REVIEW OF MARKET PERFORMANCE

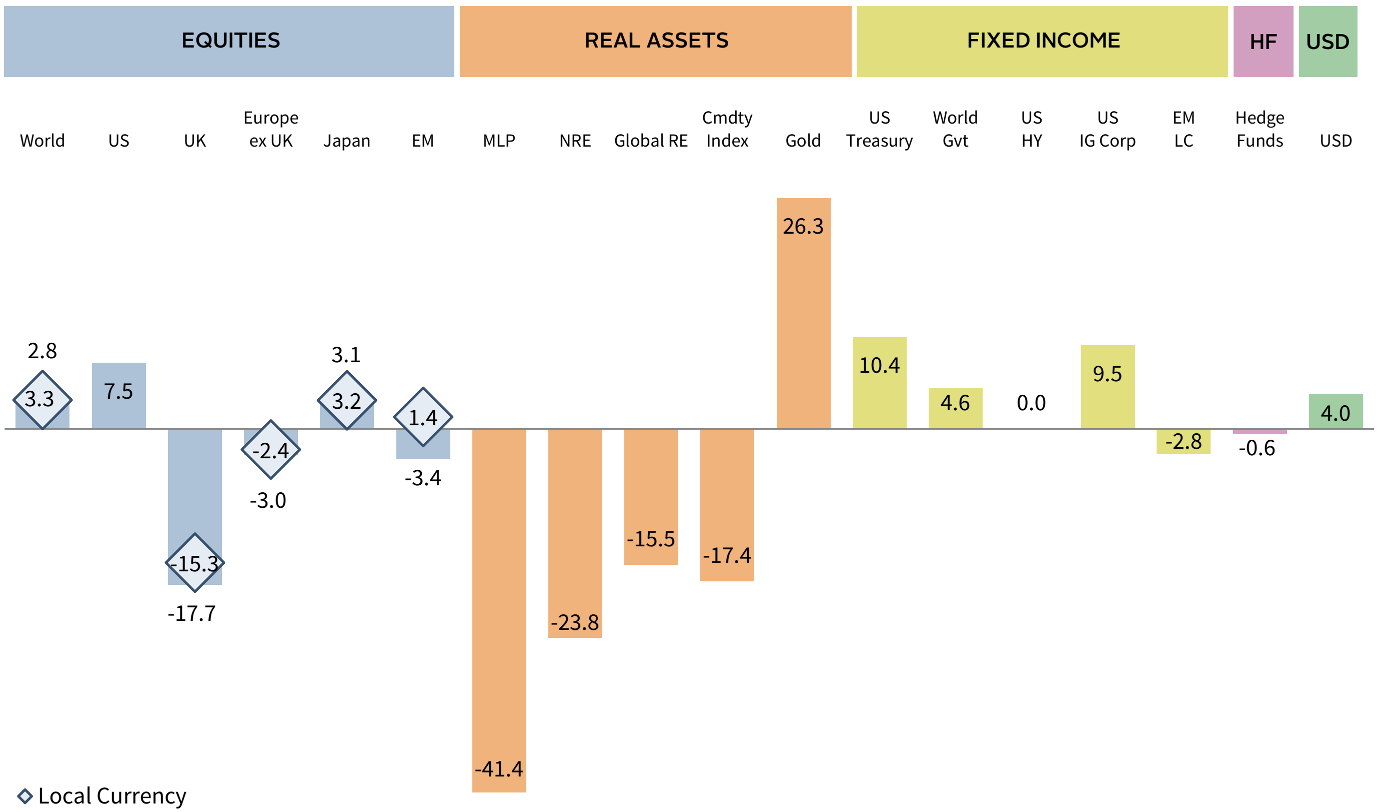
FISCAL YEAR 2020

CAMBRIDGE ASSOCIATES

US Treasuries, gold, and the US dollar gained as COVID-19 battered risk appetite

GLOBAL ASSET CLASS PERFORMANCE: FY 2020

Total Return (%) • US Dollar

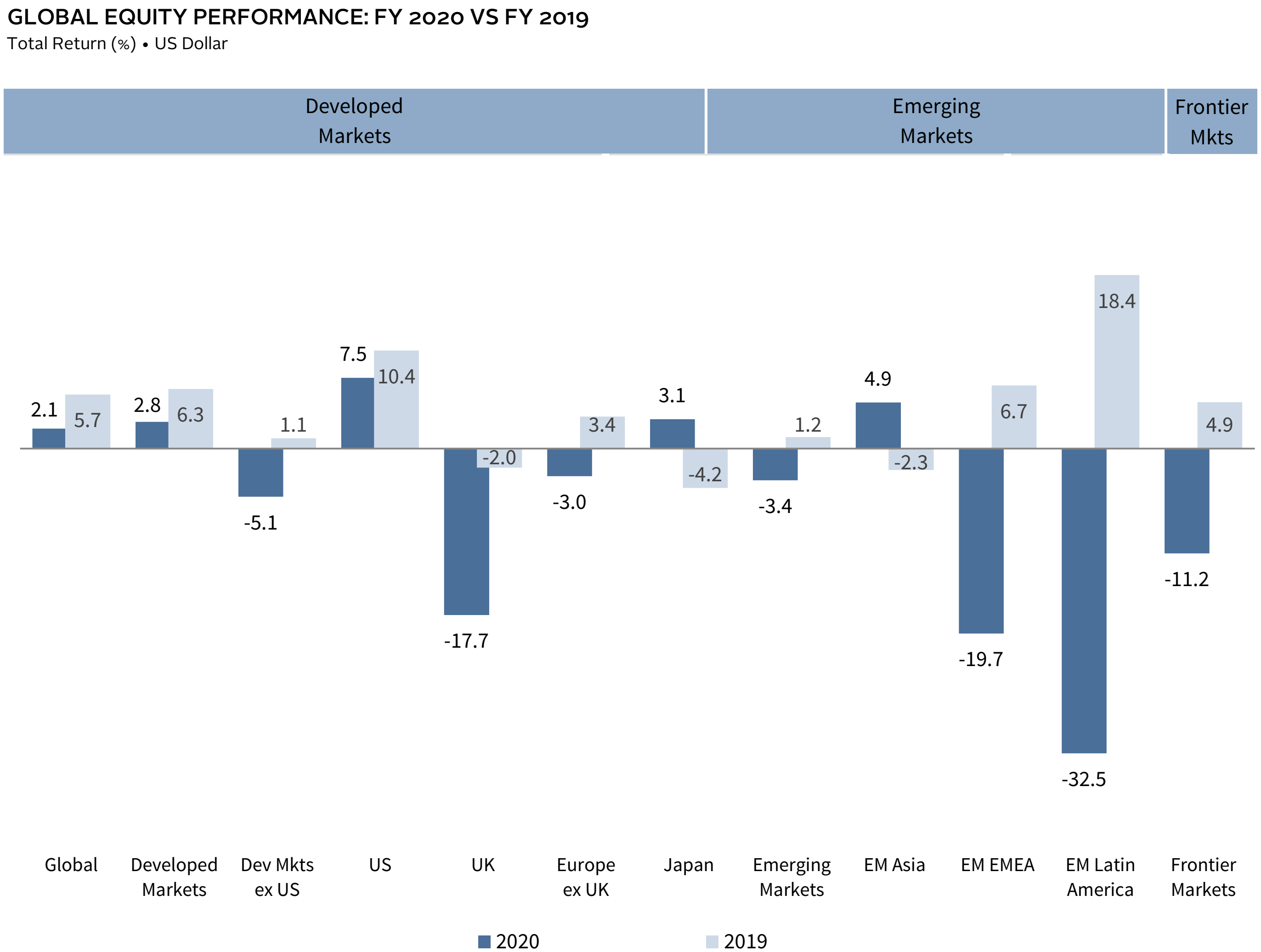


Sources: Alerian, Bloomberg Index Services Limited, Bloomberg L.P., EPRA, Federal Reserve, FTSE Fixed Income LLC, FTSE International Limited, Hedge Fund Research, Inc., Intercontinental Exchange, Inc., J.P. Morgan Securities, Inc., MSCI Inc., Nareit, Standard & Poor's, and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

