ex Japan valuation derating continued in 2Q. The index's CAPCE metric has fallen 28% since last February, which coincides with the peak in Chinese equity prices. Valuations versus DM peers increased moderately, ending 2Q at a 30% discount (14th percentile.) Current relative valuations are nearly 20% below median levels.

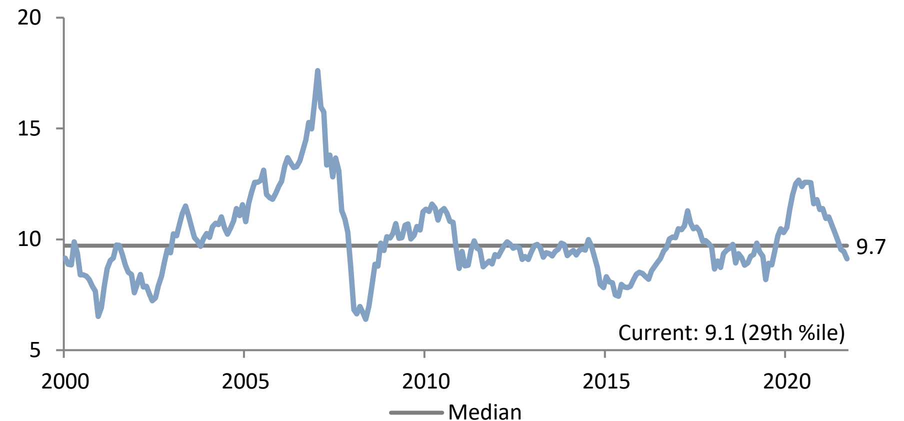
- There is a wide valuation dispersion among Asia ex Japan countries. Index heavyweight China's P/B ratio increased in 2Q, but remains at a discount relative to history, whereas valuations for all other countries fell. Among the other most heavily weighted countries, Korea trades at the widest discount, while Taiwan and India maintained their premium.

- Analysts expect forward 12M EPS growth of roughly 11% for Asia ex Japan, topping global counterparts. Global trade growth remains positive at 3% YOY, but has moderated from the one-off, 20%+ rates achieved in mid-2021 during the pandemic recovery. Trade volume growth tends to lead the Asia ex Japan EPS cycle and currently suggests EPS growth slightly below the latest analyst estimates.

- Asia ex Japan faces several key risks in the current environment. Chinese GDP growth is slowing, and signs of weakening export growth for Asia more broadly have emerged. Higher commodity prices pose a headwind for Asia ex Japan as net importers of raw materials. Analysts have reduced their 2022 Asia ex Japan GDP growth expectations by 0.9% ppts this year to 4.6%, according to Bloomberg consensus estimates. Although ROE (11.1%) has rebounded from the pandemic, it turned lower in recent months and remains below global peers.

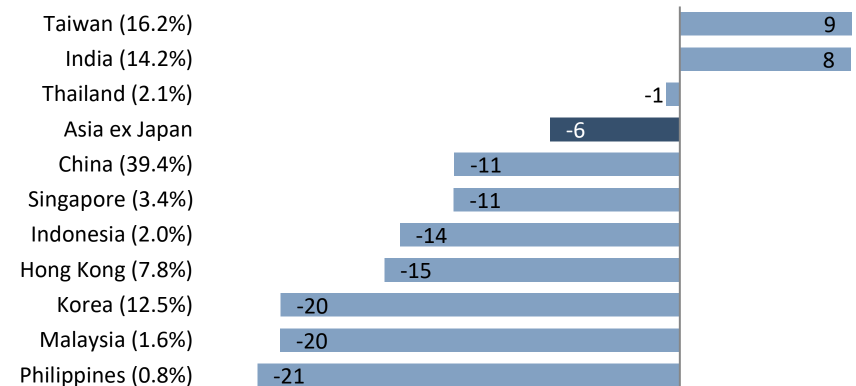
CYCLICALLY ADJUSTED PRICE-TO–CASH EARNINGS: MSCI ALL COUNTRY ASIA EX JAPAN

Oct 31, 2000 – Jun 30, 2022



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

As of Jun 30, 2022 • 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 Second Quarter 2022

Chinese equities outperformed global equities in 2Q 2022 as domestic COVID-19 lockdowns lifted, and China continues to ease monetary and fiscal policy amid global central bank tightening. Valuations for Chinese equities have risen from their March 2022 troughs, but still trade within the low- to fair-value range.

- Chinese A-shares, as measured by the MSCI China A Onshore Index, gained 7.2% in 2Q 2022, while the MSCI China Index, which consists mostly of offshore Chinese equities, gained 4.5%. YTD, A-shares and the MSCI China Index returned -9.0% and -10.0%, respectively versus -17.7% for global equities. Even adjusting for the 4.8% decline in the RMB, Chinese equities are outperforming so far in 2022.

- Chinese equities rallied in 2Q 2022 following a lifting of COVID-19 lockdowns restrictions, helping to reverse some of the YTD losses. The market was also supported by continued monetary and fiscal policy easing, as well as the government's pivot to focus on economic stability after the 2021 tech reforms.

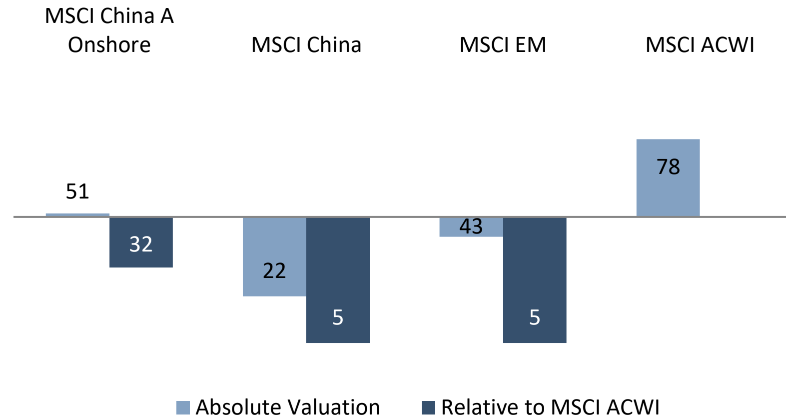
- Valuations for Chinese equities have rebounded from their March 2022 lows. Valuations for the MSCI China A Onshore Index, which is tilted towards cyclical sectors, are near historical median both in absolute terms and relative to global equities. Valuations for MSCI China—which is overweight the communication services (18%) and consumer discretionary (31%) sectors that have been the hardest hit by 2021's tech reforms—are lower, particularly relative to global equities which remain at the 5th percentile of historical observations.

- Chinese equities consist of mainland China-listed A-shares, Hong Kong-listed Chinese companies, and US-listed Chinese companies. The MSCI China Index, which is the China equity universe of the MSCI EM Index, is tilted towards Hong Kong-listed (75%) and US-listed (9%) securities, with just a 17% weight to A-Shares.

- 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.

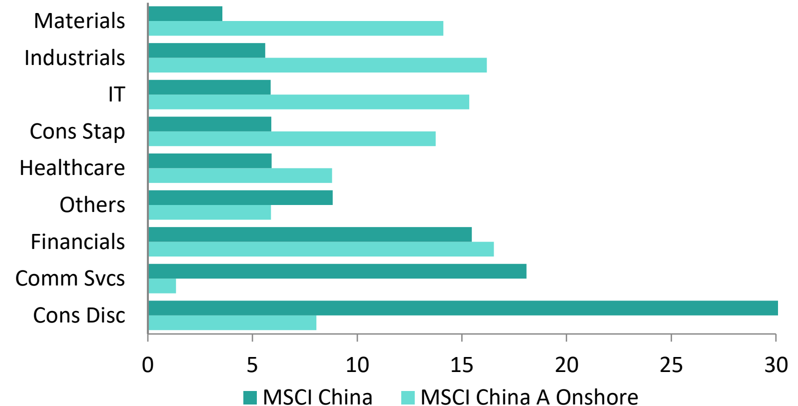
ROE-ADJUSTED P/E: PERCENTILE

Mar 31, 2005 – Jun 30, 2022



SECTOR WEIGHTS

As of Jun 30, 2022 • Percent (%)



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

Notes: Sector weight for "Others" consists of Real Estate, Utilities, and Energy. Totals may not sum to 100% due to rounding.

US Small-Cap Equities

Facts & Figures Second Quarter 2022

US small-cap equities fell 16.7% in 2Q, edging their mid- to large-cap peers by 16 bps, as mounting recessionary fears sparked major drawdowns across US equities. Over the past 12 months, small caps have declined by 21.3%, lagging large caps by nearly 9 ppts.

- Relative valuations between small caps and mid- to large-cap peers have been under pressure over the past year and are now in the bottom decile of historical observations. However, earnings and measures of profitability have sharply recovered from pandemic-lows. The trailing 12-month return on equity (ROE) of the MSCI US Small Cap Index stands at 9.1%, its second-highest level in 15 years 9.5% in 1Q 2022), after plunging to 1.1% in late 2020.

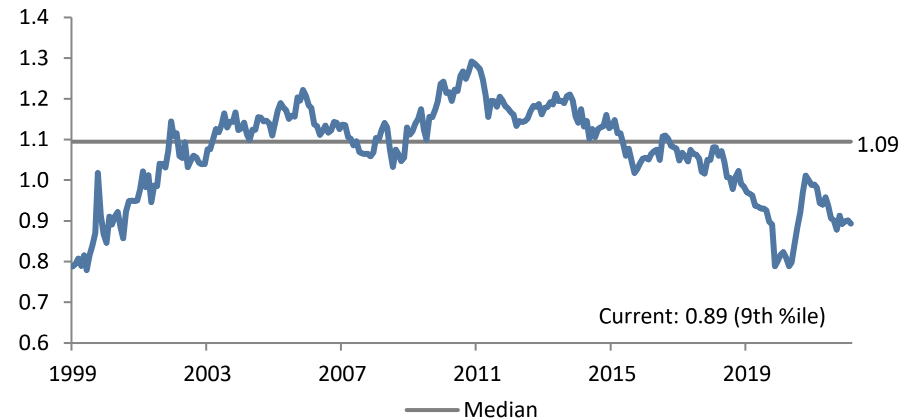
- The US small-cap segment is overweight cyclical sectors and underweight technology compared to the mid/large cap universe. As a result, US small caps suffer disproportionately amid economic downturns and heightened market volatility given their greater cyclicality, weaker profitability, and more leveraged balance sheets. On the flipside, early cycles of recoveries can prove beneficial for cyclically sensitive small caps.

- As the Federal Reserve ramps up its policy tightening to combat inflation, financial stocks stand to benefit as net interest margins expand. However, an unexpected pause in the Fed's expected tightening path could hamper the performance of small caps relative to larger, growth-oriented equities.

- Small caps boast strong profitability and robust earnings growth. Over the past five years, S&P 600 earnings have grown at a 19% annualized rate, compared with a 16% rate for the MSCI US Index. Forward earnings estimates look healthy, with analysts now expecting a 32% increase for CY 2022.

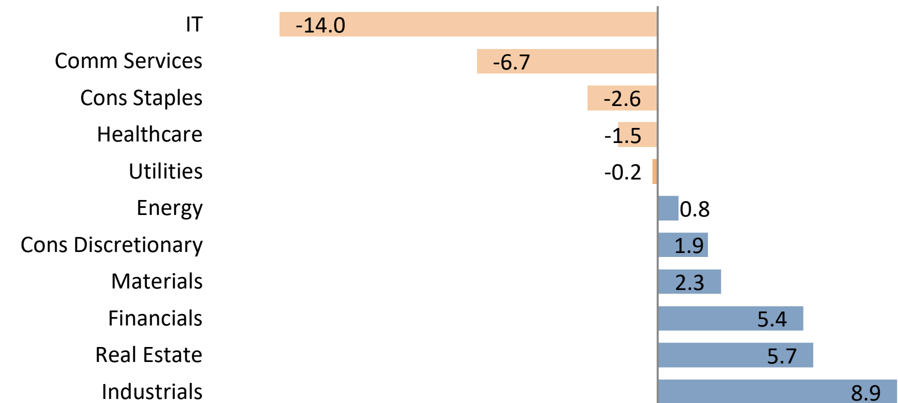
RELATIVE 5-YR CAPCE: MSCI US SC VS US LC/MC

May 31, 1999 – Jun 30, 2022



RELATIVE SECTOR WEIGHTS: US SC MINUS US LC/MC

As of Jun 30, 2022 • 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 Second Quarter 2022

Developed ex US small caps declined 11.3% in local currency terms in 2Q, lagging mid- to large-cap peers by 283 bps. Small caps have trailed their larger-cap counterparts by 631 bps over the past 12 months.

- Equities broadly suffered in second quarter, but small caps were hit more acutely, given their higher sensitivity to economic growth. Recessionary fears increased as central banks hiked policy rates in an effort to tame surging inflation, weighing on index heavyweight sectors like real estate. Small-cap valuations declined significantly during the quarter. As of June 30, Developed ex US small-cap valuations were trading at 9.2x cyclically adjusted price-to-cash earnings (CAPCE) ratio, in the 30th percentile of historical observations. On a relative basis, small-cap valuations are in the 19th percentile versus their large/mid-cap counterparts.

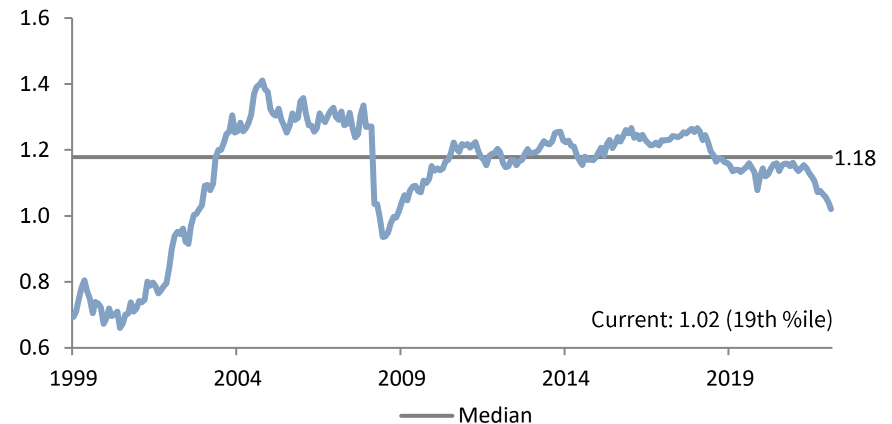
- From a relative sector exposure standpoint, the developed ex US small-cap segment is overweight cyclicals—particularly real estate and industrials—vis-à-vis its large/mid-cap counterpart, though this is partially offset by a large underweight to financials. However, the defensive and higher-quality 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 compounded real cash earnings per share grew by 2.4% per annum, while real EPS for large/mid-caps has fallen.

- 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.

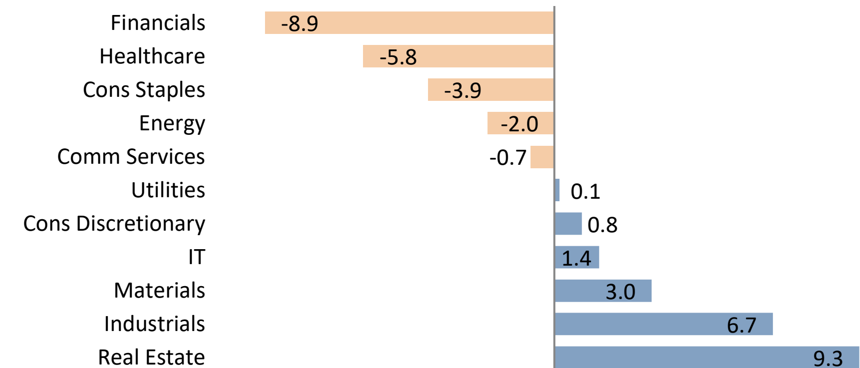
RELATIVE 5-YR CAPCE: MSCI WORLD EX US SC VS LC/MC

May 31, 1999 – Jun 30, 2022



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

As of Jun 30, 2022 • 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.

Emerging Markets Small-Cap Equities

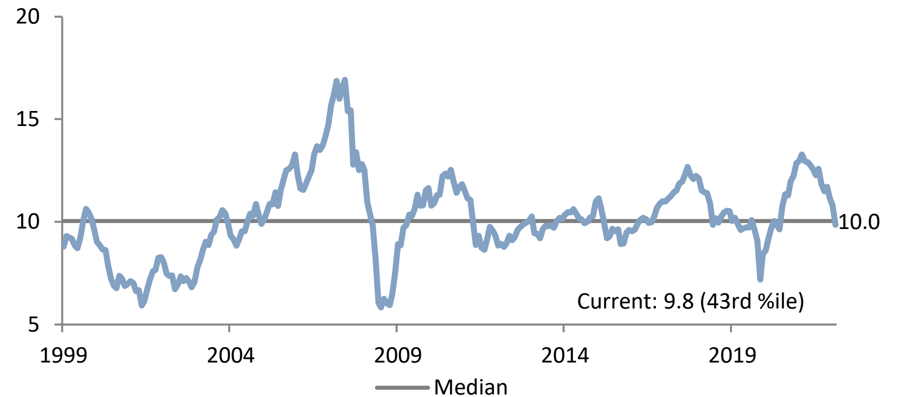
Facts & Figures Second Quarter 2022

EM small caps returned -16.4% in USD terms in 2Q, trailing their large- and mid-cap counterparts for the first time in nine quarters. EM small caps outperformed by roughly 5 ppts over the TTM period, as relative momentum has waned. Small caps have been relatively insulated from developments out of China over the past year, given sectoral differences and lower index concentration, but remain exposed to many of the prevailing macroeconomic headwinds today.

- EM small-cap valuations came down in 2Q, falling below median levels for the first time since late 2020. Multiples have derated 26% from recent peak levels hit in June last year. Valuations relative to the broader EM index have also rallied, ending 2Q at the 53rd percentile versus 22nd percentile levels during the market's COVID-19 sell-off.
- EM small caps are less exposed than large caps to the financials, communication services, and consumer discretionary sectors, and relatively overweight industrials, health care, and real estate. Relative to large caps, small caps carry a much smaller weighting to China, modest overweights to India, Taiwan, and Korea, and largely similar exposure to other countries.
- The EM small-cap index is far less concentrated than the large- and mid-cap EM index. The small-cap index allocates a total weight of less than 3% to its largest ten stocks, compared to about 24% for the broad index.
- EM small caps offer a dividend yield of 3.3%, which is 40% greater than its historical average and about 20 bps higher than that of the broad EM index.
- EM small cap ROE has continued improving to 10.0% (82nd percentile) as of second quarter end, reaching the highest level since 2009. ROE relative to the broader EM index has also rallied, ending 2Q at 0.76 (96th percentile) versus historical median relative ROE of 0.60.
- While boosters may expect stronger growth from small-cap firms, the reality over the past two decades has been that real per-share earnings growth for small caps has lagged large and mid-caps, and that large and mid-caps have on average had much higher return on equity.

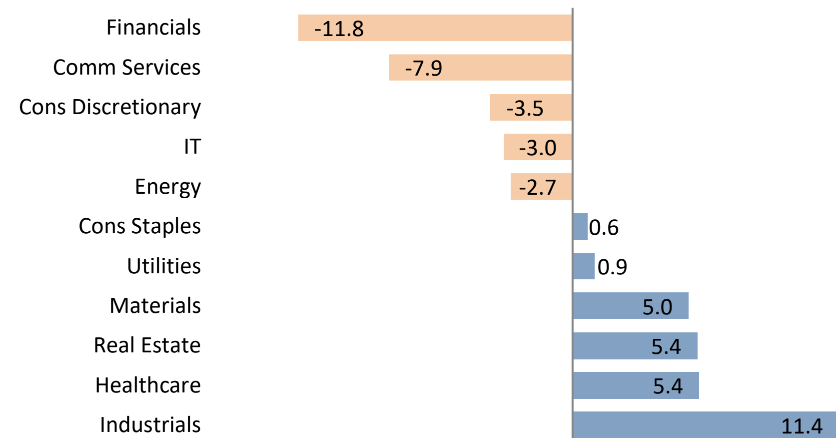
CYCLICALLY ADJUSTED PRICE-TO–CASH EARNINGS: MSCI EM SMALL CAP

May 31, 1999 – Jun 30, 2022



RELATIVE SECTOR WEIGHTS: EM SC MINUS LC/MC

As of Jun 30, 2022 • Percentage Points



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

Note: EM Small-Cap CAPCE based on five-year average real cash earnings.

US Growth and Value Equities

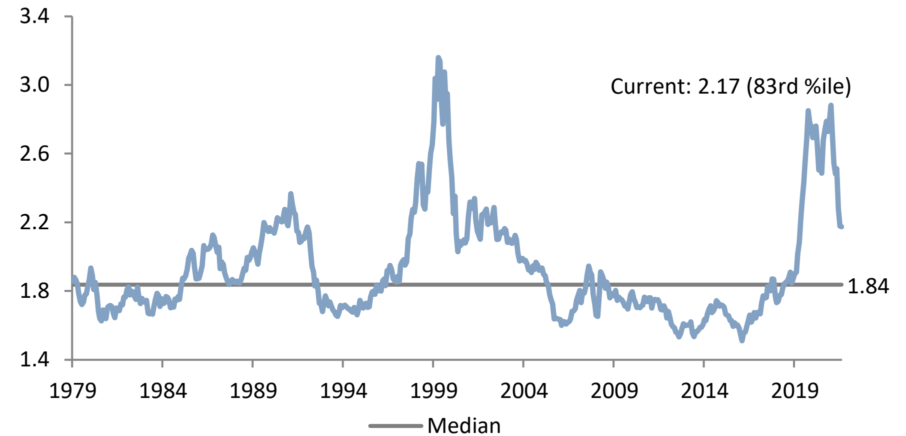
Facts & Figures Second Quarter 2022

US growth stocks declined 23.0% in 2Q, trailing US value stocks (-11.2%) by nearly 12 ppts as the Fed ramped up policy tightening, and recessionary fears surged. Value stocks have bested growth stocks by 17 ppts over the past 12 months.

- The Fed hiked its benchmark policy rate by 125 bps in second quarter, which was the fastest tightening pace since the late 1980s, as sharply higher inflation forced the central bank to shift to a more aggressive monetary policy stance. Growth stocks, which tend to be more sensitive to rising interest rates than value stocks, suffered sharp declines for the quarter.
- Based on the cyclically adjusted price-to–cash earnings (CAPCE) ratio, the MSCI US Growth Index trades at 2.2 times the valuation of the MSCI US Value Index. That relative ratio is in the 83rd percentile of historical observations. However, the absolute valuations of both growth and value are elevated, in the 88th and 78th percentiles versus their respective histories since November 1979.
- 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) comprise more than 60% of the growth index. In comparison, IT is just 11% of the value index. In addition, the value index has an 18% weighting to financials, whose profitability has considerably weakened due to stricter regulation and rising disruption.

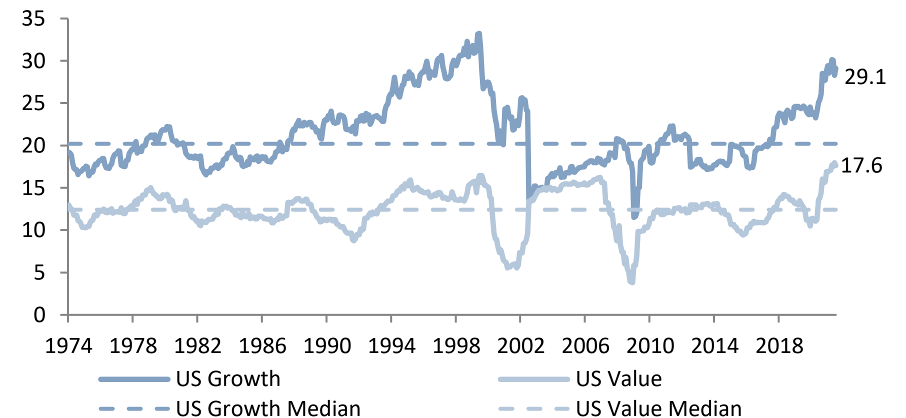
RELATIVE 5-YR CAPCE: MSCI US GROWTH VS US VALUE

Nov 30, 1979 – Jun 30, 2022



ROE: MSCI US GROWTH VS US VALUE

Dec 31, 1974 – Jun 30, 2022 • Percent (%)



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

Developed Markets Equity Factors

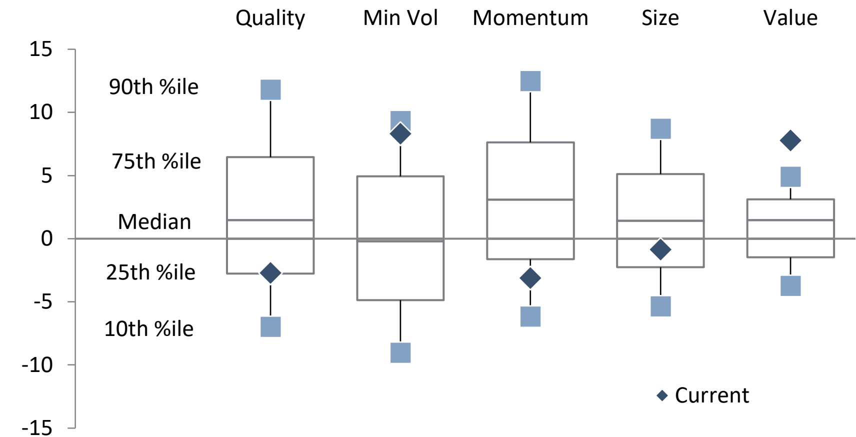
Facts & Figures Second Quarter 2022

Minimum volatility (-7.6%), value (-10.0%), and size (-12.1%) all bested the MSCI World Index (-14.3%) in second quarter, as market volatility surged amid growing recessionary fears. Quality (-15.5%) trailed the broader index, and momentum (-16.1%) lagged all other major factors. Over the past 12 months, minimum volatility and value have fared best among major factors, both outpacing the MSCI World Index by around 8 ppts.