Notes: Asset classes represented by: MSCI World Index ("World"), S&P 500 Index ("US"), MSCI UK Index ("UK"), MSCI Europe ex UK Index ("Europe ex UK"), MSCI Japan Index ("Japan"), MSCI Emerging Markets Index ("Emerging Markets"), Alerian MLP Total Return Index ("MLP"), market cap-weighted Datastream World Energy Index and Datastream World Basic Resources Index blend ("NRE"), FTSE® EPRA/NAREIT Global Real Estate Index ("Global RE"), Bloomberg Commodity TR Index ("Cmdty"), LBMA Gold Price ("Gold"), Bloomberg Barclays US Treasury Index ("US Treasury"), FTSE World Government Bond Index ("World Gvt"), Bloomberg Barclays US High Yield Bond Index ("US HY"), Bloomberg Barclays US Corporate Investment Grade Bond Index ("US IG Corp"), J.P. Morgan GBI-EM Global Diversified Index ("EM LC"), Hedge Fund Research Fund Weighted Composite Index ("Hedge Funds"), and Nominal Trade Weighted US Dollar Index: Broad ("USD"). Total return data for all MSCI indexes are net of dividend taxes. Hedge Fund Research data are preliminary for the preceding five months. Gold performance is based on spot price returns.

Despite some volatility due to the US-China trade war, risk markets enjoyed a strong first half of Fiscal Year 2020. The onset of the COVID-19 pandemic, however, and the related economic shutdowns, caused steep declines in equities and other risk assets, leaving many FY 2020 returns in the red. Investors sought out the safety of core sovereign bonds, benefiting from the rate cuts delivered by those central banks who had room to do so. Central bank purchases allowed corporate bonds to retrace their earlier declines and, in the case of US IG Corp, finish the year higher. Gold outperformed among real assets, spurred on by falling yields and risk-off sentiment, while commodities declined due to a fall off in demand.

US stocks swiftly retraced losses, while other markets lagged



The US stood out once more in FY 2020, outperforming all major developed and emerging markets regions. Expectations of a less severe economic lockdown, and a high weighting to tech stocks, allowed US equities to rebound more swiftly than other markets. Among other developed markets, the ongoing Brexit uncertainty contributed to the underperformance of UK stocks, while the severity of the virus outbreak in Latin America contributed to its underperformance amongst emerging markets.