- After topping all other major factors in 2021, quality stumbled in first half 2022 as central banks began aggressively hiking rates, pressuring longer-duration growth-oriented sectors. Information technology, which tends to have a higher implied equity duration than other sectors, makes up almost 40% of the MSCI World Quality Index.
- Minimum volatility returned to the spotlight in second quarter, besting the broader equity index by the widest margin in more than a decade. Still, minimum volatility has had a challenging run over the past several decades. Since the GFC, it has trailed the MSCI World Index by the largest margin among major factors.
- Valuations declined across all factors in second quarter, but still appear somewhat elevated across minimum volatility and quality. Value still trades at much lower valuations than other major factors, despite its stronger relative performance over the trailing twelve-month period.
- 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 has an exceptionally high turnover ratio (109% as of June).
- 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.

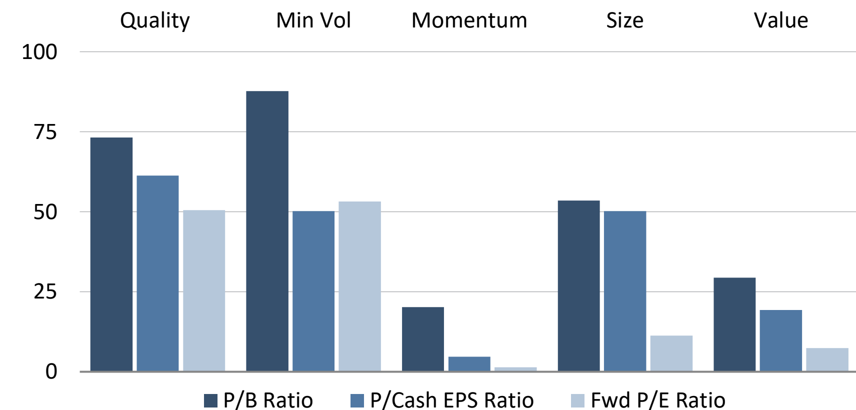
FACTOR RETURNS IN EXCESS OF DEVELOPED MARKETS EQUITIES

As of Jun 30, 2022 • Rolling 12M • Percent (%)



CURRENT VALUATION PERCENTILE RANKING BY FACTOR

As of Jun 30, 2022



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

Hedge Funds

Facts & Figures Second Quarter 2022

In a quarter in which both equities and bonds sold off, diversifiers continued to provide protection, while uncertainties around inflation, interest rate path and geopolitical events, as well as concern about a US-led recession, weighed on long/short equity and negatively influenced event-driven results.

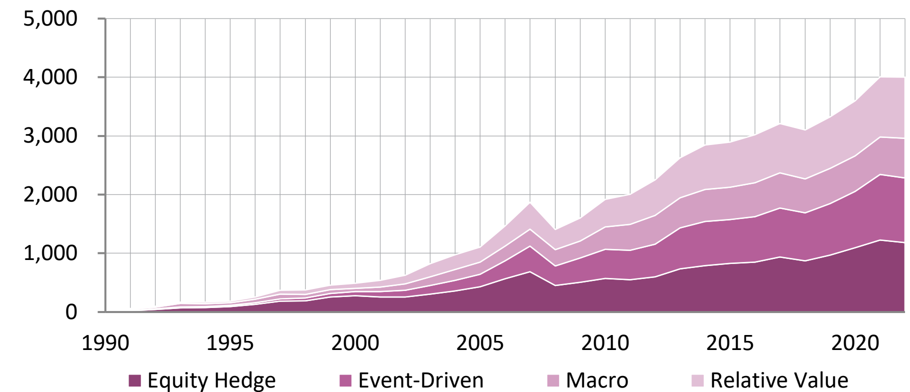
- Among diversifiers, global macro—the only hedge fund strategy that was up in 2Q—delivered solid, uncorrelated performance, as evidenced by the HFRI Global Macro (Total) Index's gain of 1.8%. Strong performance by trend-following managers in April, driven by profitable trades in fixed income, energy, and agricultural, more than offset losses derived from a trend reversal in commodities in the latter half of 2Q. Relative value detracted 2.6% in 2Q as losses were broadly experienced across sub-strategies, such as sovereign fixed income, corporate credit, and convertible arbitrage; notwithstanding the negative print, it was the second-best performer of the major hedge fund strategies.

- Long/short equity funds continued to struggle in 2Q with the HFRI Equity Hedge (Total) Index down an additional 8.0%, bringing year-to-date results to -12.0%, despite managers being able to extract meaningful alpha on the short side. Gross leverage and net exposures continued to drift lower during the period as managers broadly upgraded and concentrated long portfolios among a smaller group of high conviction, defensible, cash-flow generating businesses whose forward-looking growth prospects, pricing power, or mission critical status make them resilient to pressures from rising interest rates and elevated inflation expectations. Meanwhile, short books continue to focus on equities of companies with questionable business prospects or whose value is largely affected by their ability to raise additional funds in the capital markets (e.g., biotech companies). As expected, public/private hybrid funds started to write down private holdings as valuations begin to catch up to public market comps.

- The HFRI Event-Driven (Total) Index ended the quarter down (-6.4%), with much of the drawdown occurring in June (-3.8%), but significantly outperformed volatile global equity indexes. Recession concerns that affected "go outside" equities (e.g., travel-related equities), among others, and widening credit spreads exacted a toll on many previously impervious event-driven and multi-strategy funds; however, managers are starting to see attractive stressed and distressed credit opportunities, leading some previously closed managers to open to new capital.

HFRI HISTORICAL ASSET GROWTH BREAKOUT

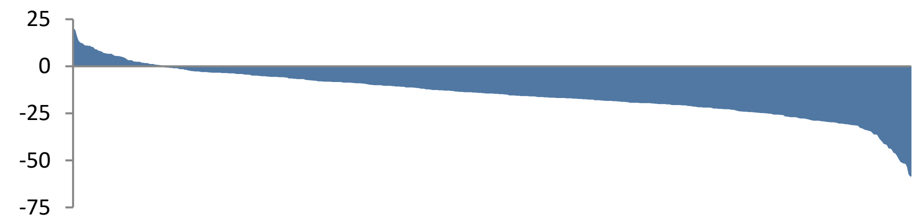
1990–2022 • US$B



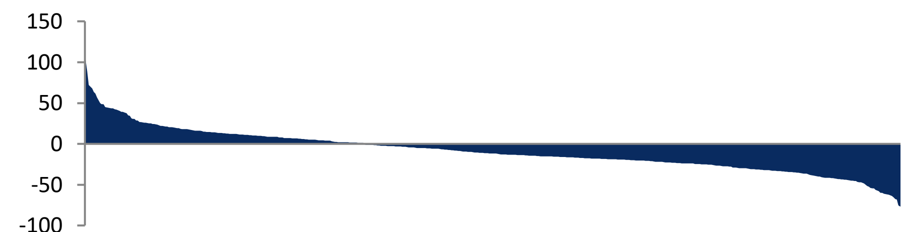
EQUITY DISPERSION: TOTAL RETURNS FOR THE S&P 500 CONSTITUENTS

As of June 30, 2022

Trailing 3-Month Returns (%)



Trailing 12-Month Returns (%)



Sources: Hedge Fund Research, Inc., FactSet Research Systems, and Standard & Poor's.
Note: 2022 HFRI data are through March 31.

FIXED INCOME

CAMBRIDGE ASSOCIATES

US Bonds

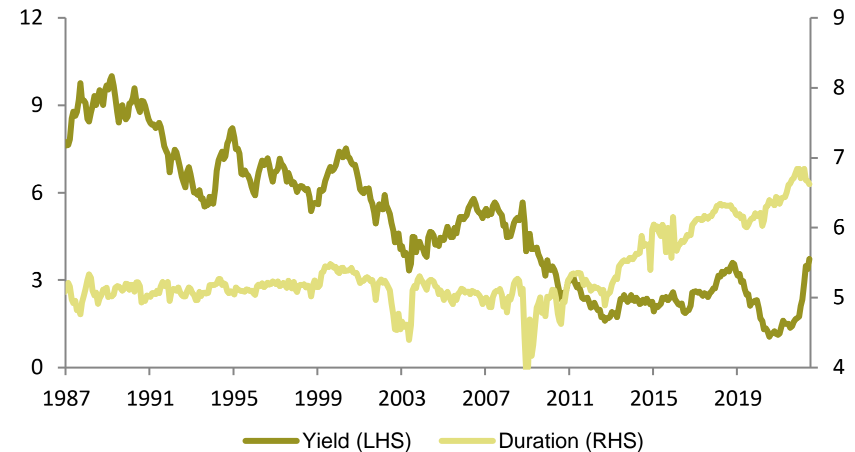
Facts & Figures Second Quarter 2022

Core US bonds suffered their worst ever start to the year during first half 2022. Elevated inflation has forced the Fed to become more hawkish, and fixed income investors are racing to reprice expected tightening.

- The Bloomberg US Aggregate Bond Index returned -10.3% during first half 2022, its worst ever start to a calendar year.
- The index yield more than doubled to 3.72% during first half 2022, its highest level since 2009.
- The Fed hiked its target rate by 150 bps during first half 2022 and suggested another 175 bps of tightening may occur by the end of 2022. The Fed has also started letting assets on its balance sheet mature, though it will take a long time to materially dent its $9T of bond holdings.
- Elevated inflation levels have left the Fed little choice, with the July CPI release suggesting prices had increased by 9.1% over the last 12 months.
- The Bloomberg Aggregate Index is typically insulated from credit market volatility by its high-quality asset mix—around 70% of the index carries an AAA rating, and most of this is either a direct or indirect obligation of the federal government. Just 14% of the index consists of corporate bonds carrying a rating of BBB or below.
- However, the relatively high duration of the index (over 6 years) left it poorly positioned for the current environment of rising inflation and interest rates.
- Low yields reduce the ability of traditional 70/30 or 60/40 stock/bond portfolios to cushion equity market volatility and meet investors' spending needs.
- After the recent credit market rally, spreads on some sub-components of the index are close to historical averages. For example, the option-adjusted spread on investment-grade corporate bonds (around 27% of the index) is now 155 bps, in the 76th percentile of observed values.

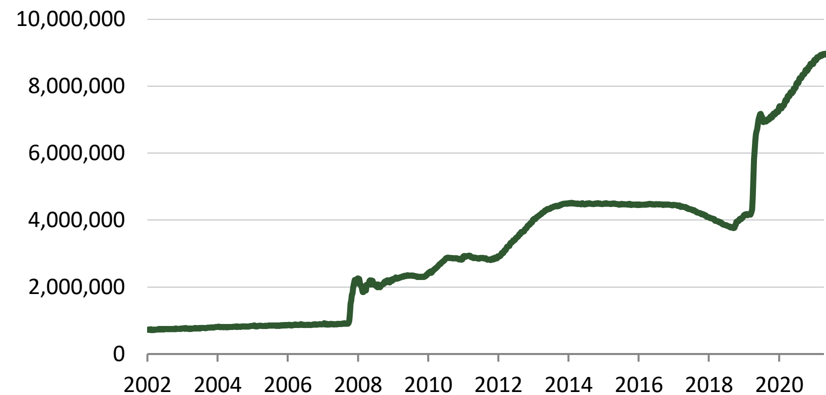
YIELD VS DURATION: BBG US AGGREGATE BOND INDEX

Jan 31, 1987 – Jun 30, 2022



FED BALANCE SHEET TOTAL ASSETS

Dec 18, 2002 – Jun 30, 2022 • 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

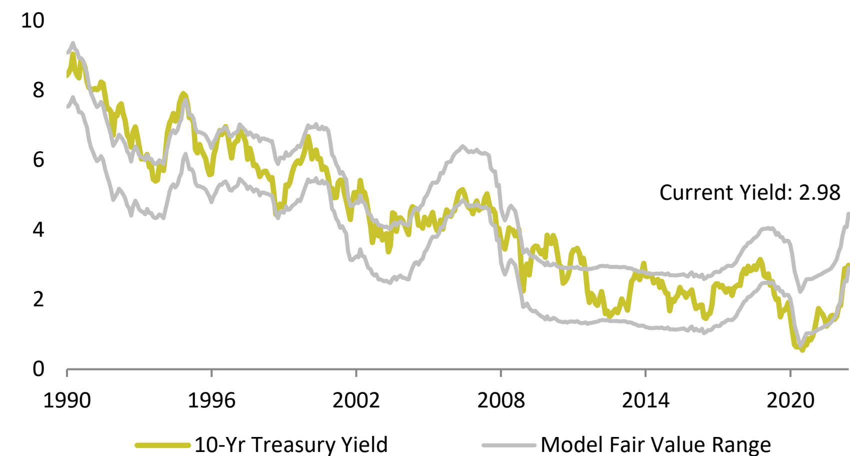
Facts & Figures Second Quarter 2022

US Treasury yields continued their year-to-date ascent in 2Q as the Fed moved aggressively to tighten monetary policy in response to persistently high inflation.

- Treasury yields increased across the curve, with two-year yields—which reflect policy expectations—up 64 bps (+219 bps YTD) and ten-year yields rising 66 bps (+146 bps YTD). The ten-year/two-year yield spread was just 6 bps as of June 30.
- All told, the Bloomberg US Treasury Index returned -3.8% in 2Q amid the sharp rise in yields and is now down 9.1% through first half 2022.
- The Fed's hawkish pivot has put upward pressure on Treasury yields. At its June policy meeting, the Fed lifted rates by 75 bps for the first time since 1994. So far this year, the Fed has raised rates by a total of 150 bps—which brings the target range to 1.50%–1.75%—and it has signaled it expects to hike rates by at least another 200 bps by the end of 2023.
- The Fed is raising rates at the fastest pace in decades to combat persistently high inflation, which remained elevated in May, with core CPI data showing prices increased 6.0% over the last 12 months.
- Long-dated US Treasuries are more attractively priced following this year's sharp rise in yields, but they do not yet appear cheap according to our model. Recent US nominal growth trends and monetary policy expectations suggest ten-year yields still trade near the bottom of their implied fair value range of 2.9%–4.5%. A sign yields could still move higher this cycle, especially if the Fed tightens more than expected.
- Though, mounting concerns about weaker growth could support Treasuries in the near term. Ten-year yields peaked near 3.5% in mid-June following the Fed's 75-bp hike but settled slightly below 3.0% to end 2Q on growth concerns. The US economy contracted -1.6% annualized in 1Q and the Fed now expects real GDP to expand just 1.7% this year versus 2.8% as of its March policy meeting.
- Additionally, trailing 12-month price momentum deteriorated further in 2Q and is currently at deeply depressed levels., which suggests any further rise (decline) in yields (prices) could be limited in the near term.

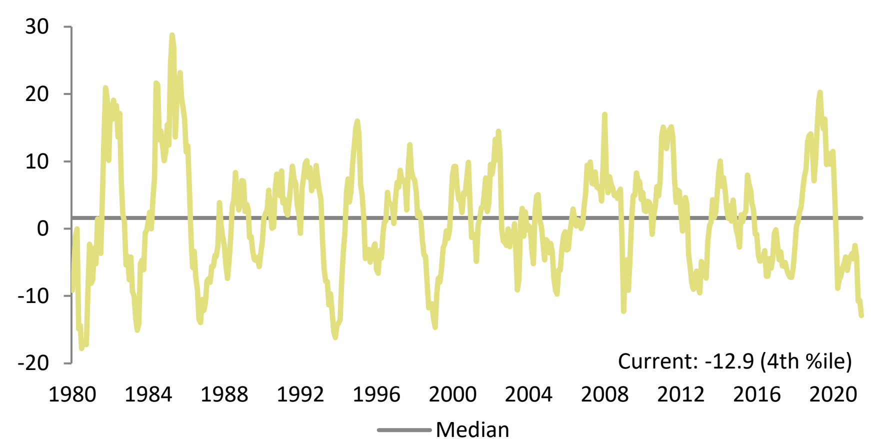
SOVEREIGN BOND MODEL FAIR VALUE RANGE: 10-YR TREASURY

Jan 31, 1990 – Jun 30, 2022 • Yield (%)



12-MONTH PRICE MOMENTUM: 10-YR TREASURY

Dec 31, 1980 – Jun 30, 2022 • Percent (%)



Sources: Federal Reserve and Thomson Reuters Datastream.

Note: The Model Fair Value Range represents +/- one standard deviation from the estimated fair value of ten-year yields based on a multiple linear regression model that includes trailing ten-year nominal GDP and one-year yields.

US Cash

Facts & Figures Second Quarter 2022

Central banks continued to tighten monetary policies in 2Q in response to persistently high inflation. US T-bill and UK cash yields have notably increased this year, while German and Japanese cash yields remain in negative territory.

- Cash yields in the US and UK increased in 2Q as both the Fed and BOE raised policy rates during the quarter. US T-bill yields increased 120 bps, while UK cash yields rose by approximately 60 bps. Yields remained negative in Japan and Germany due to more dovish monetary policies. Though, expectations for the two-year future rates increased by over 100 bps in the EU, UK, and the US, as markets anticipate central banks in all three regions will tighten monetary policy over this period. Japan is an outlier, where the BOJ is committed to remaining accommodative.

- Historically, we have recommended that investors minimize cash holdings, given the risk that inflation erodes the value of cash in real terms and the opportunity costs associated with not investing in assets with higher return potential. However, when sovereign bond yields are low and yield curves are flat relative to history the opportunity costs associated with holding cash are less pronounced.

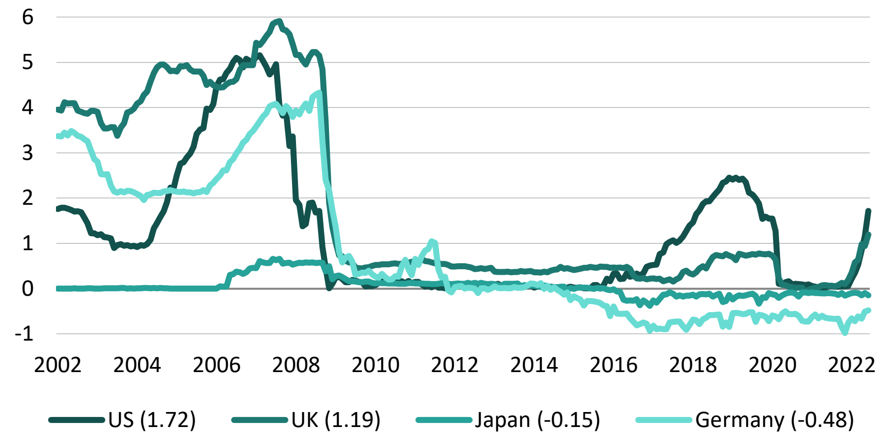
- Cash should be a stable source of returns across several economic environments, and its minimal duration risk should provide downside protection if interest rates continue to rise. However, holding cash for an extended period would be challenging and cash would likely struggle to provide ballast during periods of market stress.

- Cash holdings are important for near-term liquidity needs, particularly for investors that have heavy operational spending, significant unfunded commitments within their private investment programs, or that have currency and other hedging overlays requiring lumpy cash transfers.

- Investors choosing to hold cash for near-term liquidity purposes 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. Investors that choose the money market option should review relevant documentation and ensure such funds are not exposed to risks related to securities lending. Money market fund shareholders should beware of gating and floating-NAV provisions, which are much more likely to be used during periods of severe financial stress.

T-BILL RATES

Jan 31, 2002 – Jun 30, 2022 • Percent (%)



MARKET EXPECTATIONS FOR FUTURE CENTRAL BANK RATES

As of Jun 30, 2022 • Percent (%)

	CURRENT	3M	6M	1Y	2Y
UK	1.25	2.00	2.74	2.89	2.45
Japan	-0.10	-0.04	0.00	0.02	0.12
EU	-0.50	0.21	0.77	1.25	1.54
US	1.63	2.71	3.32	3.20	2.56

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

Notes: ECB data represented by the ECB overnight deposit rate. Feds funds target range is 1.50%-1.75%. The mid-point of 1.63% is used for future market expectations.

US Corporate Bonds

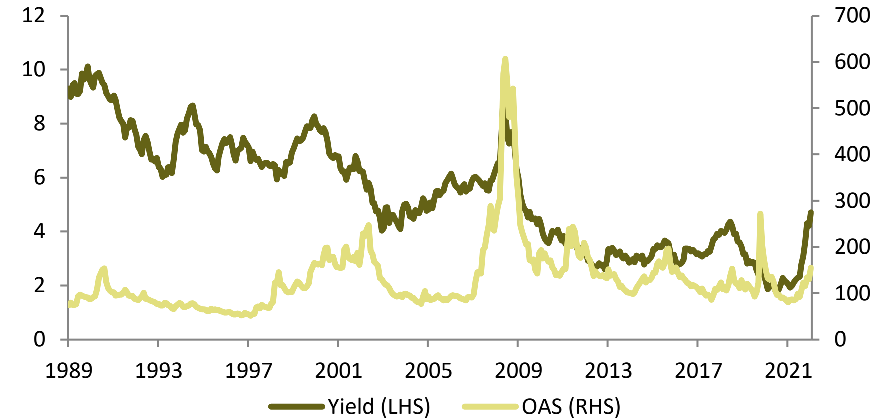
Facts & Figures Second Quarter 2022

Investment-grade corporate bonds suffered their worst ever start to the year during first half 2022 as inflationary pressures forced the Fed to hike rates. Spreads now look elevated relative to historical medians, but rising Treasury yields remain a risk.

- The Bloomberg Corporate Investment-Grade Index returned -14.4% during the first half of 2022, its worst ever start to a year. The last time investment grade corporates posted YTD losses this deep was in late 2008 during the financial crisis.
- Yields have roughly doubled since January to 4.7%. Much of the rise in yields was driven by the underlying move in benchmark yields. The Fed hiked rates 150 bps during the first half of 2022, and elevated inflation readings mean it may continue hiking into 2023.
- The 155 bp option-adjusted spread has risen over 60 bps since the start of the year and is in the 76th percentile of observed values.
- The macro backdrop for US corporates has been supportive, but GDP growth estimates are being slashed as high inflation weighs on consumer and corporate confidence. Corporate profit growth, which marched steadily higher as economies reopened after the worst of the COVID-19 expansion, is expected to taper off.
- The Fed has begun shrinking its balance sheet in Q2, though it will take time to make a sizable dent in its $9T of holdings. The Fed is likely to proceed cautiously to ensure the combination of rate hikes and asset reduction isn't more disruptive than desired.
- Investment-grade fundamentals have recovered after COVID-related deterioration. After EBITDA for investment-grade issuers rose 27% YOY in Q1 2022, J.P. Morgan reports that gross leverage stood at 2.9x EBITA, down slightly from pre-COVID 2019 levels.
- The pace of new issue supply slowed in 2021 after surging in 2020 as issuers preemptively raised cash to help weather potential pandemic-related slowdowns. The $226B in new issuance in Q1 represents a slightly faster start in 2022.

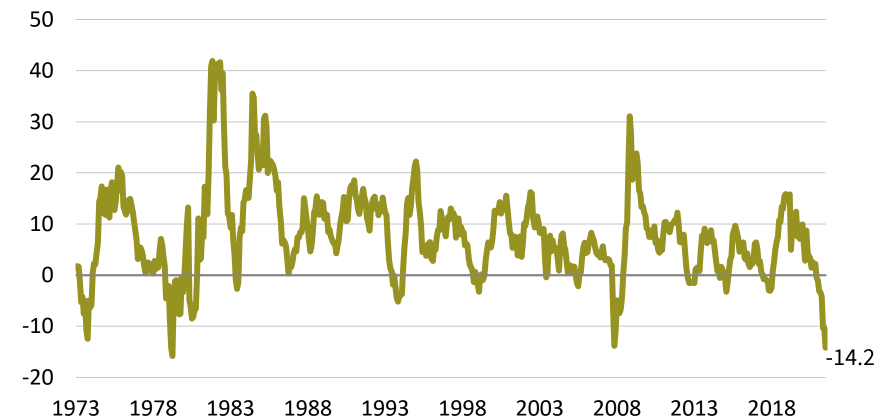
YIELD AND OPTION-ADJUSTED SPREAD: US INVESTMENT-GRADE CORPORATES

Jun 30, 1989 – Jun 30, 2022 • Percent (%)



TRAILING 12-MONTH RETURN: US INVESTMENT-GRADE CORPORATES

Dec 31, 1973 – Jun 30, 2022 • Percent (%)



Sources: Bloomberg Index Services Limited and Thomson Reuters Datastream.

US Tax-Exempt Bonds

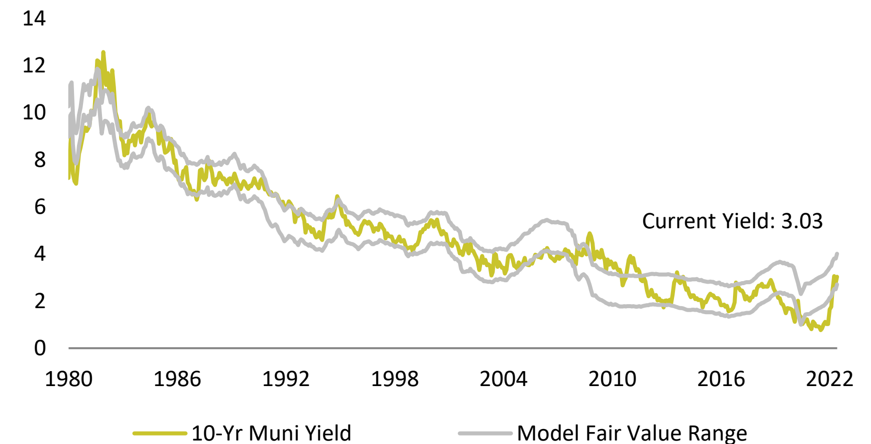
Facts & Figures Second Quarter 2022

US municipal bonds faired slightly better in 2Q following a challenging first quarter. Muni yields rose in line with Treasury yields, and munis slightly outperformed Treasuries thanks in large part to supportive technicals and better relative value versus Treasuries.

- Ten-year muni yields increased another 56 bps in 2Q after surging 145 bps in 1Q, but unlike the previous quarter, they rose less than ten-year Treasury yields, which increased 66 bps in 2Q. The Bloomberg Municipal Bond Index returned -2.9% in absolute terms and outperformed US Treasuries by 90 bps.
- The Fed's hawkish pivot has put upward pressure on Treasury yields, and in turn muni yields. So far this year, the Fed has raised rates by a total of 150 bps and it has signaled it expects to hike rates by at least another 200 bps by the end of 2023.
- The rise in muni yields this year has been exacerbated by investor outflows. According to ICI, investors have withdrawn over $70B from municipal bond funds and ETFs in 2022, which is on par with previous major outflow cycles.
- Munis are more attractive in absolute and relative terms following the sizable move higher in tax-exempt yields. As of the end of 2Q, ten-year munis were yielding above 3% for the first time since 2020 and are within the top decile of yield levels seen over the trailing ten years.
- According to our model, which is based on recent trends in US nominal growth and monetary policy expectations, ten-year muni yields have recovered to just above the lower band of their implied fair value range of 2.7%–4.0%.
- Muni/Treasury ratios have also increased this year and munis now trade at a premium to Treasuries. The after-tax yield pickup versus Treasuries has also improved. The taxable-equivalent ten-year Muni/Treasury ratio is 1.61 (73rd percentile) versus 1.07 at year-end 2021.
- Muni market issuance and fundamentals also remain supportive. Sell-side analysts are still forecasting net negative bond supply in 2022 and muni bond issuers are still benefiting from strong domestic economic activity, unspent federal stimulus funds, and strong tax collections.

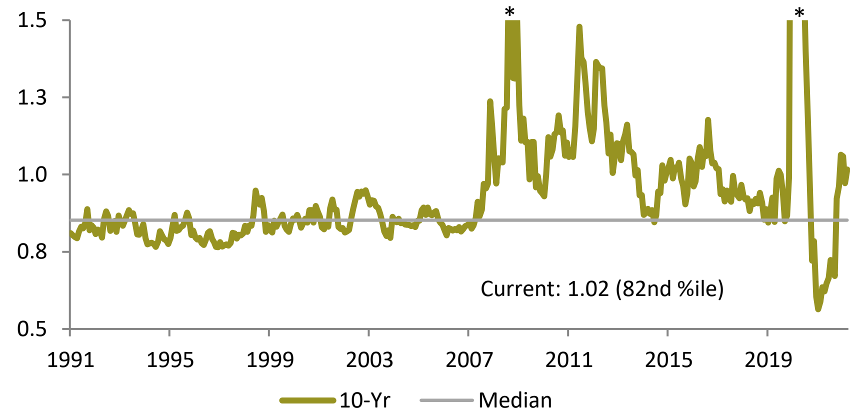
SOVEREIGN BOND MODEL FAIR VALUE RANGE: 10-YR MUNI

Jan 31, 1990 – Jun 30, 2022 • Yield (%)



RATIO OF 10-YR MUNI YIELDS TO TREASURY YIELDS

Apr 30, 1991 – Jun 30, 2022



* 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 Range represents +/- one standard deviation from the estimated fair value of ten-year yields based on a multiple linear regression model that includes trailing ten-year nominal GDP and one-year yields.

US Inflation-Linked Bonds

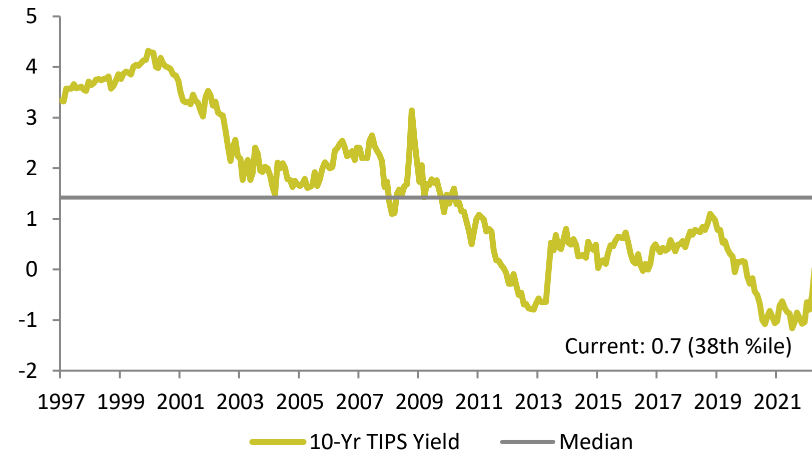
Facts & Figures Second Quarter 2022

US TIPS underperformed US Treasuries in 2Q as tighter monetary policy and mounting concerns about weak growth caused a sharp rise in real yields and a peak in breakeven inflation rates, despite persistently high inflation.

- Ten-year US real yields surged 117 bps in 2Q—compared to a 66 bp rise in ten-year nominal yields—and moved above zero for the first time since before the pandemic. All told, the Bloomberg US TIPS Index fell 6.1% in 2Q, while the Bloomberg US Treasury Index declined just 3.8%.
- As of the end of 2Q, ten-year TIPS were yielding 0.65%, which is still below their long-term median of 1.4% but is in line with levels that prevailed during the previous cycle.
- However, average annual US CPI was just 1.7% between 2010–20, whereas US CPI rose 8.6% in May—which was a new 40-year high. After adjusting ten-year nominal yields by the trailing three-year annual rate on inflation, ten-year real yields are still deeply negative (-1.5%).
- The Fed has responded to this year's elevated inflation readings with tighter monetary policies. The Fed's decision to increase rates by 75 bps in June, and pivot to a more hawkish tone vis-à-vis the pace and size of future rate increases, caused real yields to spike in 2Q. Officials have signaled they expect to raise rates by at least another 200 bps by the end of 2023, which could keep upward pressure on real yields.
- According to our model, which is based on recent trends in US real GDP growth and monetary policy expectations, ten-year real yields still trade well below their implied fair value range of 1.0%–2.6%.
- Despite persistently high inflation, mounting growth concerns caused breakeven inflation expectations to plummet 69 bps to end 2Q after briefly topping 3% for the first time since 1997 earlier in the quarter. The US economy contracted -1.6% annualized in 1Q and the Fed now expects real GDP to expand just 1.7% this year versus 2.8% in March.
- Breakevens remain elevated relative to history (71st percentile) and could have more downside given they tend to decline when the Fed is raising rates. An indication TIPS could continue to underperform nominal equivalents in the near term.

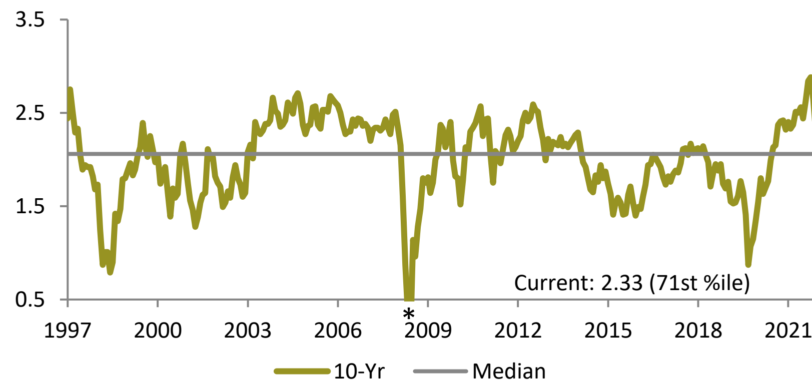
HISTORICAL YIELD: 10-YR TIPS

Jan 31, 1997 – Jun 30, 2022 • Percent (%)



10-YR BREAKEVEN INFLATION

Jul 31, 1997 – Jun 30, 2022 • 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

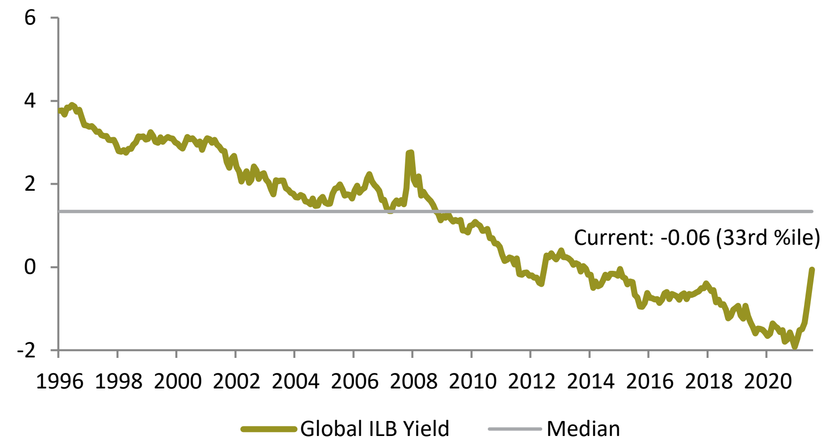
Facts & Figures Second Quarter 2022

GILBs underperformed global Treasuries in 2Q as tighter monetary policy and mounting concerns about weak growth caused a sharp rise in real yields and a peak in breakeven inflation rates, despite persistently high inflation.

- The yield on the Bloomberg Global Inflation-Linked Bond Index surged 128 bps in 2Q, compared to a 60 bp increase in global Treasury yields. GILBs returned -14.0% in absolute terms for the quarter and trailed global Treasuries by 480 bps.
- As of the end of 2Q, the GILB index offered a real yield of -0.06% (33rd percentile), which is still well below their long-term median of 1.3% but is the highest level they've reached since 2015.
- However, average annual G7 CPI was just 1.6% in 2014, whereas G7 CPI rose 7.5% in May—which was almost a 40-year high. After adjusting global Treasury yields by the trailing three-year annual rate of inflation, global real yields are still deeply negative (-1.5%).
- Central banks have responded to this year's elevated inflation readings with tighter monetary policies, which drove the sharp rise in real yields. Notably, the Fed raised rates by 125 bps in 2Q and the BOE hiked 50 bps, while the ECB signaled it plans to begin lifting rates this summer. Markets expect all three central banks to raise rates significantly over the next 12 months, which could keep upward pressure on real yields.
- According to our model, which is based on recent trends in global real GDP growth and monetary policy expectations, global real yields still trade below their implied fair value range of 0.2%–2.0%.
- Global breakeven inflation rates hit their highest levels in decades in 2Q but mounting growth concerns caused them to plummet to end the quarter. Consensus global real GDP forecasts for 2022 have declined from 4.4% at the start of the year to 3.2% as of the end of 2Q.
- Breakeven inflation expectations remain elevated relative to history and above central banks' inflation targets. They could have more downside given breakevens tend to decline when central banks raise rates. An indication GILBs could continue to underperform nominal equivalents in the near term.

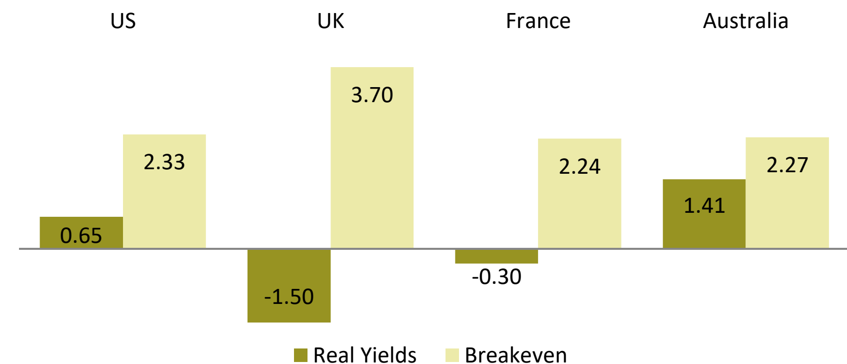
HISTORICAL INDEX YIELD: BBG GLOBAL LINKERS

Dec 31, 1996 – Jun 30, 2022 • Percent (%)



10-YR REAL YIELDS AND BREAKEVEN INFLATION

As of Jun 30, 2022 • 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

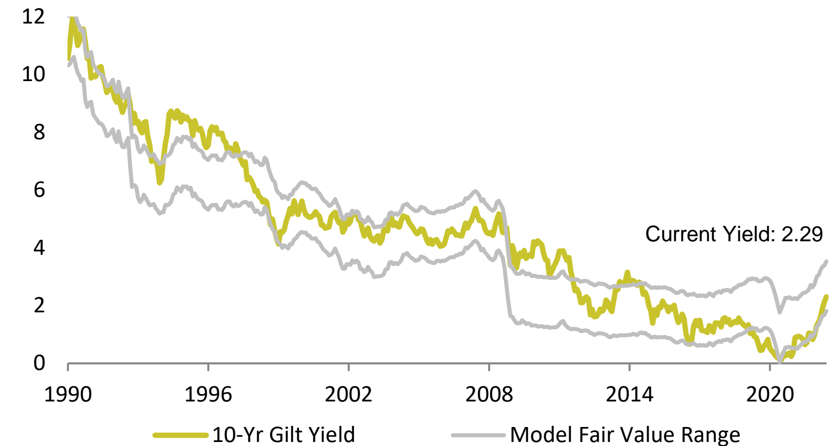
Facts & Figures Second Quarter 2022

UK gilt yields continued their move higher in 2Q as the BOE tightened monetary policy further in the face of persistently high inflation.

- UK gilt yields increased across the curve in 2Q, with ten-year/two-year yields increasing 62 bps and 56 bps, respectively, while the yield curve remained flat. The ten-year/two-year yield spread was just 26 bps as of June 30.
- All told, the Bloomberg UK Gilts Index lost 7.8% in 2Q amid the sharp rise in yields and is now down 14.8% through first half 2022.
- Despite this year's sharp rise in gilt yields, ten-year yields remain low relative to history (21st percentile). Starting yields are a strong predictor of subsequent returns and current yields suggest gilts still offer poor long-term return prospects.
- And while long-dated gilts are more attractively priced following this year's sharp raise in yields, they do not yet appear cheap according to our model. Recent trends in UK nominal growth and monetary policy expectations suggest ten-year yields are comfortably within their implied fair value range of 1.8%–3.5%.
- The BOE's more restrictive monetary policies are putting upward pressure on gilt yields. The BOE raised rates 50 bps in 2Q and has delivered a total of 115 bps of rate hikes since December 2021, bringing is main policy bank rate to 1.25%.
- The BOE is tightening monetary policy to combat persistently high inflation, which remained elevated in May. UK CPI accelerated to a 40-year high of 9.1% YOY in May, and core CPI, which excludes energy and food prices, remained elevated at 5.9%.
- The ongoing war in Ukraine and concerns about weaker growth could ease pressure on the BOE and support gilts in the near term. Though, the market is still pricing an additional 150 bps of rate hikes this year.
- Additionally, trailing 12-month price momentum deteriorated further in 2Q and is currently at deeply depressed levels., which suggests any further rise (decline) in yields (prices) could be limited in the near term.

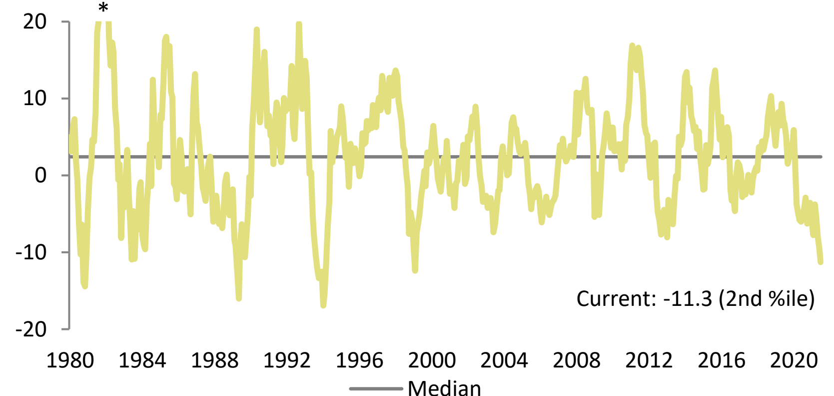
SOVEREIGN BOND MODEL FAIR VALUE RANGE: 10-YR GILTS

Jan 31, 1990 – Jun 30, 2022 • Yield (%)



12-MONTH PRICE MOMENTUM: 10-YR GILTS

Dec 31, 1980 – Jun 30, 2022 • 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 Range represents +/- one standard deviation from the estimated fair value of ten-year yields based on a multiple linear regression model that includes trailing ten-year nominal GDP and one-year yields.

UK Corporate Bonds

Facts & Figures Second Quarter 2022

Sterling-denominated investment-grade corporate bonds suffered their worst three-month performance since the GFC in Q2, as soaring inflation pressures have forced the Bank of England to accelerate its pace of tightening.

- Sterling investment-grade corporate bonds returned -8.0% in Q2, taking their full-year loss to -14.2%. Investors in sterling corporate bonds have barely broken even over the last five years.

- The index yield rose roughly 127 bps during the quarter to 4.33%, its highest level in ten years.

- Rising benchmark yields helped push credit yields higher. The Bank of England has now hiked its base rate at five consecutive meetings to try and quell rising inflation. The current 1.25% target rate still may not be high enough—UK CPI rose to 9.1% in June, the highest in 40 years.

- The option-adjusted index spread rose 60 bps to 207 bps and is now around the 80th percentile of observed values.

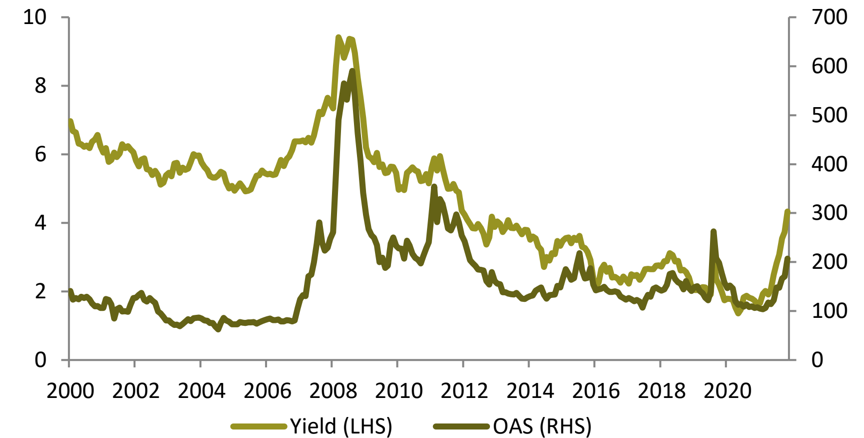
- The macro backdrop for credit in the UK had been improving as the economy emerged from COVID-related lockdowns. For now, the consensus is forecasting almost 4% GDP growth in 2022. Still, the war in Ukraine has added to inflationary pressures and rate hikes may dampen consumer and business spending.

- Net leverage rose over the course of the pandemic as EBITDA dropped and companies raised debt to shore up balance sheets. However, leverage seems to be declining again after sterling issuer EBITDA rose roughly 50% in 2021, according to J.P. Morgan.

- The modified index duration has dropped since the start of 2022 and now stands at 7.1 years. Still, bond investors remain vulnerable if inflationary pressures lead to curve steepening, or simply if spreads continue rising to reflect rising macro risks.

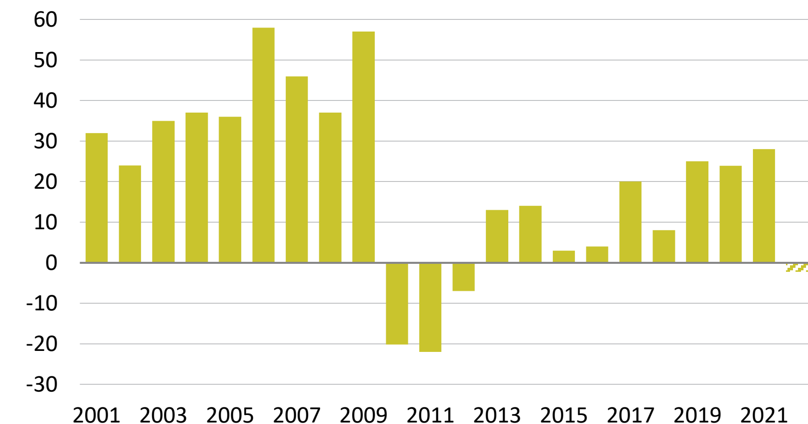
YIELD AND OPTION-ADJUSTED SPREAD: STERLING CORPORATES

Aug 31, 2000 – Jun 30, 2022 • Percent (%)



NET ANNUAL ISSUANCE: STERLING CORPORATES

2001-22 • Sterling (Billions)



Source: Bloomberg Index Services Limited.

Note: Issuance data for 2022 are through June 30.

Euro Area Sovereign Bonds

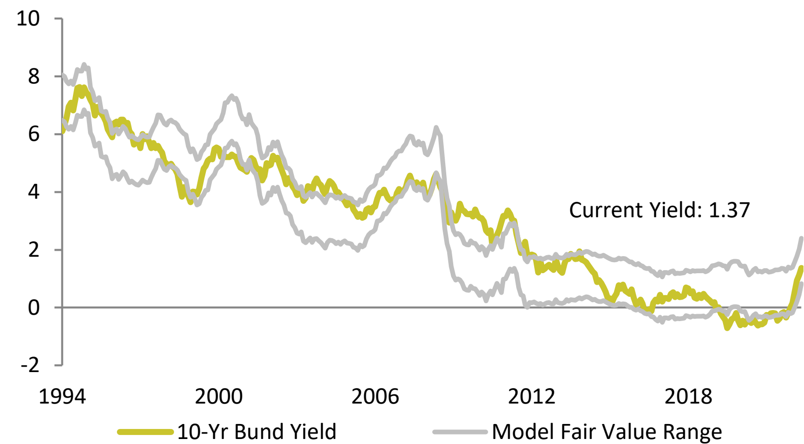
Facts & Figures Second Quarter 2022

Core euro area (EA) sovereign bond yields marched higher in 2Q, and periphery spreads continued widening as the ECB announced it would soon join other major central banks in tighten monetary policy to address persistently high inflation.

- Core EA bond yields increased across the curve, with ten-year German bund yields up 86 bps in 2Q to 1.37% and two-year bund yields (0.54%) turning positive for the first time since 2014.
- All told, the Bloomberg German Treasury Index returned -6.5% in 2Q amid the sharp rise in yields and is now down 11.2% through first half 2022.
- Despite this year's sharp rise in German bund yields, ten-year yields remain low relative to history (30th percentile.) Starting yields are a strong predictor of subsequent returns and current yields suggest core EA sovereigns still offer poor long-term return prospects.
- Though, ten-year bund yields have moved closer to their implied fair value following this year's rise in yields. According to our model, which is based on recent German nominal growth trends and EA monetary policy expectations, ten-year yields are comfortably within their implied fair value range of 0.8%–2.4%.
- The ECB's hawkish pivot has put upward pressure on core EA yields. Earlier this year, officials accelerated plans to taper asset purchases, which set the stage for the ECB to announce at its June policy meeting it would increase its main deposit rate (-0.5%) by 25 bps in July and potentially deliver an even larger increase in September.
- The ECB is tightening monetary policy to combat persistently high inflation, which has been exacerbated by high energy prices following Russia's invasion of Ukraine. EA CPI reached a record 8.6% YOY in June, and core CPI, which excludes energy and food prices, rose 3.7%.
- EA periphery spreads—a measure of EA sovereign default risk—blew out following the ECB's announcement, with Italian/German ten-year yield spread briefly topping 240 bps in mid-June—its highest level since March 2020. Spreads eased somewhat to end 2Q after the ECB hinted at an "anti-fragmentation instrument" designed to compress peripheral spreads as it becomes less accommodative.

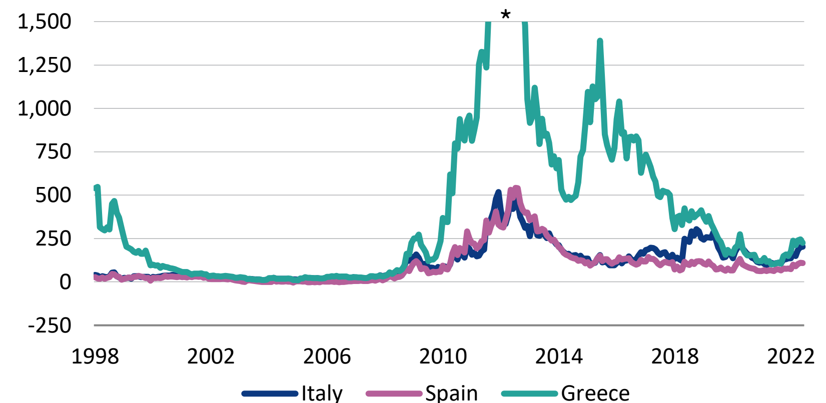
SOVEREIGN BOND MODEL FAIR VALUE RANGE: 10-YR BUNDS

Feb 28, 1994 – Jun 30, 2022 • Yield (%)



HISTORICAL 10-YR SPREADS OVER BUND YIELDS

Jan 31, 1998 – Jun 30, 2022 • Basis Points (bps)



* Capped for scale purposes. Greece spread hit a high of 3,476 bps on 2/29/2012.

Source: Thomson Reuters Datastream.

Note: The Model Fair Value Range represents +/- one standard deviation from the estimated fair value of ten-year yields based on a multiple linear regression model that includes trailing ten-year nominal GDP and one-year yields.

Euro Area Corporate Bonds

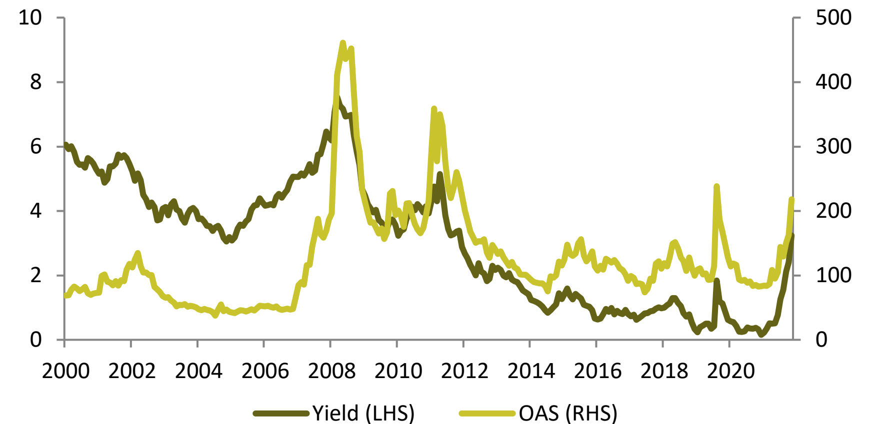
Facts & Figures Second Quarter 2022

The Bloomberg Euro-Aggregate Corporate Index returned -7.3% in Q2, its worst quarterly return on record. The Russian invasion of Ukraine has added to existing concerns around inflation by pushing commodity prices higher and further tangling up supply chains.

- Yields on euro corporate bonds doubled in Q2 to 3.24%. Most of this rise was due to underlying benchmark rates moving higher, but the option-adjusted spread rose 89 bps to 218 bps. This OAS represents the 90th percentile of observed values, and suggests investors have some cushion if growth and inflation worsen from here.
- The macro backdrop had been improving after the COVID-19 pandemic, with Eurozone GDP expanding 5.3% 2021. While an ongoing reopening meant growth was expected to remain above average this year, current year growth forecasts are being slashed as the war in Ukraine is exacerbating pre-existing inflationary pressures and generating concern that Russian exports of energy may be curtailed.
- Even with the recent backup in nominal yields, real yields are still deeply negative for bond investors given Eurozone HICP rose to an all-time high of 8.6% in June.
- Central banks have been forced by rising inflation pressures to become more hawkish. The Fed has hiked its base rate by 150 bps in 2022 and ceased bond purchases, while the ECB has announced it will hike rates by 25 bps in July and could hike again in September.
- Fundamentals for European corporate credit have recovered since their COVID–related deterioration. According to J.P. Morgan, EBITDA for European IG issuers grew 54% (YOY) in Q4 2021, flattered by a low base for comparison. Net leverage fell to 3.1 times debt-to-EBITDA, effectively back to pre-pandemic levels.
- After issuers rushed to shore up cash positions due to the pandemic in 2020, issuance of euro-denominated investment grade–corporate debt fell around 45% in 2021 to €138B net. YTD net issuance of €56B marks a further deceleration from that pace.

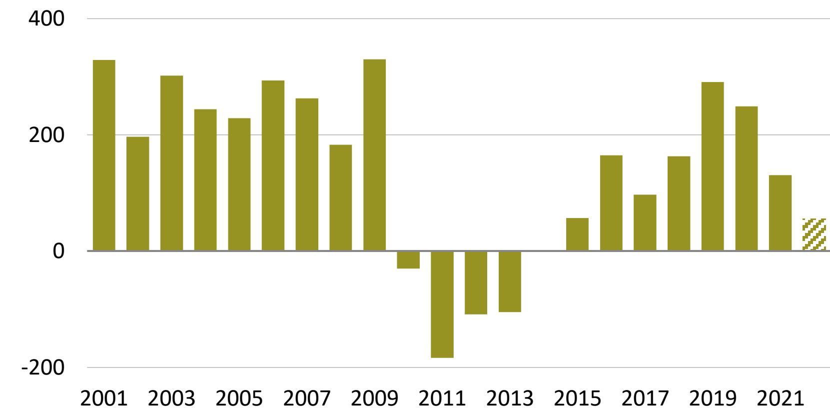
YIELD AND OPTION-ADJUSTED SPREAD: EUROPEAN CORPORATES

Aug 31, 2000 – Jun 30, 2022 • Percent (%)



NET ANNUAL ISSUANCE: EUROPEAN CORPORATES

2001–22 • Billions (EUR)



Source: Bloomberg Index Services Limited.

Note: Issuance data for 2022 are through June 30.

Structured Finance

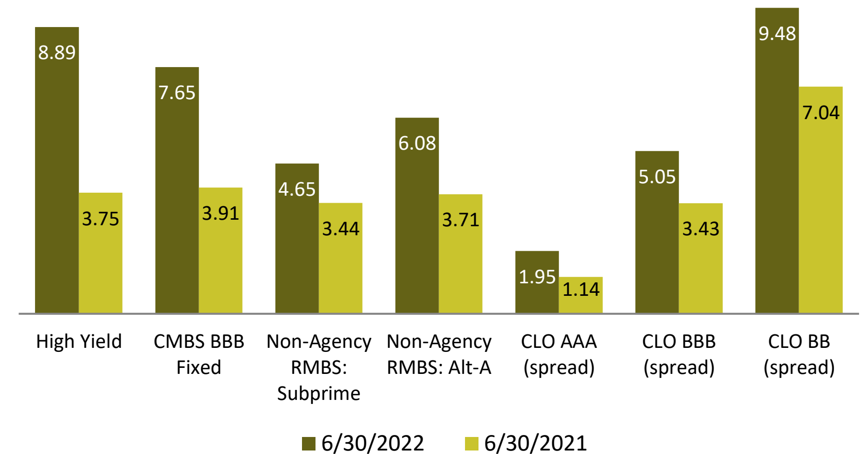
Facts & Figures Second Quarter 2022

The structured credit markets are sizable and include a variety of private sector products, such as CLOs, non-Agency RMBS, and CMBS. Together these markets are larger than those for US high yield yet receive less attention due to their complexity.

- Structured credit indexes struggled during first half 2022, in line with broader risk markets. Fundamentals have held up reasonably well, but market concerns are mounting that slowing economic growth and rising rates will take their toll. Meanwhile, technicals have been poor as CLO issuance slows and investor outflows accelerate.
- While first-half 2022 returns were mostly negative, many structured finance instruments are floating rate, and this helped insulate returns against the back up in interest rates. For example, BB-rated CLO debt returned -7.3%, outperforming US HY bonds (-14.2%). Fixed-rate BBB-rated CMBS, which tend to be high duration, declined 9.3%.
- Some structured credit assets are less liquid than corporate equivalents and often require specialized data to analyze. Many also have indefinite maturities given amortizing loan pools. The result is a spread premium to similarly rated corporate debt. For example, BB-rated CLO bonds spreads of 948 bps are more than 2x the equivalent spread on BB-rated corporates.
- Fundamentals for structured credit have rebounded since COVID-related deterioration in 2020. Rating agency upgrades of high-yield bonds now outpace downgrades, and the share of CCC-rated loans in CLO pools has steadily shrunk. Residential property prices are rising strongly, boosted by low rates and increased affordability.
- Certain types of commercial real estate, including retail and hospitality, have been less resilient, but overall delinquency rates for loans in CMBS pools are declining. The flipside is that question marks remain over certain commercial property types, including office, given shifting work patterns post-COVID.
- Investors can access structured credit through a number of vehicles and mandates, including mutual funds, hedge funds, and closed-end funds.

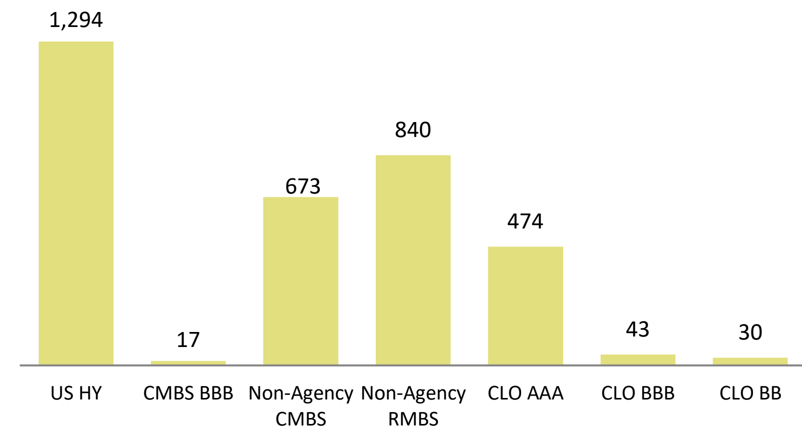
YIELD: SELECT STRUCTURED CREDITS

Percent (%)



MARKET CAP: SELECT STRUCTURED CREDITS

As of Jun 30, 2022 • US$B



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

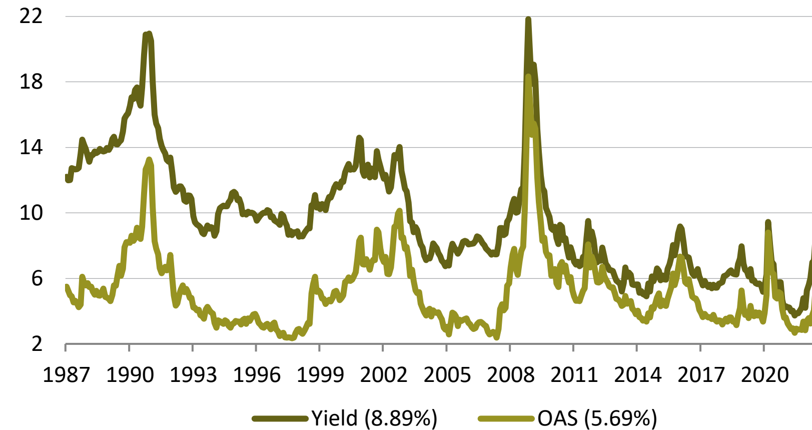
Facts & Figures Second Quarter 2022

US high-yield bonds returned -14.2% during first half 2022, their worst six-month spell since the financial crisis. Spreads now look elevated by historical measures, but the question remains whether fundamentals will hold if economic growth deteriorates further.

- The Bloomberg High-Yield Index returned -14.2% to start 2022, its worst first-half return in over 30 years as fears grew over rising inflation and slowing growth.
- The high-yield index yield has more than doubled since the start of 2022 to 8.9%. One driver has been the rise in underlying Treasury yields to start 2022 as the Fed has hiked its target rate 150 bps and is expected to keep hiking into 2023.
- Spreads have also risen YTD by around 290 bps and the current index spread of 569 bps represents the 68th percentile of observed values. Investors are now demanding higher spreads as default risks may be rising. Looking backward, actual defaults have been contained—the Moody's speculative-grade default rate was just 0.7% at the end of May.
- Credit fundamentals have recovered for high-yield borrowers as economic activity recovers from COVID-related lockdowns. Bank of America reports net leverage for high-yield borrowers fell to 3.7x at the end of Q1, below pre-pandemic levels. Interest coverage is elevated (around 5.5x) but may decline as interest rates rise.
- Despite the softening economic outlook analysts are not predicting a sudden surge in defaults given high coverage ratios. However, the rising distressed ratio (LCD reports over 9% of HY bonds have spreads above 1,000 bps) suggests investors are taking a more cautious stance.
- Technicals have worsened for high-yield bonds, as issuance has plunged and so too has investor demand. Lipper reports outflows from US HY mutual funds hit $42B during first half 2022.
- The average credit rating for the high-yield index has remained roughly stable at around B1. Rating agency upgrades are outnumbering downgrades for credits in the index by more than a 2:1 ratio YTD, a dramatic reversal from the 0.3x ratio in 2020.

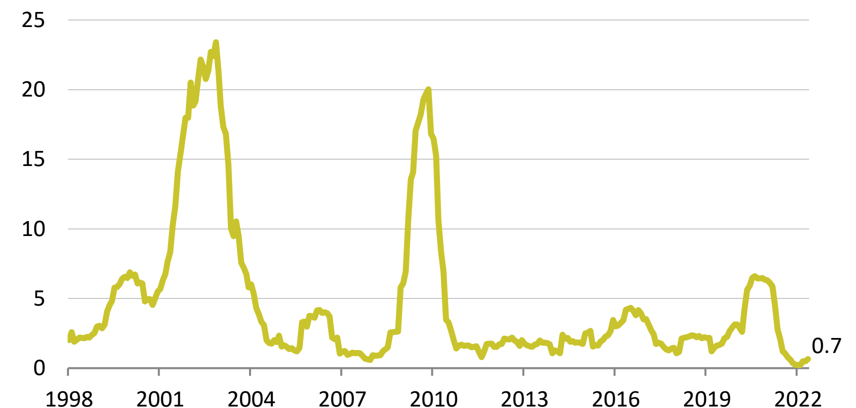
YIELD AND OPTION-ADJUSTED SPREAD: US HIGH-YIELD INDEX

Jan 31, 1987 – Jun 30, 2022 • Percent (%)



PAR DEFAULT RATES: US HIGH-YIELD

Jan 31, 1998 – May 31, 2022 • 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.

Leveraged Loans

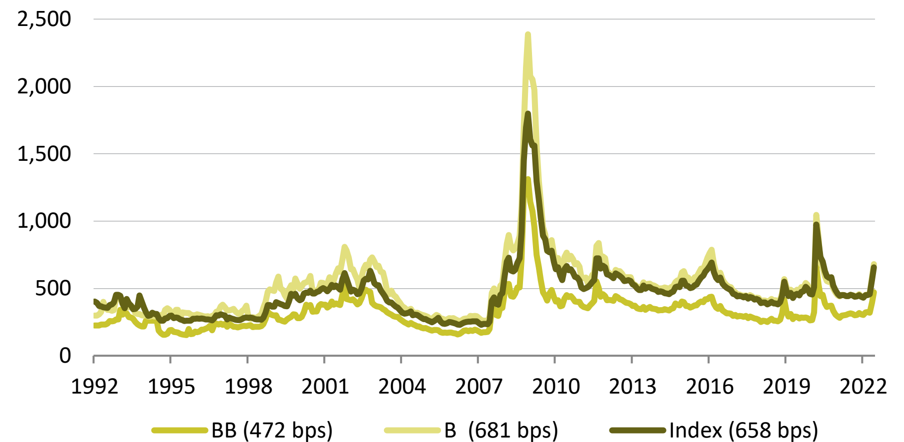
Facts & Figures Second Quarter 2022

US leveraged loans significantly outperformed high-yield bonds during first half 2022, insulated from rising rates by their floating rate coupons. Fundamentals have been improving, but higher rates may begin to challenge metrics like interest coverage ratios.

- Leveraged loans returned -4.4% during 1H 2022, outperforming US high-yield bonds by almost 1,000 bps. Leveraged loans had slightly outperformed US high-yield bonds (5.4% versus 5.3%) in 2021.
- The discount margin for leveraged loans rose over 200 bps during 1H 2022 to 658 bps, which represents the 92nd percentile of observed values. The index DM overall is driven by that for B-rated loans (681 bps) given their high index weight.
- The current discount margin coupled with the three-year SOFR rate (around 2.7%) means the implied current yield to a three-year takeout on leveraged loans is above the yield of high-yield bonds (8.9%).
- According to J.P. Morgan, the trailing default rate for leveraged loans rose to 1.1% at the end of Q2. While economic growth forecasts have been cut, healthy debt service metrics may mean this rate remains subdued in the months ahead. The wildcard is if earnings can keep pace with rising debt service costs as rates back up.
- While defaults have declined, the loan index has lower average credit quality, leaving it more vulnerable to future downturns. According to Credit Suisse, just 39% of the loan index has at least one BB rating, 10 ppts lower than five years ago.
- Recoveries for first lien leveraged loans have dropped below long-term averages and this may persist given around 75% of new issuance comes from loan-only capital structures. Higher leverage levels encouraged by the low levels of rates in recent years and trends in weaker loan documentation mean there is less for creditors when a company eventually defaults.
- Loan technicals have weakened as higher funding costs have reduced CLO issuance and retail fund flows are subdued at $16.5B YTD.

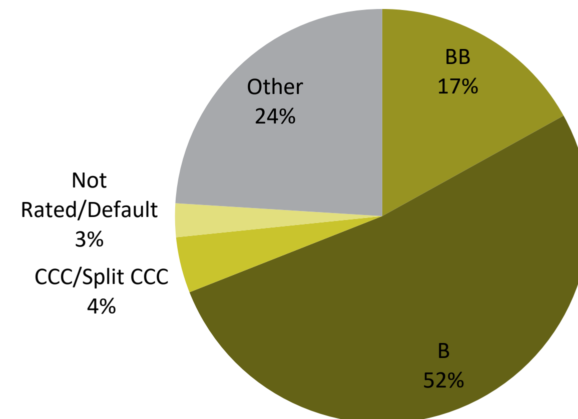
DISCOUNT MARGIN: CS LEVERAGED LOAN INDEX

Jan 31, 1992 – Jun 30, 2022 • Basis Points



RATINGS BREAKDOWN: CS LEVERAGED LOAN INDEX

As of Jun 30, 2022



Source: Credit Suisse.

Notes: Discount margin assumes a three-year life and represents the yield-to-maturity above and beyond the current LIBOR rate, 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

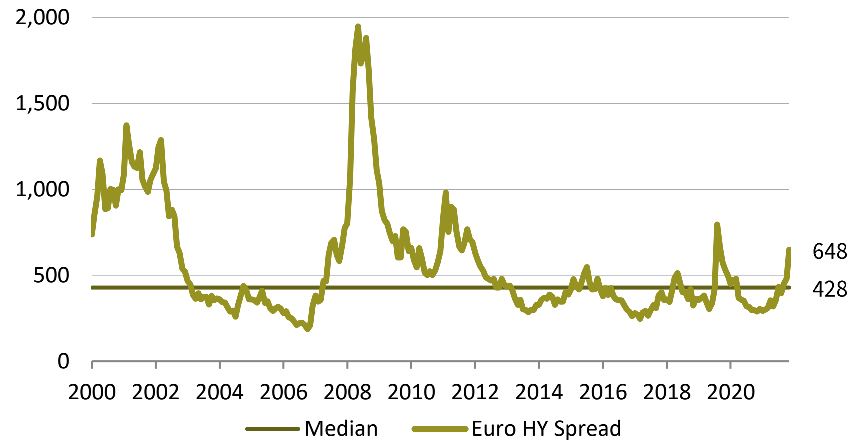
Facts & Figures Second Quarter 2022

European high-yield bonds fell further in Q2 as both spreads and underlying yields rose. The war in Ukraine has added to existing inflationary pressures and prompted concerns over a looming recession.

- The Bloomberg Pan-European High-Yield Index returned -10.7% in Q2, bringing its YTD loss to -14.3%.
- The yield on the index rose almost 300 bps to 8.08% during the quarter, the highest since Covid-related widening in Q1 2020.
- Most of this was driven by an increase in spreads. The index OAS rose around 250 bps during Q2 to 648 bps, which is in the 72nd percentile of observed values. Investors are demanding higher spreads as concern grows over how the war might impact economic growth in Europe, especially if further disruptions to Russian energy exports lead to a recession.
- Rising benchmark sovereign yields also pushed yields higher, as the ECB indicates it will hike in July and September. The Bank of England has already hiked five times in 2022. Central banks have little choice giving soaring inflationary pressures, which have been exacerbated by the war in Ukraine.
- Looking backward, corporate fundamentals had been improving as economic growth and corporate revenues expanded. JPM reports European HY leverage fell to 5.6x EBITDA in Q1 2022 as EBITDA grew 3% quarter-over-quarter. Moody's reports the trailing 12-month default rate was just 0.3% at the end of May, close to 2008 levels. Looking ahead, fundamentals may weaken as companies face growing margin pressures from higher commodity and labor costs.
- Credit globally has been boosted by central bank asset purchases and investors' thirst for income in a low-yield environment. This tailwind is reversing in 2022, with the Fed ending its asset purchases in March and the ECB announcing the Asset Purchase Program will end in Q3.
- 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.

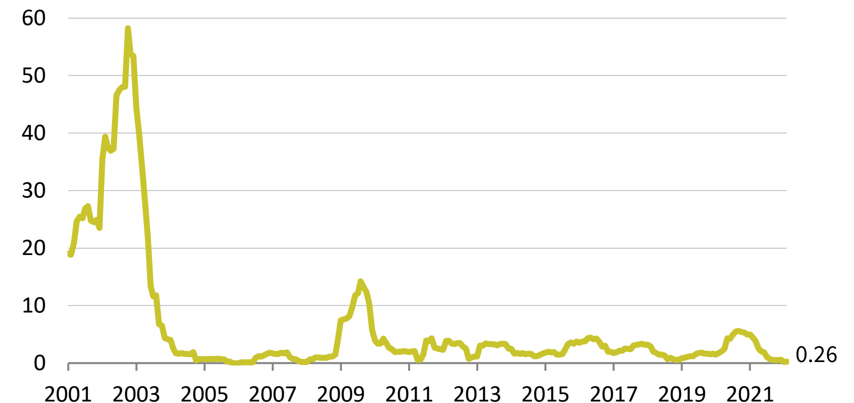
OPTION-ADJUSTED SPREAD: EUROPEAN HIGH YIELD

Aug 31, 2000 – Jun 30, 2022 • Basis Points (bps)



PAR DEFAULT RATES: EUROPEAN HIGH YIELD

Apr 30, 2001 – May 31, 2022 • 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

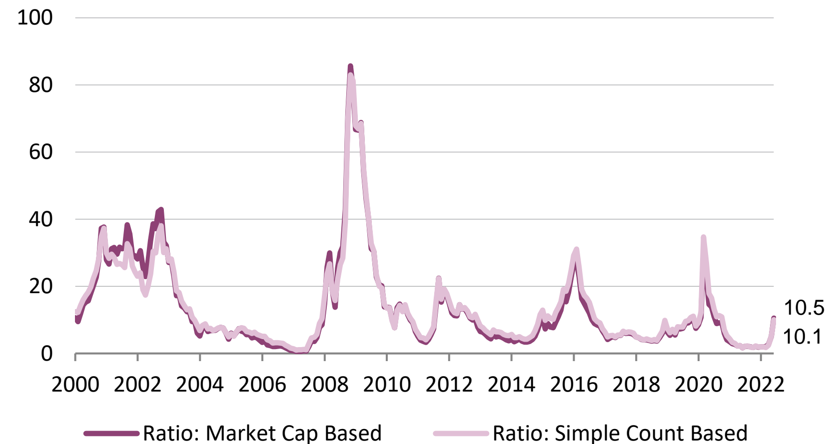
Facts & Figures Second Quarter 2022

Distressed hedge funds generated strong returns in 2021 as the COVID-related downturn was followed by a swift economic rebound. As economic growth softens and corporate stress rises, the growing distressed opportunity set should create additional opportunities for skilled distressed investors.

- The HFRI Event Driven: Distressed/Restructuring Index returned 15.6% in 2021, outperforming the broader fund-of-funds (diversified) index (5.9%). Year-to-date through May 31, distressed hedge funds have roughly broken even, again outperforming the broader fund-of-funds (diversified) HF Index, as well as many other assets.
- Rising markets generated healthy mark to market gains in 2021 but at the expense of a shrinking opportunity set for distressed funds. Things have changed dramatically in 2022, as the distressed ratio (share of HY index with spread above 1,000 bps) has soared in recent weeks and at 11% is above its long-term median of 8%.
- The distressed opportunity set has broadened out with a number of sectors offering significant volumes of higher-spread assets. Nor is the opportunity set concentrated by name, with debt from almost 150 different issuers all trading at distressed prices.
- Metrics like debt/EBITA have declined back down below pre-COVID levels and interest coverages ratios are elevated relative to historical averages. Still, slowing economic growth and rising inflationary pressures will challenge some business models, especially lower-rated credits that are highly levered.
- 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, though dislocations across many markets have faded in recent months.

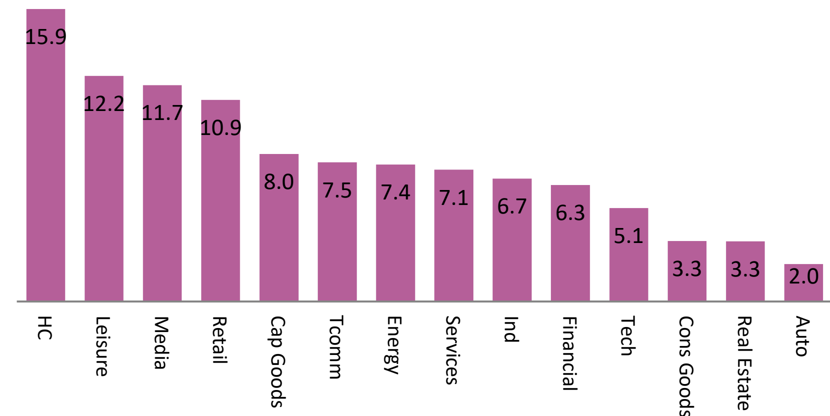
DISTRESSED RATIO: BOFA ML HIGH YIELD MASTER II INDEX

Jan 31, 2000 – Jun 30, 2022 • Percent (%)



MARKET VALUE OF DISTRESSED PAPER FOR SELECT INDUSTRIES

As of Jun 30, 2022 • 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

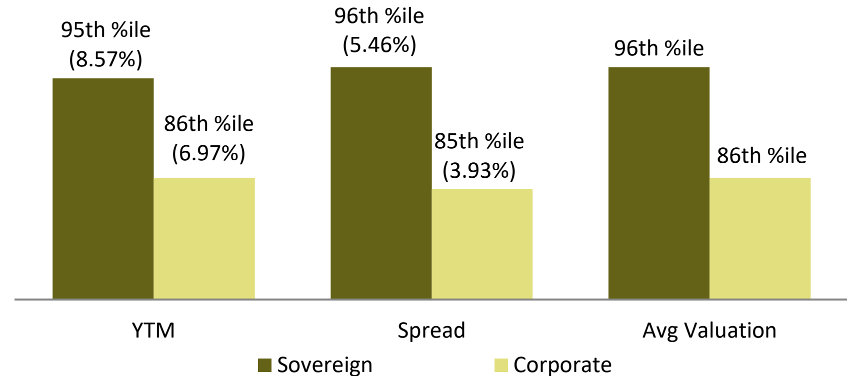
Facts & Figures Second Quarter 2022

EM debt indexes fell further in 2Q, with the JPM EMBI Global Diversified and (corporate) CEMBI Broad Diversified indexes returning -11.4% and -5.6%, respectively. Central bank tightening, the Russian invasion of Ukraine, and rising default risk all have taken a toll.

- Steep Q2 losses mean the (sovereign) JPM EMBI Global Diversified and (corporate) CEMBI Broad Diversified indexes returned -20.3% and -13.9%, respectively during 1H 2022. Returns have been hurt both by rising benchmark yields and spreads.
- Yields rose around 350 bps and 250 bps, respectively, for sovereign and corporate bonds during 1H 2022. EM debt yields were pushed higher by the underlying move in Treasury yields, which have risen as growth and inflation forced the Fed to hiked its target rate by 150 bps during the first half and signal another 150 bps–175 bps of hikes could be in store for the remainder of 2022.
- Treasury yields have also risen as the Fed's asset purchases have come to a halt and it has begun letting its balance sheet wind down.
- Spreads on EM sovereign debt have moved wider in recent months to the 96th percentile. Corporate spreads have also risen and are at their 85th percentile.
- While spreads look elevated from a historical perspective, events in 2022 highlight some of the unique risk factors for the asset class. In February, Russia invaded Ukraine, and EM index providers responded to the uninvestible nature of Russian assets by eliminating them from many indexes. The benchmark JPM EMBI GD Index saw its 3% weight for Russian bonds written down to zero, while debt from Ukraine and surrounding countries also plunged.
- More broadly, EM debt index stats disguise wide variation in underlying fiscal health across borrowers. For example, the main EM sovereign index includes a number of CCC/CC-rated borrowers (Argentina, Ukraine, Sri Lanka, etc.) whose optically cheap debt will only prove attractive if coupons and principal payments are made in a timely fashion.
- About 50% of the EM sovereign index has an investment-grade rating, and the percentage is similar for EM corporates.

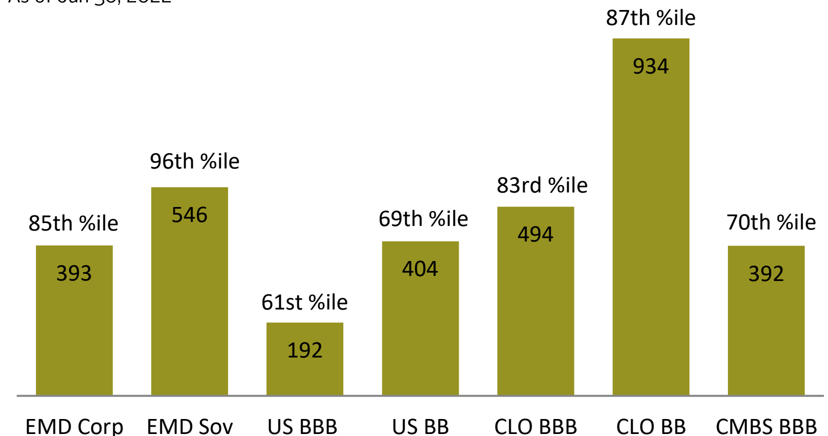
PERCENTILE RANK: USD EM DEBT

As of Jun 30, 2022 (Based on Post-2003 Data)



PERCENTILE RANK: OPTION-ADJUSTED SPREAD

As of Jun 30, 2022



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

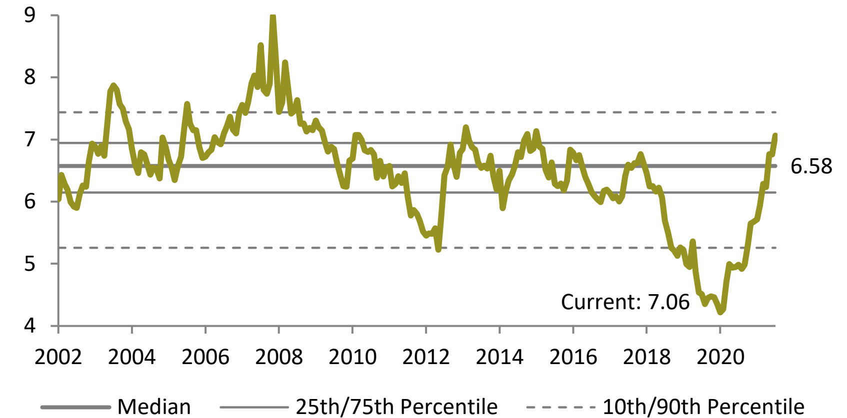
Facts & Figures Second Quarter 2022

After a weak 1Q there was no let up on the performance pressure on LC EM debt as the index declined 2.3% in LC terms and 8.6% in USD terms during 2Q 2022. This brings YTD performance to -9.9% in LC terms and -14.5% in USD terms. The asset class has faced several headwinds recently including slowing global growth, rising domestic inflation, and rising DM bond yields.

- In 2Q, EM local currency bond yields continued their near straight-line ascent that has been ongoing since they bottoming at the end of 2020. Firstly, inflationary pressures have been rising in quite a few emerging markets, with domestic central banks hiking to contain the rise in prices. The acceleration in food and energy prices was particularly painful as these categories have a greater weight in EM CPI baskets. Despite domestic monetary policy having a limited impact on food and energy prices, EM central banks tend to have to overtly demonstrate their inflation-fighting credentials regardless.
- Secondly, with inflation proving persistent in developed markets, core government bond yields have also continued to move higher, most significantly those of US Treasuries. This has lessened the relative attractiveness of EM local bonds yields at their prior levels. Flows have left the asset class as a result, adding to the upward pressure on yields.
- Finally, EM currencies remain sensitive to global growth given the importance of exports, both manufacturing and commodities, to the grouping. Therefore, the continued impairment of trade and global supply chains has been a headwind. This currency weakness has both exacerbated domestic inflationary pressures, as well as adding to outflows given the impact on USD returns.
- EM-LC bond yields are at their 78th percentile, having risen by over 2.8 ppts from their year-end 2020 lows. More value is opening up as yields stand 48 bps above their median and investors wonder whether sufficient tightening has been priced in to quell inflation. EM currencies are likely to remain the larger driver of returns for unhedged investors. In that regard the asset class remains modestly valued, with the valuation of EM fixed-income-weighted currencies standing at the 5th percentile. The level of dispersion between the underlying countries, particularly as rate hiking cycles mature, suggests there are opportunities for active managers with broad mandates to add value.

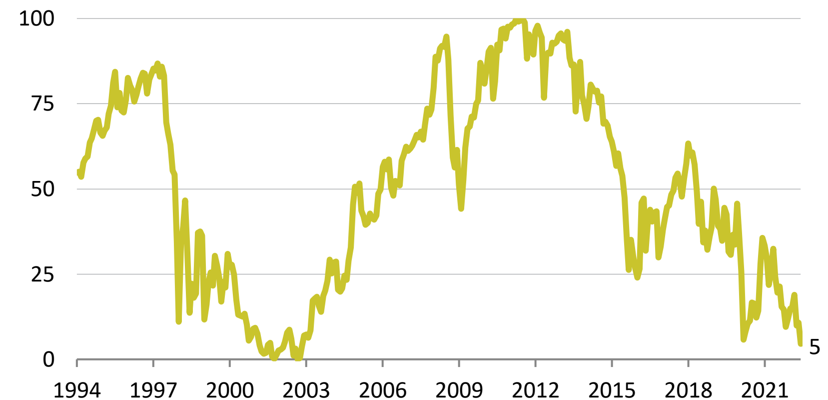
NOMINAL YIELD: JPM GBI-EM GLOBAL DIVERSIFIED INDEX

Dec 31, 2002 – Jun 30, 2022



FI-WEIGHTED EM REAL EXCHANGE RATE VS US: PERCENTILE

Jan 31, 1994 – Jun 30, 2022



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

C|A CAMBRIDGE ASSOCIATES

US Private Equity

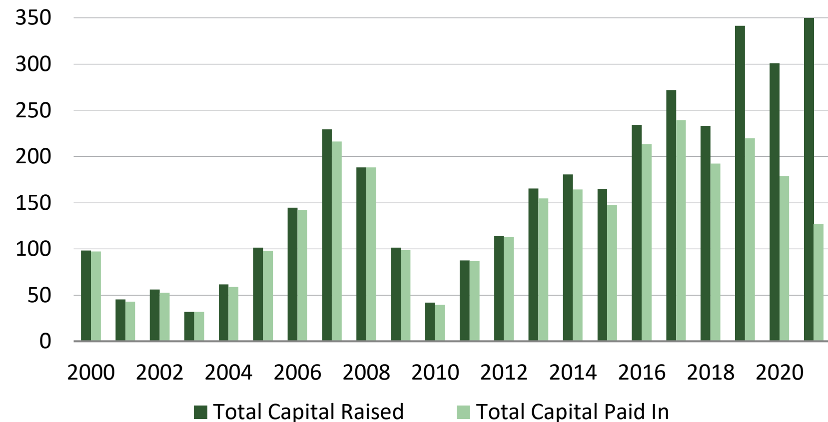
Facts & Figures Second Quarter 2022

US private equity returned 28.8% over the last three-year period and 18.5% over the last ten-year period, according to the Cambridge Associates US Private Equity Index as of December 31, 2021. Those strong horizon internal rates of return, which are net of fees, expenses, and carried interest, were supported by increased demand for these investments and highly accommodative Fed policies. These two factors contributed to an environment of high valuations.

- US PE funds raised a record amount of capital in 2021, according to PitchBook. The $350B raised eclipsed 2019's haul ($342B) and was raised across nearly 600 funds, meaning the average fund size was $590M. Among all private equity funds globally, US PE funds secured 70% of all capital raised in 2021. That fundraising share is the highest since 2002, and it is materially higher than US's share across the decade ending in 2020 (59%).
- Deal activity was robust in 2021. According to PitchBook, cumulative deal value reached a record at more than $1.2 trillion, which was almost 65% above the prior high in 2019. Business products & services and information technology accounted for roughly half of deal volume in 2021, roughly on par with historical averages, while healthcare's share hit a new max. Deal activity in 1H 2022 has slowed from last year's pace but remains on track for another strong year.
- Purchase price multiples (PPMs) for all transactions have climbed steadily since 2009, hitting a new high of 12.1X in 2021. Leverage multiples have held steady since 2017 and reached 5.9X EBITDA last year. Average equity contributions for large company transactions have increased in recent years, reaching nearly 47% in 2021 versus their longer-term average of around 36%.
- Exit activity also soared last year. M&A remains the most common exit route and doubled in both deal number and value in 2021. There was also a discernible uptick in the number and value of IPO exits in recent years. According to Dealogic, the value of exits via IPO in 2021 was more than 4x that in 2018, resulting in a CAGR of 63%.

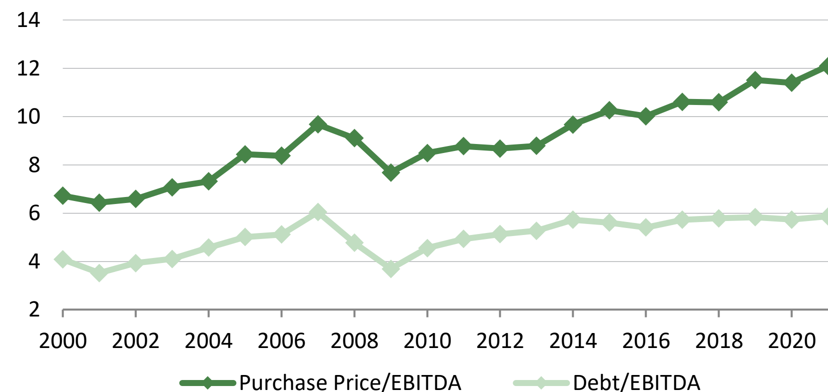
FUNDRAISING AND PAID-IN CAPITAL: US PE

Vintage Years 2000–21 (Dec 31) • US$B



AVERAGE PURCHASE PRICE AND DEBT MULTIPLES: US PE

2000–21 (Dec 31)



Sources: Cambridge Associates LLC, PitchBook, and Standard & Poor's LCD.

US Venture Capital

Facts & Figures Second Quarter 2022

US venture capital returned 41.2% over the last three-year period and 20.8% over the last ten-year period, according to the Cambridge Associates US Venture Capital Index as of December 31, 2021. Those strong horizon internal rates of return, which are net of fees, expenses, and carried interest, were supported by increased demand for these tech-heavy investments and highly accommodative Fed policies. These two factors contributed to an environment of high valuations.

- US venture capital funds raised a record amount of capital in 2021, according to PitchBook. The $139B raised far surpassed 2020's haul of $85B, which was the highest annual amount raised before this past year. Raised over nearly 1000 funds, the average capital raise climbed to $140M from roughly $100M in 2020. Among all venture capital funds globally, US funds secured 55% of all capital raised in 2021. That fundraising share is the highest since 2009, and it is materially higher than US's share across the decade ending in 2020 (38%).

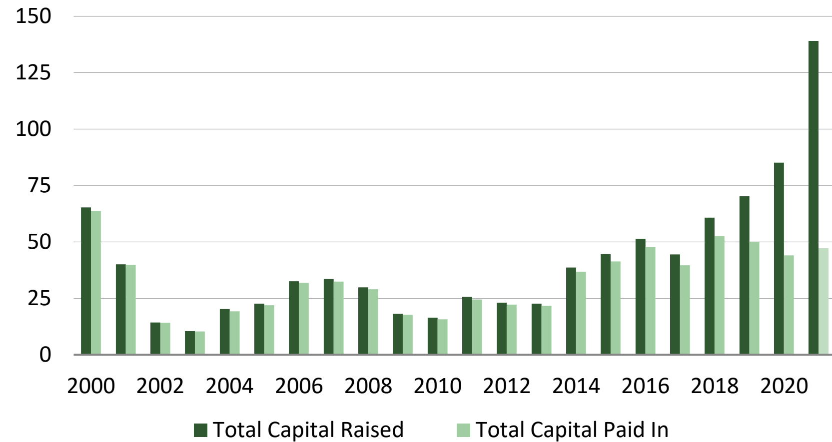
- Deal activity surged to record highs in 2021. According to Pitchbook, US venture capital deal value reached $342B last year, more than double the deal volume of 2020. Software, commercial products & services, and pharma & biotech accounted for nearly two-thirds of deal activity, reaching their highest share since 2013. Deal volume through 1H 2022 is only slightly slower than 2021's pace, with 2022 shaping up to be another strong year of activity.

- US venture valuations continued to rise across funding rounds. The most notable increase has been in the late-stage deals, whose rise from 2020 to 2021 has been meteoric. Median deal sizes also rose to new highs across stages, although late-stage deal sizes have decreased so far in 2022. Technology sector deals have been the primary driver of the upswing in valuations.

- Exit opportunities were plentiful for VC-backed companies. IPOs surged in 2021, and the nearly 300 deals more than doubled the number of public listings in 2020. In addition, IPO exit value nearly tripled to a whopping $670B, compared to a prior ten-year average of roughly $80B per year. Although M&A and buyouts typically dominate by number of deals, they are historically just a fraction of the IPO exit value. Exit activity has dried up in 1H 2022, running at around 10% the pace set last year.

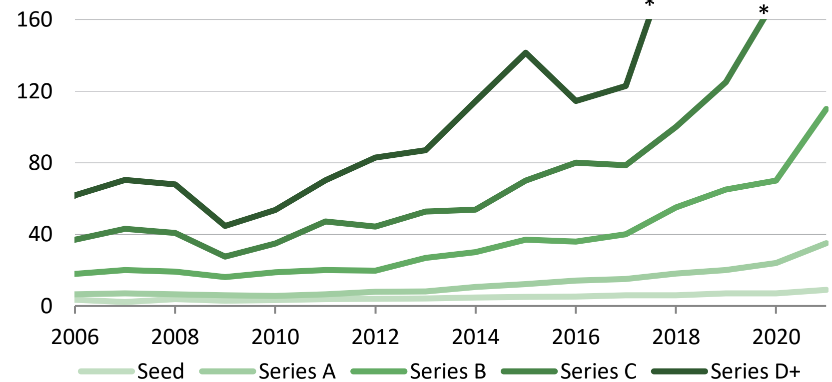
FUNDRAISING AND PAID-IN CAPITAL: US VC

Vintage Years 2000–21 (Dec 31) • U$B



MEDIAN PRE-MONEY VALUATIONS BY SERIES: US VC

2006–21 (Dec 31) • U$M



* Y-axis capped for scale purposes. Latest values for Series C and Series D+ are 300 and 715, respectively.

Sources: Cambridge Associates LLC and PitchBook.

European Private Equity

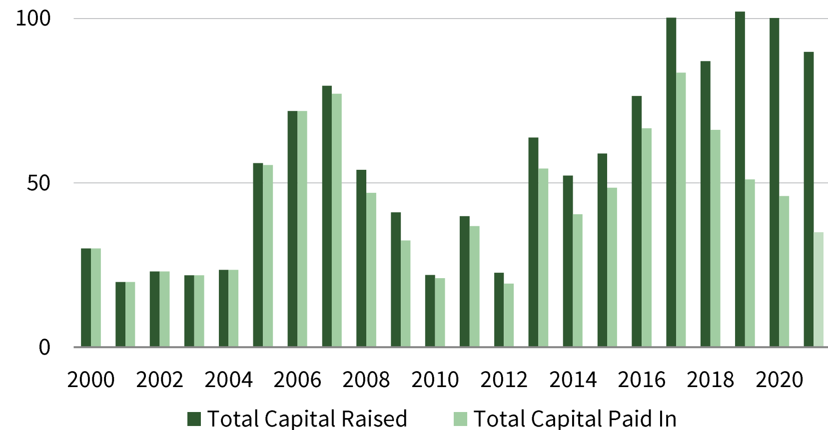
Facts & Figures Second Quarter 2022

European private equity returned 25.4% over the last three-year period and 15.6% over the last ten-year period, according to Cambridge Associates data as of December 31, 2021. Those strong horizon internal rates of return, which are net of fees, expenses, and carried interest, were supported by increased demand for these investments and highly accommodative monetary policies. These two factors contributed to an environment of high valuations.

- European PE funds raised €90B in 2021, which is less than 2019's record haul of €108B, according to Pitchbook. But the amount was raised across just 68 funds, meaning the average fund size was roughly €1.3B. That amount was nearly double the average fund size in 2020. Among all private equity funds globally, European funds secured 21% of all capital raised in 2021, which was less than their share across the decade ending in 2020 (24%).
- Deal activity spiked in 2021. According to PitchBook, the number and value of European PE deals increased by roughly 50% in 2021, with total deal value at around €660B, a new record. Among sectors, business and consumer products & services accounted for around 50% of activity, with information technology comprising about 20% of deal value. Both were in-line with recent trends. Activity in 1Q 2022 was on pace with the pre-2021 environment.
- Purchase price multiples (PPMs) came down in 2021 to 11.5x EBITDA, but have maintained their steady uptrend since 2013. Although PPMs declined, they remained about 1.5 turns above their preceding ten-year average. Leverage multiples have inched up gradually from 2016, moving close to 6x EBITDA in 2020 and 2021, but continue to trail the high reached in 2007. Equity contributions to leveraged buyouts ticked down in 2021 from more than 50% in 2020, but are squarely in-line with trailing ten-year averages.
- Exit activity hit a record in 2021. According to PitchBook, total exit value of €384B exceeded the prior record (2015) by 40%. However, the number of exits did not increase to the same extent, meaning that average exit value also hit a new record. The number and value of IPO listings surged, with the total value (€112B) in 2021 roughly equal to the prior four years combined. M&A and buyouts made up the lowest share of exits since 2010.

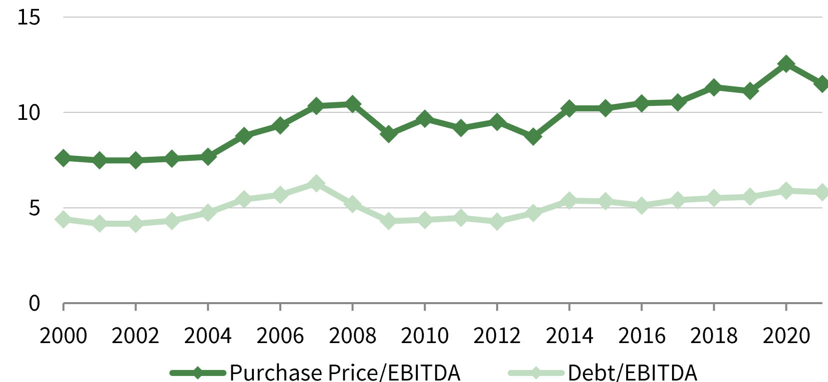
FUNDRAISING AND PAID-IN CAPITAL: EUROPEAN PE

Vintage Years 2000–21 (Dec 31) • Euro (Billions)



AVERAGE PURCHASE PRICE AND DEBT MULTIPLES: EUROPEAN PE

2000–21 (Dec 31)



Sources: Cambridge Associates LLC, PitchBook, and Standard & Poor's LCD.

European Venture Capital

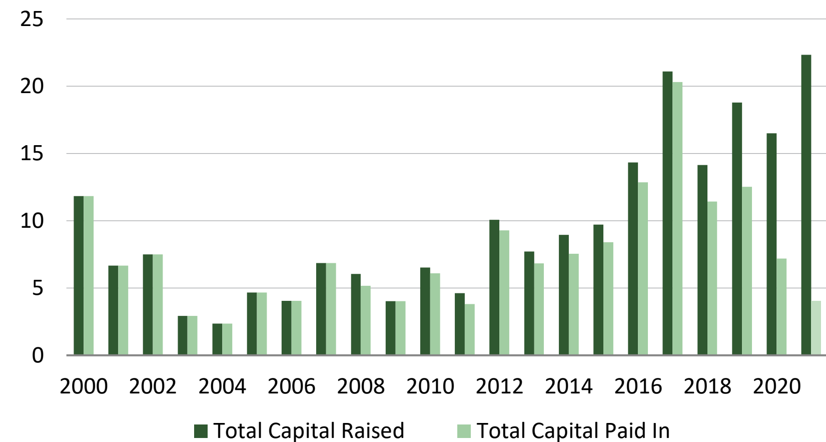
Facts & Figures Second Quarter 2022

European venture capital returned 48.2% over the last three-year period and 23.2% over the last ten-year period, according to the Cambridge Associates data as of December 31, 2021. Those strong horizon internal rates of return, which are net of fees, expenses, and carried interest, were supported by increased demand for these investments and highly accommodative monetary policies. These two factors contributed to an environment of high valuations.

- European VC funds raised a record amount of capital in 2021, according to PitchBook. The €22B raised modestly eclipsed 2017's haul (€21B) and was raised across roughly 230 funds, meaning the average fund size was just under €100M. Among all venture capital funds globally, European funds secured 11% of all capital raised in 2021. That fundraising share is slightly lower than this region's share across the decade ending in 2020 (13%).
- Deal activity surged to record highs in 2021. According to PitchBook, European VC deal value reached €106B last year, more than double that in 2020. Although the number of deals increased, average deal size also hit a fresh record. Software accounted for more than one-third of deal flow. This was a new high and has been trending upwards in recent years.
- Valuations for seed- and early-stage companies have increased gradually since 2012. The increases in median later-stage valuations (Series C and D+) have been more dramatic, however; they jumped by nearly €10M over the past three years. The drivers were some very large financing rounds (evidenced by the difference between the median of €18.0M and the average of €285.6M).
- Exit activity went stratospheric in 2021, with total exit value (€125B) coming in more than 5x that of the trailing five-year average (€23B.) Average exit value also surged to near 3x the five-year average. IPO activity was exceptional and drove much of the overall increase. IPO exits hit almost €100 in value, a 10-fold increase over 2020, and accounted for 80% of all exit deal value. For context, IPOs made up only 10% of exit value, on average, over the past five years.

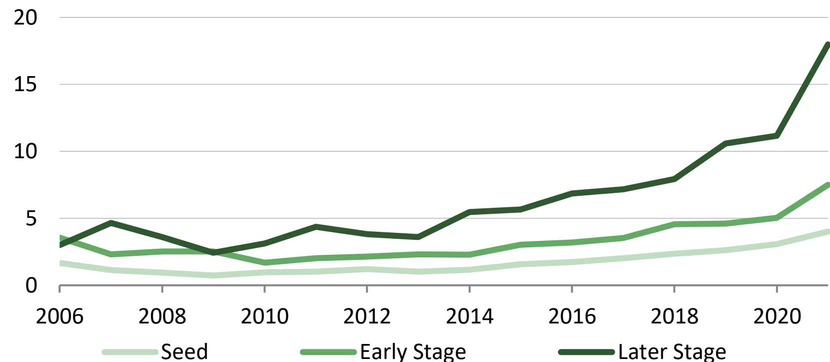
FUNDRAISING AND PAID-IN CAPITAL: EUROPEAN VC

Vintage Years 2000–21 (Dec 31) • Euro (Billions)



MEDIAN PRE-MONEY VALUATIONS BY STAGE: EUROPEAN VC

2006–21 (Dec 31) • 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.

Asian Private Equity

Facts & Figures Second Quarter 2022

Asian private equity returned 16.4% over the last three-year period and 12.7% over the last ten-year period, according to the Cambridge Associates data as of December 31, 2021. Those strong horizon internal rates of return, which are net of fees, expenses, and carried interest, were supported by increased demand for these investments and highly accommodative monetary policies. These two factors contributed to an environment of high valuations.

- Asian PE funds raised $41B of capital in 2021, according to Pitchbook. This was less than the roughly $80B raised in 2014, 2018, and 2019. But last year's amount was raised among a small number of funds (74), meaning the average fund size in 2021 ($550M) was higher than many recent years. Among all private equity funds globally, Asian PE funds secured 8% of all capital raised in 2021. That fundraising share is half of the region's global share across the decade ending in 2020 (16%).

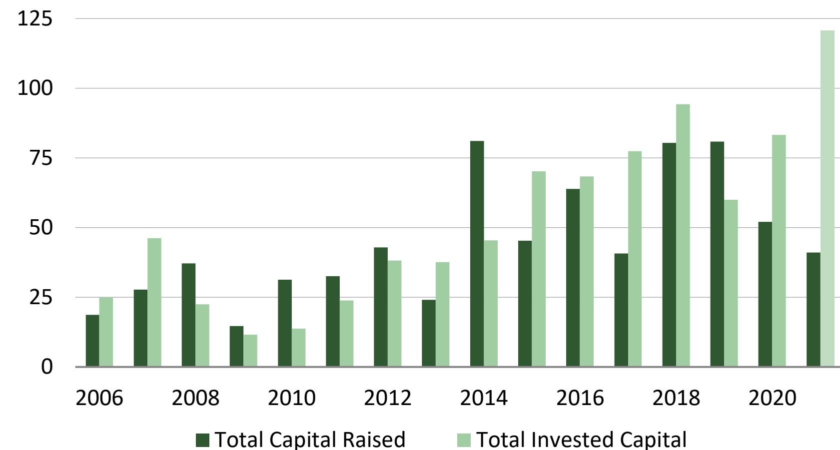
- Deal activity accelerated to a record in 2021, according to Pitchbook. Capital invested in buyout and growth equity deals in the region reached $121B, up almost 50% from 2020. Chinese-based targets accounted for nearly half of deal activity in 2021, followed by India, Hong Kong, and South Korea. Among sectors, more than 40% of deals were in the business and consumer products & services space, whereas activity slowed for information technology. Activity in 1H 2022 has slowed, but still suggests a healthy deal environment.

- Buyout strategies are more prevalent than growth 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 was robust in 2021. According to Dealogic, M&A exit value increased nearly five-fold last year to $115B, a new high. Although the number of M&A deals also increased, average exit value nearly tripled. While M&A has been the typical exit path for PE-backed companies in Asia, the number and value ($19B) of IPO exits also doubled in 2021.

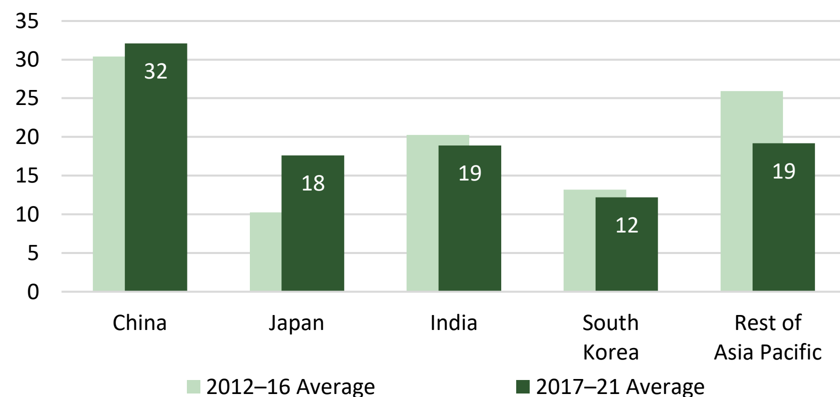
FUNDRAISING AND INVESTED CAPITAL: ASIA PE

2006–21 (Dec 31) • US$B



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

As of December 31, 2021



Source: PitchBook.

Note: 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.

Asian Venture Capital

Facts & Figures Second Quarter 2022

Asian venture capital returned 23.5% over the last three-year period and 22.1% over the last ten-year period, according to the Cambridge Associates data as of December 31, 2021. Those strong horizon internal rates of return, which are net of fees, expenses, and carried interest, were supported by increased demand for these investments and highly accommodative monetary policies. These two factors contributed to an environment of high valuations.

- Asian VC funds raised $77B in 2021, which was less than 2019's record haul of $116B, according to Pitchbook. Last year's amount was raised across roughly 600 funds, meaning, the average fund size was $130M. Among all venture capital funds globally, Asian funds secured 31% of all capital raised in 2021. That fundraising share is lower than the region's share across the decade ending in 2020 (43%).

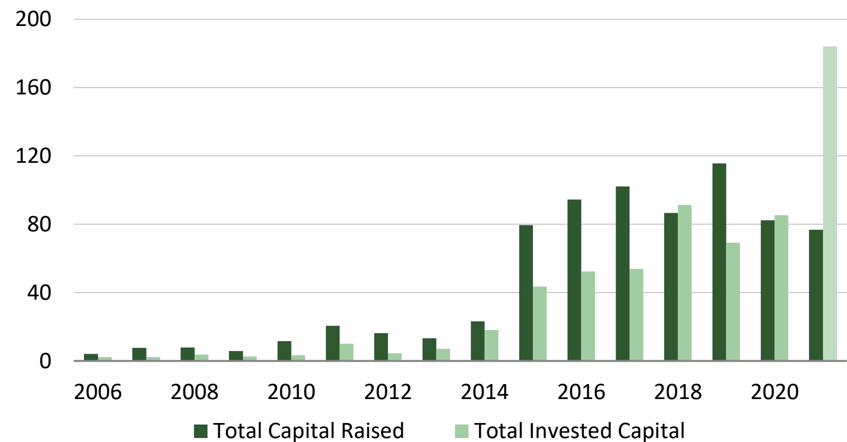
- Deal activity soared in 2021. Global investors allocated a record $206B to Asia-based venture companies, surpassing the prior high of $150B invested in 2018. Asian VC managers themselves invested $184B, which was double the deal pace in 2018. Chinese-based companies received almost 60% of the invested capital last year, followed by India and Korea. Information technology accounted for roughly one-third of deal activity. Although VC in Asia has expanded beyond China, it has remained the largest country constituent in the industry. Overall activity in 1H 2022 ran below the pace set in 2021 but still suggests a healthy deal environment.

- As with other regions, median pre-money valuations for Asian VC companies have risen substantially over the past five years, most dramatically in the later stages. Three sectors—consumer, healthcare, and IT—have historically dominated the Asia VC landscape and valuations across all sectors remain high.

- Exit activity spiked in 2021 for Asian venture capital. According to Pitchbook, total exit value more than doubled to $105B last year. The rate of IPO increases roughly matched the total, whereas M&A and buyout activity was up four-fold. Despite this, IPOs still accounted for about two-thirds of all exit value. Average exit value increased across exit types, hitting a new high in the IPO space.

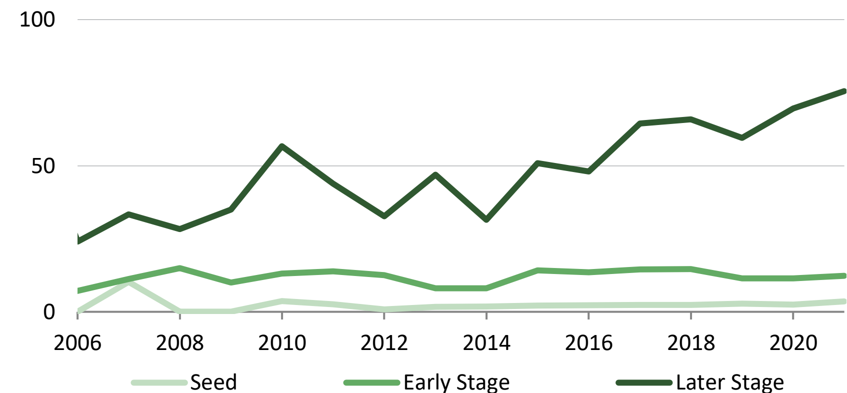
FUNDRAISING AND INVESTED CAPITAL: ASIA VC

2006–21 (Dec 31) • U$B



MEDIAN PRE-MONEY VALUATIONS BY STAGE: ASIA VC

2006–21 (Dec 31) • U$M



Source: PitchBook.

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

REAL ASSETS

CAMBRIDGE ASSOCIATES

Developed Markets Property Securities

Facts & Figures Second Quarter 2022

DM property securities returned -17.2% in 2Q and -12.7% since 2Q 2021, in USD terms. The asset class's poor performance is consistent with the performance of the broader equity market, which has struggled amid a mix of challenges including elevated inflation, higher interest rates, and the war in Ukraine. Property has also had to confront changes with consumer and business behaviors resulting from the pandemic.

- DM property securities trade at 16.1x normalized funds from operations. While that multiple is higher than 67% of historical data going back to 1990, property securities offer a reasonable yield, particularly when compared to government bonds. In fact, the current spread between the yields on property securities and global government bonds is about 240 bps, which is above the long-term median (roughly 180 bps).

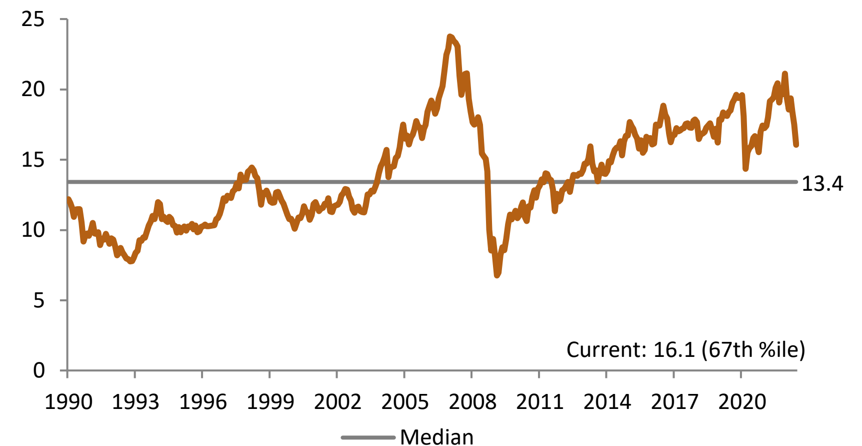
- The global economy is expected to grow by 3.2% in 2022, according to analysts surveyed by Bloomberg in July. This forecast is lower than what analysts expected in January (4.4%), likely given uncertainties related to the war in Ukraine and changes in monetary policy expectations. Growth expectations for 2022 are highest for China (4.1%), followed by the UK (3.4%), euro area (2.7%), US (2.4%), and Japan (1.7%), among major markets.

- A key concern for property investors is the pandemic's long-term impact on consumer and business preferences. For instance, while operating profit figures of DM property securities at the end of 2021 are roughly the same as at the end of 2019 (27%), hotels (-37%), offices (-15%), and retail (-5%) are down over the two-year period. Industrials (147%), diversified properties (48%), and healthcare (29%) have seen their profits expand.

- 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 roughly 26.9% at the end of 2021 relative to the 30.2% average since the beginning of 2010. The current level of leverage is near a low over the last two decades and reflects more discipline in capital markets.

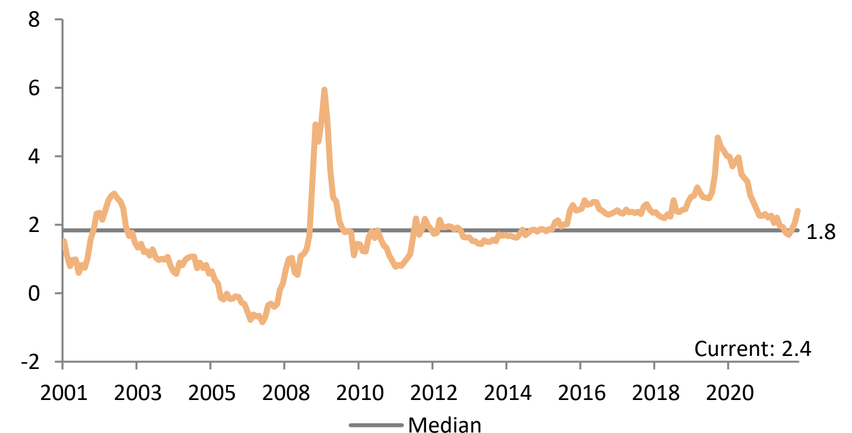
NORMALIZED PRICE-TO–FUNDS FROM OPERATIONS MULTIPLE

Jan 31, 1990 – Jun 30, 2022



SPREAD BETWEEN DY AND GLOBAL GOVT BONDS

Oct 31, 2001 – Jun 30, 2022



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

Natural Resources Equities

Facts & Figures Second Quarter 2022

Natural resources equities returned -8.2% in 2Q and 24.7% since the end of 2Q 2021, according to the MSCI World Natural Resources Index in local currency terms. The strong trailing 12-month performance was driven in part by the rise in oil & gas prices. The increase in energy commodity prices coincided with supply disruptions linked to the pandemic and more recently, the war in Ukraine.

- Natural resources firms trade at 3.5 times cyclically adjusted cash earnings, which ranks in the 77th percentile of month-end observations dating back to 1990. Earnings for these firms contracted considerably in 2020, as the virus weighed on economic activity. But the outlook has improved with the rise in oil and gas prices. In 2Q, the average price of oil on the New York Mercantile Exchange was $109 per barrel, which was the highest level since 2Q 2008.

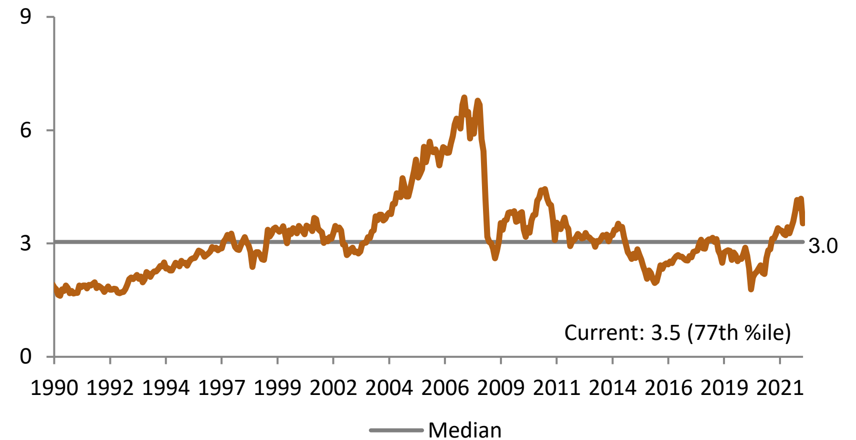
- Low investment levels contributed to last year's rise in oil & gas prices. Prior to 2017, capital expenditures typically amounted to around 8% of assets, but that level led to a severe glut in energy commodities. Since 2017, capital expenditures at an industry level have fallen to under 6%, which has curtailed available supplies. Baker Hughes estimates the number of rotary rigs operating in the world is currently 1,706, which is far lower than the ~3,000 rigs that operated on average between 2010 and 2016.

- The tragic war in Ukraine has upended energy markets. This is most obvious in European natural gas markets, which are under strain from reduced supply from Russia and low inventories and which has sent prices to historically high levels. But it also challenged oil markets. The US government expects Russia's oil production to fall by at least a couple million barrels per day by the end of 2023, as western sanctions challenge Russia's ability to sell. To help offset these challenges, OPEC and its partner countries agreed in early June to increase its oil production by a faster pace than anticipated.

- A key consideration for investors is the extent that renewable energy could undercut future hydrocarbon demand. Some long-term energy analyses, such as the US Energy Information Administration's 2020 Annual Energy Outlook reference case, highlight that oil and natural gas may continue to be the largest global energy sources 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.

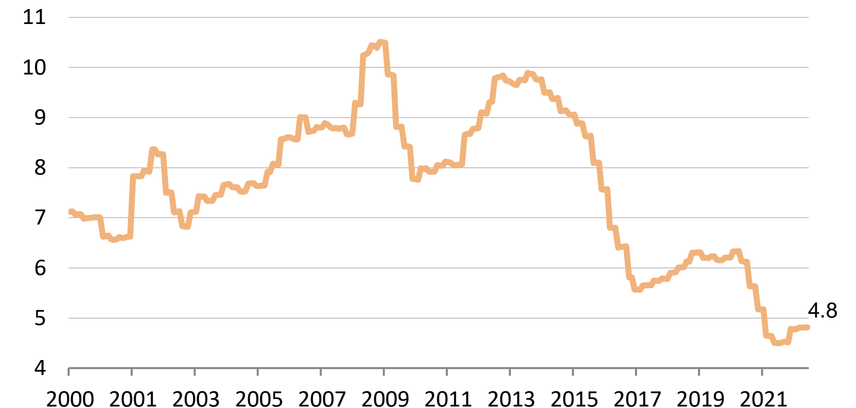
CYCLICALLY ADJUSTED PRICE-TO-CASH EARNINGS

Jan 31, 1990 – Jun 30, 2022



CAPITAL EXPENDITURES

Jan 31, 2000 – Jun 30, 2022 • 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 may revise.

Commodity Futures

Facts & Figures Second Quarter 2022

The Bloomberg Commodity Index returned -5.7% in 2Q and 24.3% since 2Q 2021, in USD terms. The strong performance this past year was driven by energy (66.6%) and agriculture commodities (18.9%), both of which have been impacted by the war in Ukraine. The war and the sanctions placed on Russia for its role in it have further backwardated many commodities, indicating market participants are concerned about future supplies.

- Commodity spot prices are currently 0.8 standard deviations above the ten-year inflation-adjusted mean, using the constituents and weights associated with the Bloomberg Commodity Index. Among commodities, including those that are not part of the broad index, soybean oil (1.8), coffee (1.7), and heating oil (1.6) currently have prices that are the biggest outliers relative to their recent histories. These prices, and all prices, reflect demand and supply issues unique to those markets.

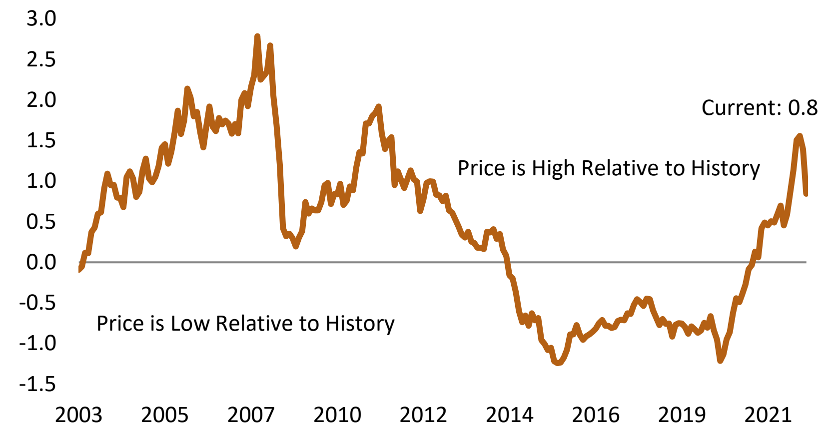
- The global economy is expected to grow by 3.2% in 2022, according to analysts surveyed by Bloomberg in July. This forecast is lower than what analysts expected in January (4.4%), likely given uncertainties related to the war in Ukraine and changes in monetary policy expectations. Growth expectations for 2022 are highest for China (4.1%), followed by the UK (3.4%), US (3.2%), euro area (2.7%), and Japan (1.7%), among major markets.

- 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. For many years, the roll return detracted from commodity index returns. This was because many markets were in contango, meaning near-dated contracts were cheaper than contracts dated further out. But this is not the case at present. The aggregate market is now in backwardation.

- 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.

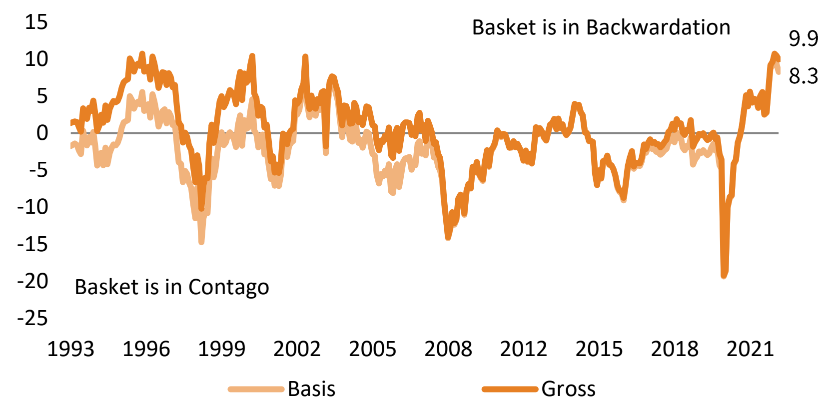
COMMODITY FUTURES BASKET PRICE DEVIATION

Jun 30, 2003 – Jun 30, 2022 • Z-Score



COMMODITY FUTURES BASKET INDICATIVE ROLL YIELD

Jul 31, 1993 – Jun 30, 2022 • 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

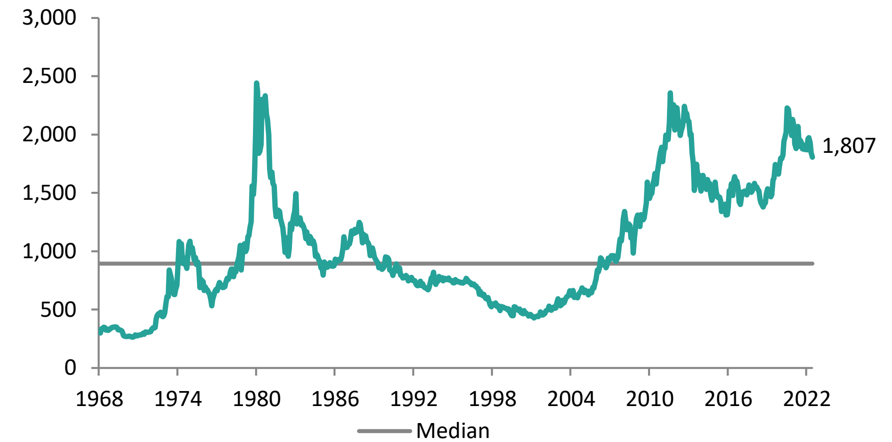
Facts & Figures Second Quarter 2022

The price of gold fell 6.9% in 2Q, ending at $1,807/troy ounce. Gold's recent underperformance has been somewhat surprising given mounting recession fears and rampant global inflation. But as global central banks have hiked interest rates to combat inflation, real yields have climbed, pressuring gold prices. Moreover, the US dollar has surged to its highest levels on a trade weighted basis in nearly 20 years. The real gold price is 23% below its 2011 peak and 102% above its long-term median of $894/troy ounce dating back to 1968, not long before US President Nixon suspended dollar convertibility into gold.

- The dynamics between rates, inflation, and economic growth will play a key role in determining the future path of gold prices. Gold is often seen as an inflation and currency debasement hedge and could be a top performer in an environment of runaway inflation (i.e., a scenario where central bankers are unable to tame inflation through rate hikes and the dollar depreciates). Furthermore, if the global economy enters a period stagflation—slowing economic growth and high inflation—gold could shine, as it did during similar circumstances in the 1970s.
- Real yields have a negative relationship with gold prices. Higher interest rates raise the opportunity cost of holding gold versus interest-bearing assets. Recently, central banks have turned more hawkish amid deepening inflation concerns, embarking on rate hike cycles and signaling more aggressive tapering of asset purchase programs. Gold has historically reacted negatively to signs of tapering, as was the case during the "taper tantrum" of 2013.
- 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.
- 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.

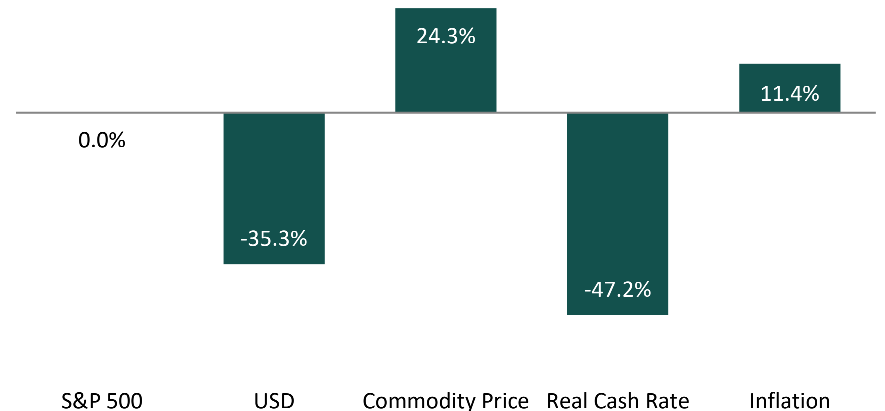
GOLD BULLION REAL PRICE

Jan 31, 1968 – Jun 30, 2022 • US Dollars per Troy Oz



LONG-TERM CORRELATION VS GOLD PRICES

Dec 31, 1970 – Jun 30, 2022



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 as of May 31, 2022.

US Private Property

Facts & Figures Second Quarter 2022

US property returned 9.6% annually over the last three-year period at the asset level, according to NCREIF Property Index data as of 1Q. That return masks considerable sector dispersion, with industrial properties returning 25.1% annually over the same three-year period and retail returning -0.4%. Part of that dispersion reflects the pandemic's impact on the consumer, which hastened the long-standing shift away from some brick-and-mortar retail to online.

- Capitalization rates, or cap rates, have steadily fallen since the end of the GFC and are now at low levels relative to history. Across sectors, cap rates are lowest within apartments (3.7%) and industrial (3.8%) and highest within office (4.7%) and retail (5.2%). The recent rise in US rates and the expectation for tighter monetary policy could put pressure on property markets in the coming quarters.

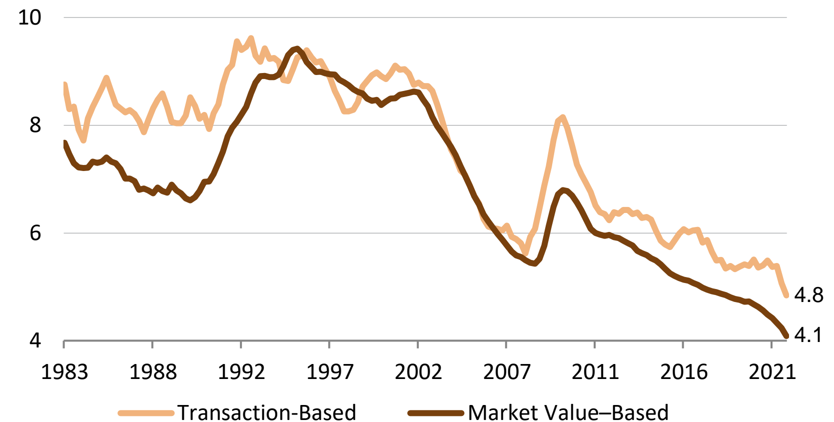
- Net operating income (NOI) at an aggregate level increased by 10.5% in the last four quarters, helped by the rebound in economic activity following the pandemic-linked downturn last year. While retail (16%) experienced substantial growth, it lost far more ground during the pandemic than other sectors. In contrast, industrial sector NOI didn't exhibit turmoil and has grown by 12% over the last four quarters. While the office sector has had some modest NOI growth in recent quarters, that sector has seen the largest increase in vacancy rates, rising from 9.8% at the end of 2019 to 12.9 in the first quarter.

- The global economy is expected to grow by 3.2% in 2022, according to analysts surveyed by Bloomberg in July. This forecast is slightly lower than what analysts expected in January (4.3%), likely given uncertainties related to the war in Ukraine and changes in monetary policy expectations. Growth expectations for 2022 are highest for China (4.1%), followed by the UK (3.4%), euro area (2.7%), US (2.4) and Japan (1.7%), among major markets.

- 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. As of 1Q, commercial construction accounted for roughly 1.1% of GDP, slightly higher than the average level since 2000 (1.0%). Within sectors, higher-than-normal levels of construction are occurring in industrial, with retail experiencing a lower-than-normal level of construction.

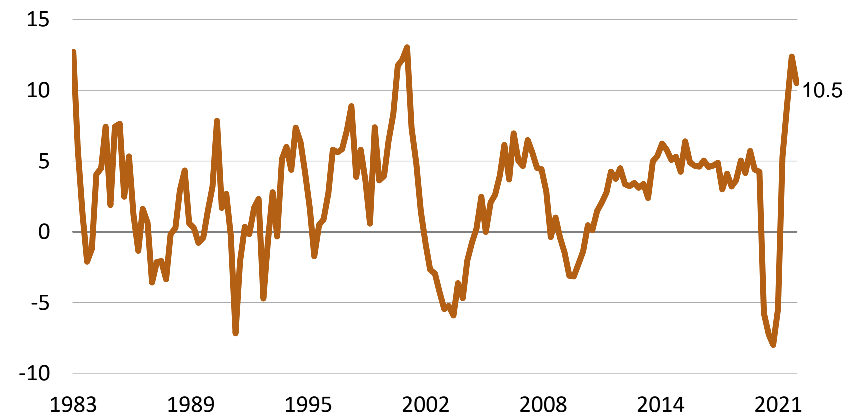
ALL PROPERTY CAP RATES

Second Quarter 1983 – First Quarter 2022 • Percent (%)



FOUR-QUARTER ROLLING NOI GROWTH

First Quarter 1983 – First Quarter 2022 • Percent (%)



Source: National Council of Real Estate Investment Fiduciaries.

UK Private Property

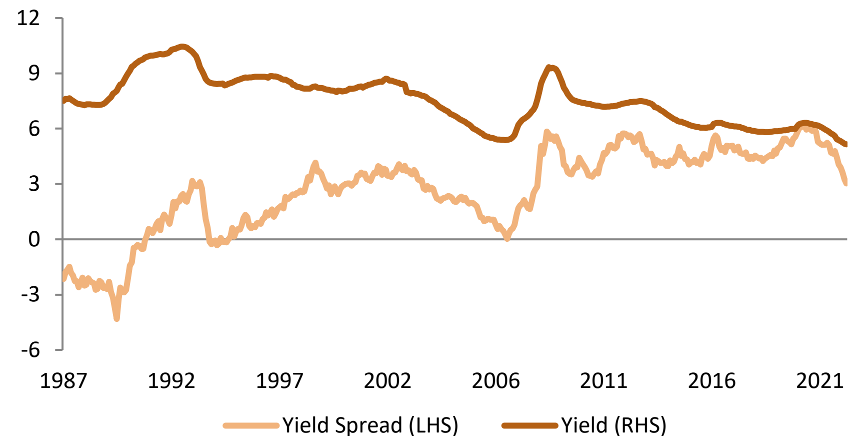
Facts & Figures Second Quarter 2022

UK private property returned 6.5% annually over the last three-year period at the asset level, according to the unlevered MSCI UK Quarterly Property Index as of 1Q in GBP terms. The performance was driven by strong industrial property performance over the period (17.0%) and stable city office performance (2.4%). Retail properties, which have long been a drag on performance, eked out a positive performance of the period (1.9%).

- Yields across all UK investment properties ticked down from 6.2% at the start of the 2021 to 5.2% at present. The sector benefited from improvements in transaction activity, which increased to 32k in 1Q from 18k in 2Q 2020, according to UK government non-residential transaction data. Notably, the level of transactions is slightly above the ten-year average. Of course, greater economic concerns and higher government yields may mean transaction activity slows in the coming quarters.
- Property yields can be sensitive to changes in government rates. As government rates have increased this year, property's yield spread over those rates has fallen from 4.5 ppts to 3.0. The current spread is lower than the ten-year average (4.8 ppts), which suggests the asset class's attractiveness relative to gilts has decline in recent quarters.
- The global economy is expected to grow by 3.2% in 2022, according to analysts surveyed by Bloomberg in July. This forecast is slightly lower than what analysts expected in January (4.3%), likely given uncertainties related to the war in Ukraine and changes in monetary policy expectations. Growth expectations for 2022 are highest for China (4.1%), followed by the UK (3.4%), euro area (2.7%), US (2.4) and Japan (1.7%), among major markets.
- As of the end of 2021, the UK commercial real estate market is estimated to be roughly $720B, according to MSCI Real Estate. It is the largest market in Europe and is followed by Germany's roughly $650B market. 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.

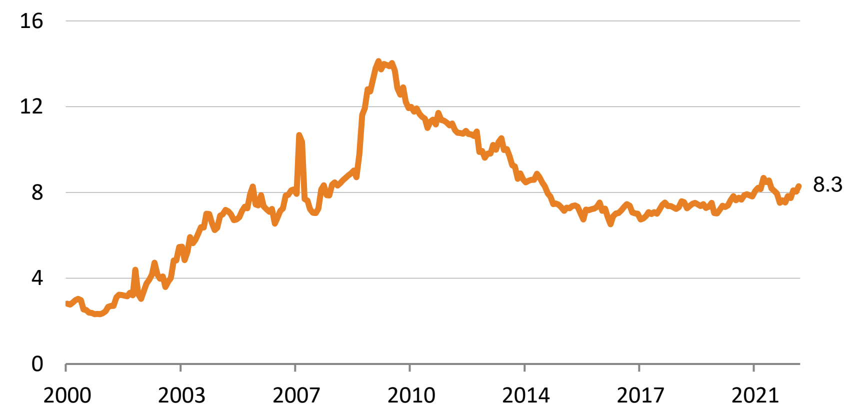
ALL PROPERTY EQUIVALENT YIELDS AND SPREADS

Dec 31, 1987 – May 31, 2022 • Percent (%)



VACANCY RATE

Jan 31, 2000 – May 31, 2022 • 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

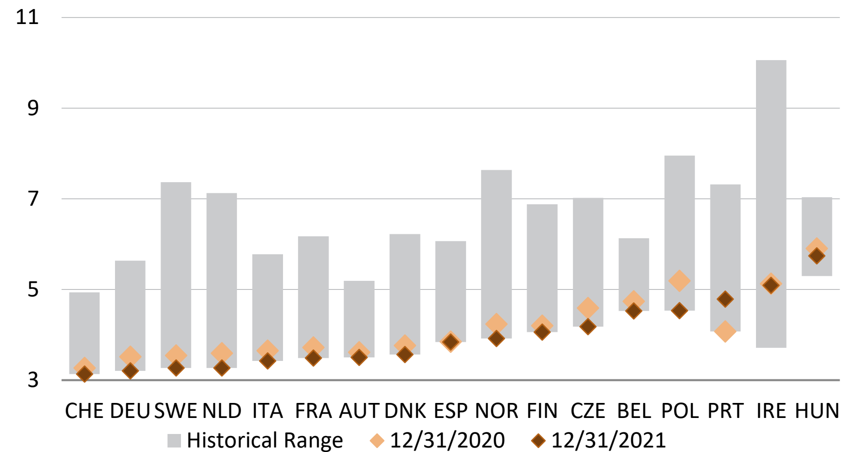
Facts & Figures Second Quarter 2022

Continental property returned 7.1% annually over the last three-year period at the asset level, according to the unlevered MSCI Global Property Fund Index data as of 1Q in LC terms. At a sector level, industrial (12.1%) and office (4.5%) properties fared well, while the retail sector disappointed (0.2%). But the sector faces challenges, including the uncertainties related to the war in Ukraine and tighter monetary policies.

- Property yields across most European countries 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. But it seems reasonable to expect property yields to come under some pressure, given the increase in sovereign yields this year. Indeed, this has been visible in some markets.
- The global economy is expected to grow by 3.2% in 2022, according to analysts surveyed by Bloomberg in July. This forecast is slightly lower than what analysts expected in January (4.3%), likely given uncertainties related to the war in Ukraine and changes in monetary policy expectations. Growth expectations for 2022 are highest for China (4.1%), followed by the UK (3.4%), euro area (2.7%), US (2.4) and Japan (1.7%), among major markets.
- Transaction volumes in Europe increased by 31% in 1Q to €80B from 1Q 2021, according to CBRE. Germany remained the largest investment market in Europe ex UK, with total investment volumes reaching €24B and far outpacing France (€5.3B). Office (€28.7B) and industrial (€16.6B) properties were the two largest property types involved in transactions in 1Q.
- 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 at the end of 2020 in those two markets to be roughly $650B and $470B, respectively. Offices make up a large portion of both Germany and France's commercial real estate markets.

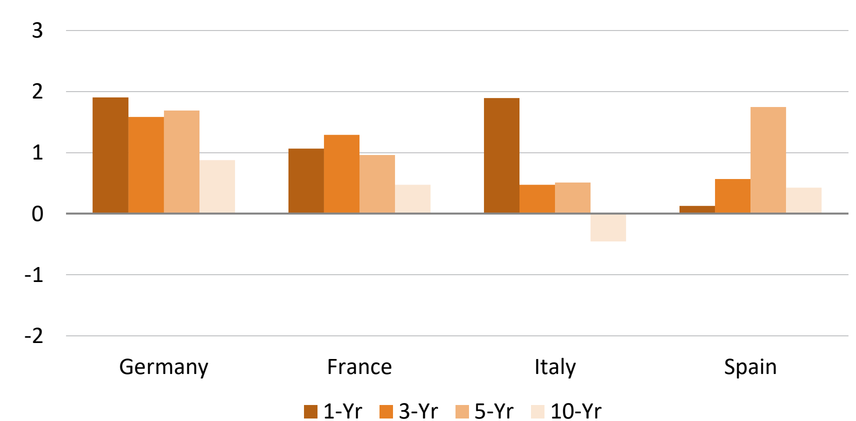
EUROPEAN PROPERTY NET OPERATING INCOME YIELDS

As of Dec 31, 2021 • Percent (%)



ANNUALIZED RENT GROWTH

As of Dec 31, 2021 • Percent (%)



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

Asian Private Property

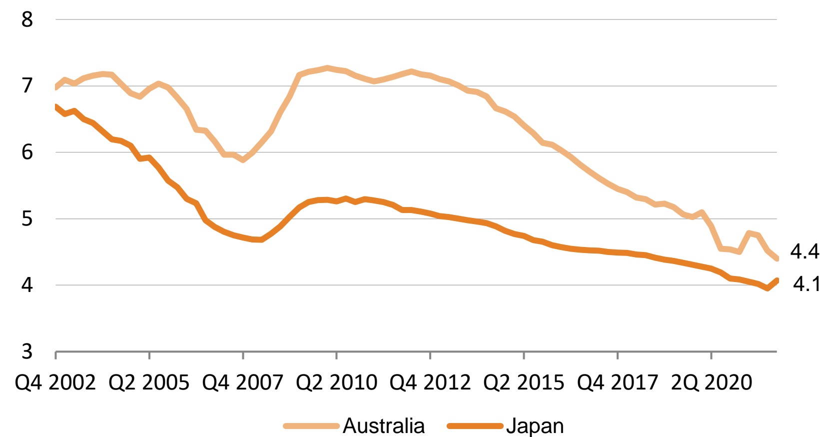
Facts & Figures Second Quarter 2022

Asian property returned 3.4% annually over the last three-year period at the asset level, according to MSCI Global Property Fund Index data as of 1Q in USD terms. At a sector level, industrial and office properties delivered the best results, returning 9.1% and 4.5% annually, respectively, over the same three-year period.

- Property yields in many markets have steadily decreased since the GFC. Two top markets, Australia and Japan, have property yields near or at the lowest level for which data are available, according to MSCI real estate data. Property yields in some countries, such as Australia, may face pressure, given sovereign yields have increased.
- 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 expected to grow by 3.2% in 2022, according to analysts surveyed by Bloomberg in July. This forecast is slightly lower than what analysts expected in January (4.4%), likely given uncertainties related to the war in Ukraine and changes in monetary policy expectations. Growth expectations for 2022 are highest for China (4.1%), followed by the UK (3.4%), euro area (2.7%), US (2.4%), and Japan (1.7%), among major markets.
- The volume of Asia-Pacific real estate investments totaled just over $31.2B in 1Q, according to CBRE. That level represents a 15% increase over the same quarter in 2021. China was the biggest investment market, attracting nearly $8B in sales in 1Q, outpacing Singapore (~$5B) and Australia (~$5B).
- Property investors continue to focus on six primary locations in the Asia Pacific. These six—China, Japan, Hong Kong, Australia, South Korea, and Singapore, in order of recent interest—collectively account for more than 96% of all property transactions in the region. The focus as it relates to Asian properties (that is, ex Australia) has been primarily from investors within Asia.

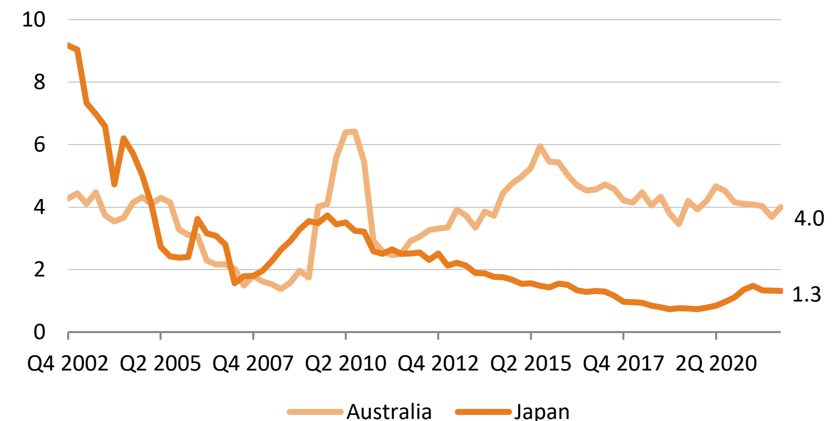
PROPERTY YIELDS

Fourth Quarter 2002 – First Quarter 2022 • Percent (%)



VACANCY RATES

Fourth Quarter 2002 – First Quarter 2022 • Percent (%)



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

Note: Japan first quarter data are as of February 28.

Private Infrastructure

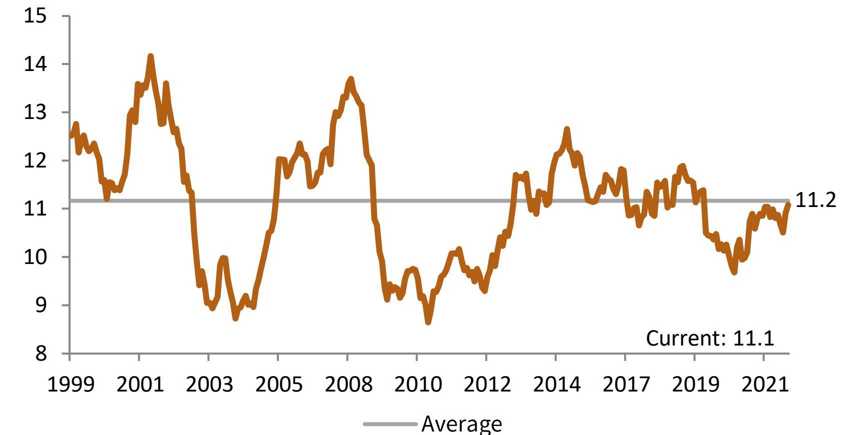
Facts & Figures Second Quarter 2022

Private infrastructure returned 11.6% annualized over the last three-year period, according to the Cambridge Associates Infrastructure Index as of 4Q. This index, which calculates horizon internal rates of return, net of fees, expenses, and carried interest, returned 11.0% annualized over the last ten-year period. The industry benefited from stable demand and increased interest among institutional investors.

- Infrastructure companies transacted at roughly 11 times EBITDA over the prior 12-month period on average, 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.
- The global economy is expected to grow by 3.2% in 2022, according to analysts surveyed by Bloomberg in July. This forecast is slightly lower than what analysts expected in January (4.3%), likely given uncertainties related to the war in Ukraine and changes in monetary policy expectations. Growth expectations for 2022 are highest for China (4.1%), followed by the UK (3.4%), euro area (2.7%), US (2.4) and Japan (1.7%), among major markets.
- Global infrastructure transaction volume totaled $790.8B in the first nine months of 2021, according to InfraDeals. This compares to $1,135.4B in all of 2020. Global greenfield, brownfield, refinancing and project finance deals accounted for 13%, 34%, 18%, and 35% of global 2021 deal volume, respectively. Energy and renewable investments were the top two types of investments, accounting for 27% and 22% of deal volume, respectively. Among regions, the US led in transaction volume with 204.91 in deals.
- Global infrastructure PE funds raised $123B in 2021, which is a new record haul, according to InfraDeals. In addition to this capital, 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.

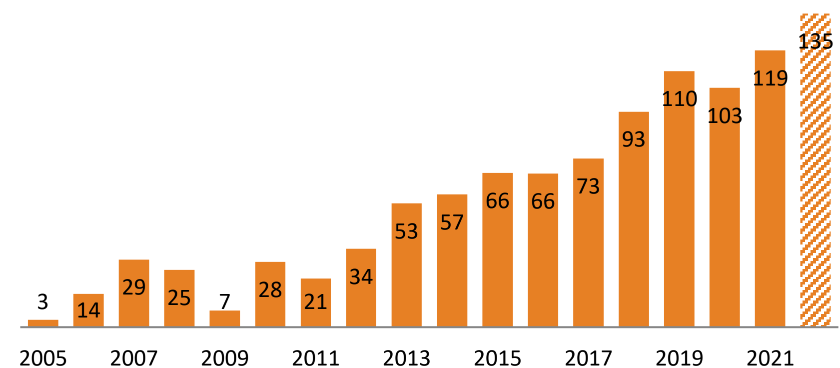
PRICES OF TRANSACTIONS (EV/EBITDA)

Mar 31, 1999 – Jun 30, 2022 • Rolling 12M Average



GLOBAL CAPITAL COMMITMENTS TO INFRASTRUCTURE PE FUNDS

2005–22 • 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 may revise. Data for 2022 are through June 30.

Private Energy

Facts & Figures Second Quarter 2022

Private energy returned 4.4% over the last three-year period, according to the Cambridge Associates US Private Equity Energy Index as of 1Q. This index, which calculates horizon internal rates of return, net of fees, expenses, and carried interest, returned 3.3% over the last ten-year period. Low transaction multiples, which are partly linked to what was previously an oversupplied industry and negative sentiment around hydrocarbons, have challenged performances.

- Private energy companies tended to transact at 9x EBITDA over the prior 12-month period, which is low relative to multiples paid in 2021 The lower multiples are linked to the fact that operating profits have spiked in recent quarters. This is due partly to the fact that the average price of oil on the New York Mercantile Exchange jumped to $109 per barrel in 2Q, which is the highest level since 2Q 2008.

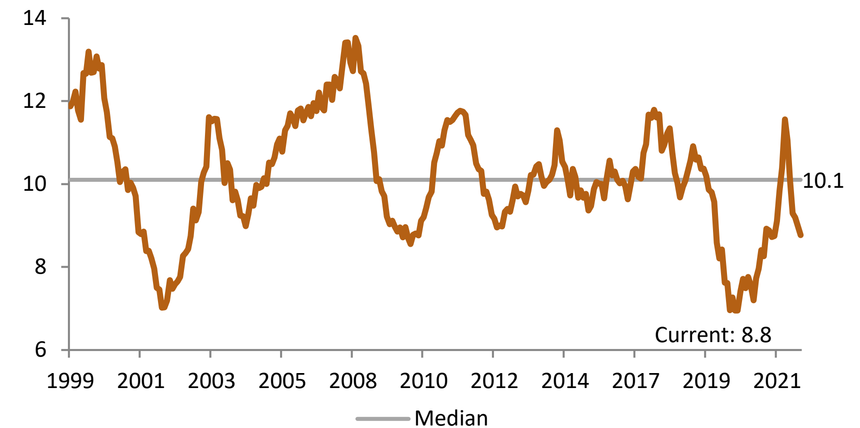
- Low investment levels contributed to this year's rise in oil & gas prices. Prior to 2017, capital expenditures typically amounted to around 8% of assets, but that level led to a severe glut in energy commodities. Since 2017, capital expenditures at an industry level has fallen to under 6%, which has curtailed available supplies. Baker Hughes estimates the number of rotary rigs operating in the world is currently 1,706, which is far lower than the ~3,000 rigs that operated on average between 2010 and 2016.

- The tragic war in Ukraine has upended energy markets. This is most obvious in European natural gas markets, which are under strain from reduced supply from Russia and low inventories and which has sent prices to historically high levels. But it also challenged oil markets. The US government expects Russia's oil production to fall by at least a couple million barrels per day by the end of 2023, as western sanctions challenge Russia's ability to sell. To help offset these challenges, OPEC and its partner countries agreed in early June to increase its oil production by a faster pace than anticipated.

- A key consideration for investors is the extent that renewable energy could undercut future hydrocarbon demand. Some long-term energy analyses, such as the US Energy Information Administration's 2022 Annual Energy Outlook reference case, highlight that oil and natural gas may continue to be the largest global energy sources 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.

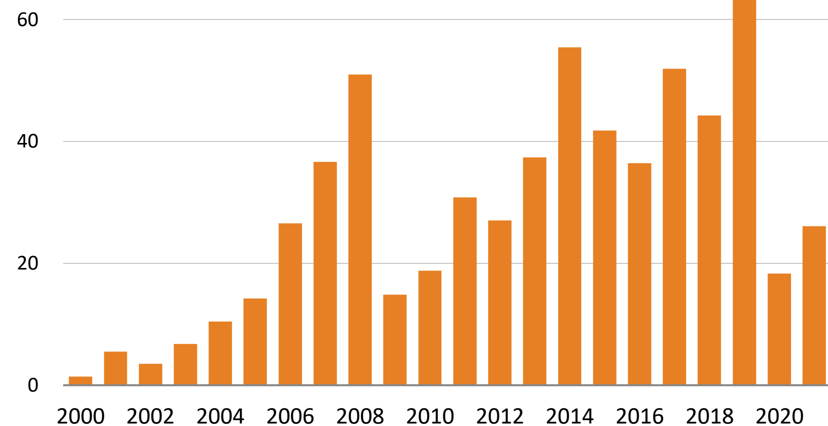
PRICES OF TRANSACTIONS (EV/EBITDA)

Mar 31, 1999 – Jun 30, 2022 • Rolling 12M Average



PRIVATE EQUITY ENERGY FUNDRAISING

2000–21 • US$B



Sources: Cambridge Associates LLC and Dealogic.

Note: Data represent the trailing 12-month average EV/EBITDA for all reported private energy transactions. Historical fundraising data may revise.

CURRENCIES

C|A CAMBRIDGE ASSOCIATES

USD vs Developed Markets Currencies

Facts & Figures Second Quarter 2022

The US dollar rose 6.4% in 2Q 2022 in nominal trade-weighted terms. Interest rate differentials moved against the dollar during the quarter, with the notable exception of against Japan. Nonetheless, the substantial risk aversion witnessed during the period was enough to more than offset this and push the greenback markedly higher. The trade balance impact of energy market strength has also been a supportive factor. With growth slowing, these factors may be sufficient to keep the dollar elevated; however, its real valuation remains very rich from a longer-term perspective.

- A widening in interest-rate differentials between the US and its peers, as a result of a more hawkish Fed, has been the main plank of dollar strength over the past year. This widening reversed a little in 2Q as markets predicted other central banks would have to play catch-up with the Fed's hikes, due to domestic inflationary pressures. Japan was the notable exception to this, where the BOJ's commitment to accommodative policy drove further widening and substantial yen weakness.

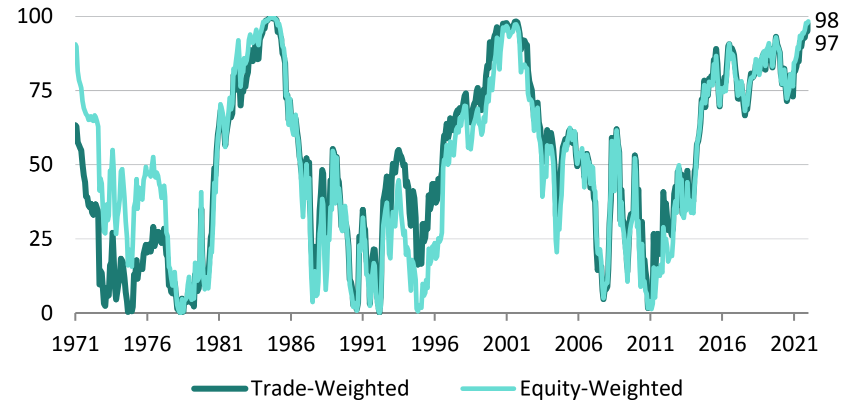
- The second quarter also witnessed considerable risk aversion. This was initially due to factors such as COVID-induced inflation and the war in Ukraine, but more latterly has included fears of an economic slowdown. Global equities declined 14%, while credit spreads also widened. The dollar fulfilled its traditional role as a safe-haven in this environment, appreciating against most other currencies.

- Trade dynamics surrounding increasing energy prices have also boosted the dollar. Europe and Japan are both large net energy importers and so their trade balances have deteriorated as the cost of these imports has risen. Europe's reliance on Russian gas has proven a major vulnerability. Indeed, Germany recently reported its first trade deficit since 1991.

- The US dollar remains richly valued on a longer horizon. Its real effective exchange rate stands at the 97th or 98th percentile, depending on whether you look at trade weights or equity weights, representing a substantial premium versus the median valuation. A decline in inflation and a return to a durable economic expansion could be one catalyst for USD weakness, as the risk-off premium is gradually given up. A large and growing current account deficit may also pressure the dollar in the long run.

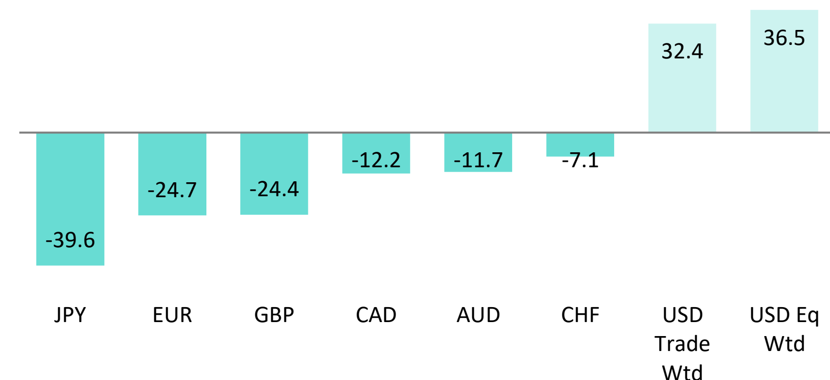
USD BASKET REAL EXCHANGE RATE PERCENTILE

Jun 30, 1971 – Jun 30, 2022



REAL EXCHANGE RATE VS THE USD: % FROM MEDIAN

As of Jun 30, 2022



Sources: Eurostat, MSCI Inc., 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 March 31, 2022. All other inflation data are as of May 31, 2022.

Emerging Markets Currencies

Facts & Figures Second Quarter 2022

EM currencies, as measured by an equal-weighted basket, were down by 4.7% in 2Q 2022. Rising levels of hawkishness amongst DM central banks has been a particularly salient headwind for these currencies in the most recent quarter, as has the decline in risk sentiment. The moderation of growth from peak recovery levels has also been a challenge. The strength of the dollar has seen this quarter's decline be remarkably broad-based with practically all major EM currencies weakening.

- EM currencies are highly sensitive to global growth prospects, given the importance of trade to their economies. Therefore, the continued impairment of global supply chains has been a headwind to many EMs. Moreover, recent fears of an economic slowdown, due to the impact of high inflation and the effect of monetary tightening designed to mitigate it, have exacerbated the issue. Several commodities have experienced meaningful declines during the quarter, which has hurt the exporters of those materials.

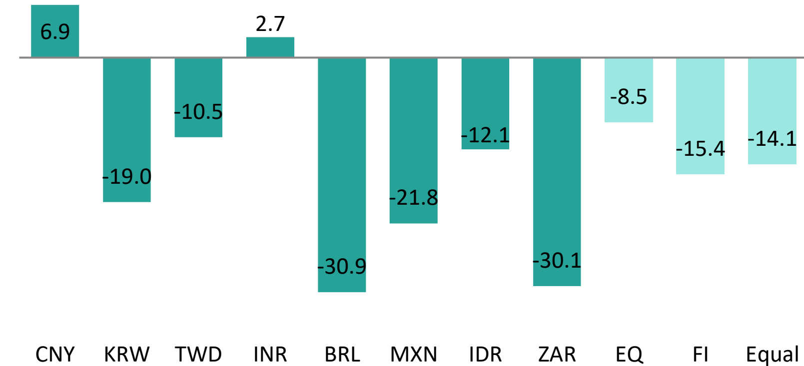
- EMs have been especially impacted by the persistence of inflation given the greater weight of food and energy in their CPI baskets. EM central banks were forced to raise interest rates aggressively to maintain their price stability–targeting credibility, presenting a headwind to growth. Rising DM yields as a result of climbing rate hiking expectations have attracted capital away from EMs. Both factors have put downward pressure on their currencies in recent months.

- As is typically the case in rising rate environments, fixed income-weighted EM currencies have underperformed equity-weighted ones due to the greater weight of current account deficit countries in the index. As a result, the FI-weighted EMFX index is now 15.4% below median based on real effective exchange rates. By contrast the equity-weighted index is just 8.5% below median.

- The carry of EM currencies has declined in the past two quarters as the interest rate differential with DM markets has narrowed due to the increased number of hikes expected from the latter. The cost of hedging out the FX exposure of EM equities is now 0.7% for a USD-based investor, the lowest it has been post-GFC. It costs 3.6% to do likewise for EM local bonds.

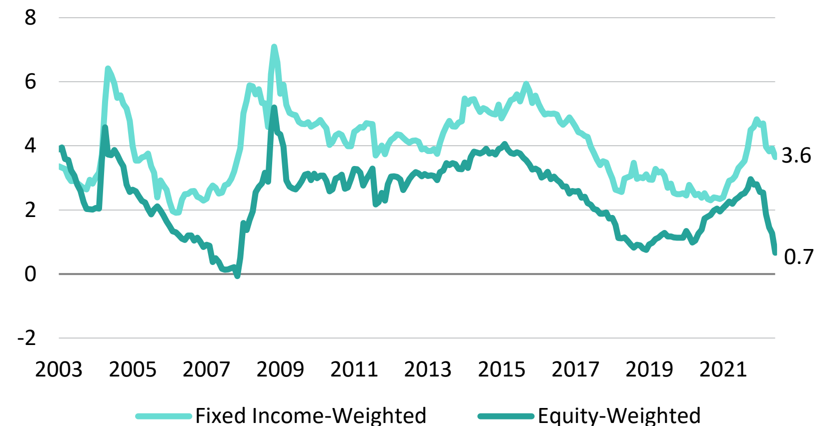
EM REAL EXCHANGE RATE VS USD: % FROM MEDIAN

Jan 31, 1994 – Jun 30, 2022



EMFX IMPLIED CARRY

Jan 31, 2003 – Jun 30, 2022 • 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

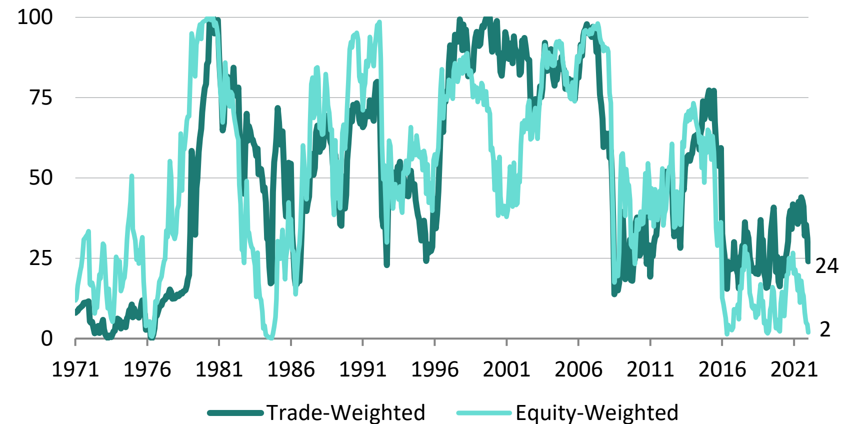
Facts & Figures Second Quarter 2022

The pound fell by 3.2% in trade-weighted terms in 2Q 2022. The strength of the dollar during the quarter was the biggest factor behind the pound's decline, especially on an equity-weighted basis where its valuation is depressed. However, the pound's sensitivity to risk saw it experience some broad-based weakness in a quarter during which market and geopolitical risk rose.

- The Bank of England raised its policy rate by 50 bps during the quarter to 1.25%, as the UK faces an elevated rate of inflation that is not expected to peak before October. Nonetheless, the interest rate differential between the UK and its biggest trading partner, the euro area, declined as the European Central Bank was also forced to become more hawkish in light of its own domestic inflationary pressures. This contributed to the pound declining by 1.8% versus the euro over the quarter.
- The UK's 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. This is in stark contrast to the dollar, which acts as a safe-haven in times of stress. The sell-off in risk assets during 2Q therefore, and the UK greater exposure to the energy impacts of the war in Ukraine, saw the pound decline by 7.8% versus the dollar.
- The USD dominates the equity-weighted index, with a weight of 74%, given its dominance of the MSCI World index. The euro dominates the trade-weighted index, with a weight of 61%. The strength of the dollar therefore saw sterling decline more steeply on an equity-weighted basis (-6.0%) than trade-weighted. A differential has opened between the trade- and equity-weighted valuations as a result of this dichotomy.
- There remain some fundamental headwinds for the UK to contend with. The supply-side impacts of the pandemic and Brexit mean there is a higher possibility of a stagflationary environment in the UK than elsewhere. There are also lingering concerns about the UK's external economic footing post-Brexit once pandemic impacts have faded. Nonetheless, despite some outperformance this quarter, sentiment toward the UK and its risk assets remains depressed, which could prove supportive in the event of any improvement in fundamentals or a continued rebound in value sectors versus growth.

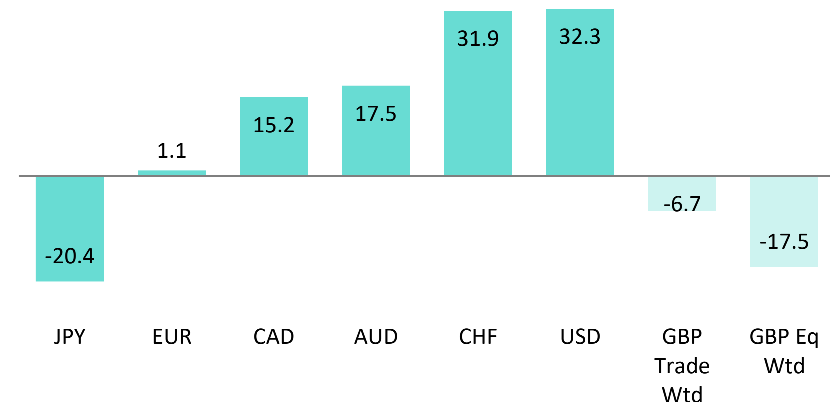
GBP BASKET REAL EXCHANGE RATE PERCENTILE

Jun 30, 1971 – Jun 30, 2022



REAL EXCHANGE RATE VS THE GBP: % FROM MEDIAN

As of Jun 30, 2022



Sources: Bank of England, Eurostat, MSCI Inc., 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 March 31, 2022. All other inflation data are as of May 31, 2022.

EUR vs Developed Markets Currencies

Facts & Figures Second Quarter 2022

The euro fell 1.5% in trade-weighted terms in 2Q 2022. The broad-based strength of the dollar during the quarter was the biggest factor behind the euro's decline. An additional headwind was the continued impact of the war in Ukraine, as it clouds the European growth outlook while keeping inflation elevated.

- The second quarter witnessed considerable risk aversion. This was initially due to factors such as COVID-induced inflation and the war in Ukraine, but more latterly has included fears of an economic slowdown. The dollar fulfilled its traditional role as a safe haven in this environment, appreciating rapidly, including by 6% versus the euro. The euro appreciated against the sterling and the yen during the quarter as interest rate differentials moved in its favor, while the market priced in ECB rate hikes.

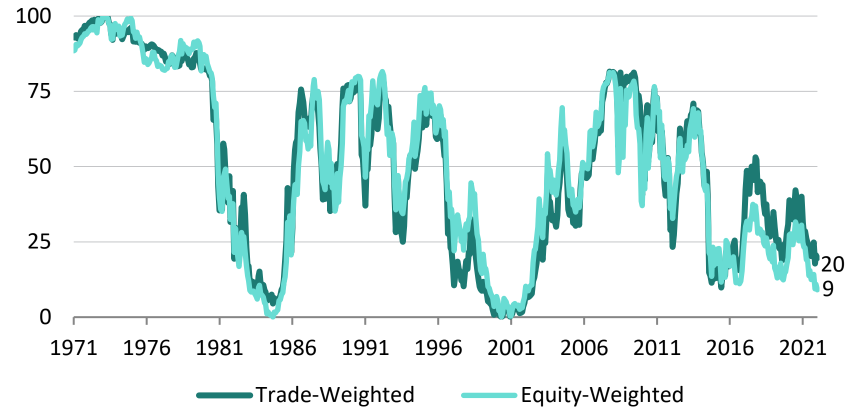
- Conflict in Ukraine has clouded the growth outlook for Europe. The surging cost of energy and food is a headwind to consumption. Industry may be impacted by a planned embargo of Russian oil, and a restriction of gas flows by Russia. As an energy importer, the euro area's deteriorating trade balance has also dented the euro. The ECB meanwhile faces an unenviable trade-off between stubborn inflation and slowing growth, with planned tightening causing stresses in peripheral fixed income markets.

- To see sustained, domestically generated outperformance of the euro we likely need to see follow through on the hope generated by the NextGenerationEU and REPowerEU plans. Not just in terms of delivering on those plans, but also in terms of a further deepening of continental ties, including; completion of the capital markets union, a permanent and growing role for jointly issued bonds and increased flexibility in budgetary rules. Such changes are necessary to increase the integration between periphery and core and limit future existential concerns about the region.

- The valuation of the euro stands at just the 9th percentile on an equity-weighted basis and at the 20th percentile on a trade-weighted basis. These values are 18.5% and 7% below median, respectively. Therefore, the direction of the dollar, which accounts for 77% of the equity-weighted index, remains key for the euro outlook. The greenback may stay supported in the near term as slowdown fears and risk aversion persist but is likely to be more challenged in the long term.

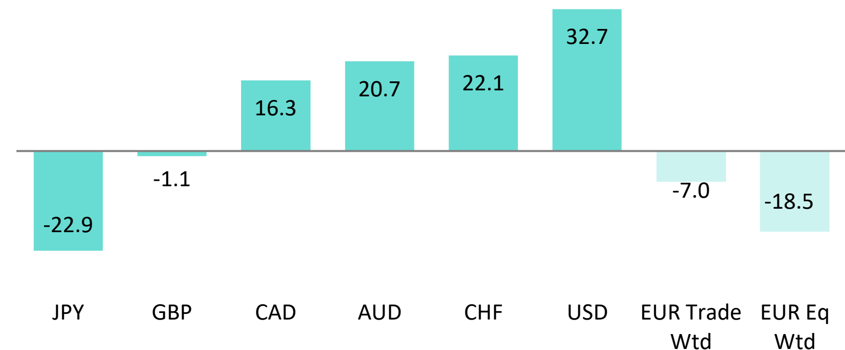
EUR BASKET REAL EXCHANGE RATE PERCENTILE

Jun 30, 1971 – Jun 30, 2022



REAL EXCHANGE RATE VS THE EUR: % FROM MEDIAN

As of Jun 30, 2022



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

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Bitcoin

Facts & Figures Second Quarter 2022

The price of bitcoin collapsed 56% in 2Q, as investors turned bearish on digital assets amid broader market volatility and recessionary fears. The value of bitcoin has declined 71% after reaching an all-time high price in November 2021. This represents bitcoin's fifth decline of more than 70% in the past decade.

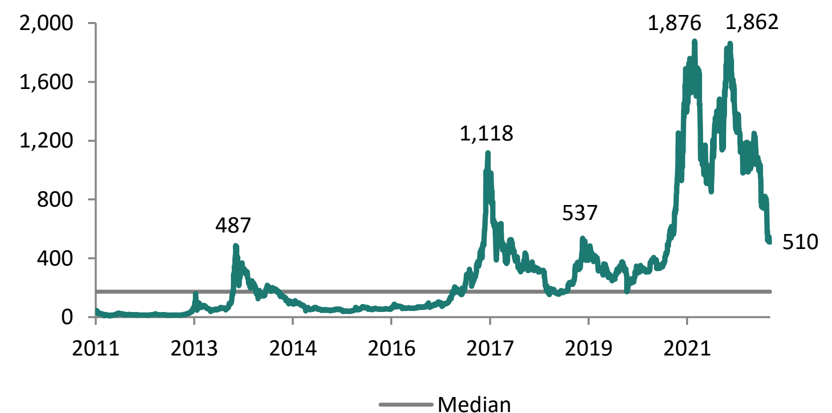
- As major central banks have hiked interest rates to tame rampant inflation, risk assets have sold off, and cryptocurrencies have come under intense pressure. Several issues arose in the digital asset space during the quarter, including collapses in high-profile stablecoins and a liquidity crises across several crypto lenders.
- Bitcoin's price is largely influenced by scarcity; there will only be 21 million bitcoins ever produced. More than ninety percent of all bitcoin has now been mined; with only around 2 million left to be mined. Proponents of bitcoin cite its appeal as a decentralized currency that can protect against currency destabilization and government overreach. It is not printed by any central entity but is minted and secured by a vast network of "miners."
- 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.
- There are several major risks associated with bitcoin investing; the most obvious is high price volatility. Indeed, the annualized standard deviation of bitcoin has been more than 6x that of major equity indexes in the past five years. The massive volatility risk of bitcoin was highlighted in 2022 with the sharp price drawdown. Bitcoin also faces other key risks, including complicated tax considerations and the negative environmental impacts of bitcoin 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 – Jun 30, 2022 • US Dollars

RATIO OF BITCOIN PRICE TO TRANSACTIONS PER COIN

Aug 31, 2011 – Jun 30, 2022



Sources: Blockchain.com and Thomson Reuters Datastream.

Notes: Data are daily and represent the USD price of bitcoin divided by the number of transactions per coin outstanding. Total bitcoin in circulation and transactions are weekly.

Notes on Data

Second Quarter 2022

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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