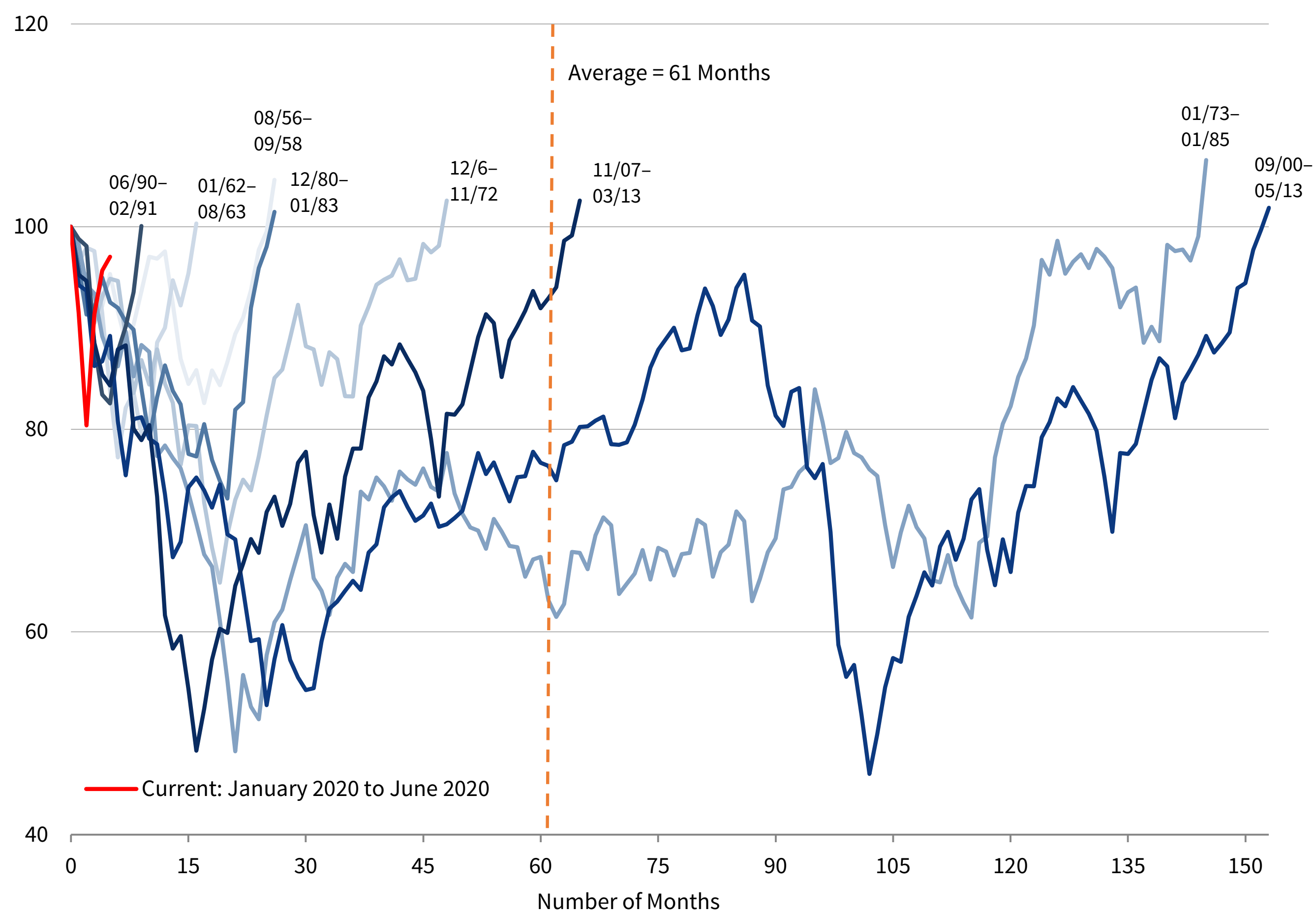
Sources: MSCI Inc., Standard & Poor's, and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

Notes: Asset classes represented by the following: MSCI All Country World Index ("Global"), MSCI World Index ("Developed Markets"), MSCI EAFE Index ("Dev Mkts ex US"), S&P 500 Index ("US"), MSCI UK Index ("UK"), MSCI Europe ex UK Index ("Europe ex UK"), MSCI Japan Index ("Japan"), MSCI Emerging Markets Index ("Emerging Markets"), MSCI Emerging Markets Asia Index ("EM Asia"), MSCI Emerging Markets Europe, the Middle East & Africa Index ("EM EMEA"), MSCI Emerging Markets Latin America Index ("EM Latin America"), and MSCI Frontier Markets Index ("Frontier Markets"). Total returns for MSCI indexes are net of dividend taxes.

The current market recovery has been swift relative to history

MONTHS TO REGAIN S&P 500 REAL WEALTH FOLLOWING RECESSION-DRIVEN BEAR MARKETS

August 31, 1956 – June 30, 2020 • Cumulative Wealth • Base Value = 100



Despite economies globally suffering the steepest recession in modern history, markets appear to be pricing in a so-called V-shaped recovery in economic activity and earnings. This has been supported by swift and sizeable quantities of monetary support, as well as an enormous volume of fiscal spending. The US equity market recovery in particular has been aided by a high weighting to the IT sector, with the business models of many of these companies largely unaffected by current events.

Sources: Global Financial Data, Inc., Ned Davis Research, Standard & Poor's, and Thomson Reuters Datastream.

Notes: Series are no longer plotted once they regain their initial value of 100. Data are monthly based on the S&P 500 total returns.

Bear Markets reflect NBER-defined recessions.

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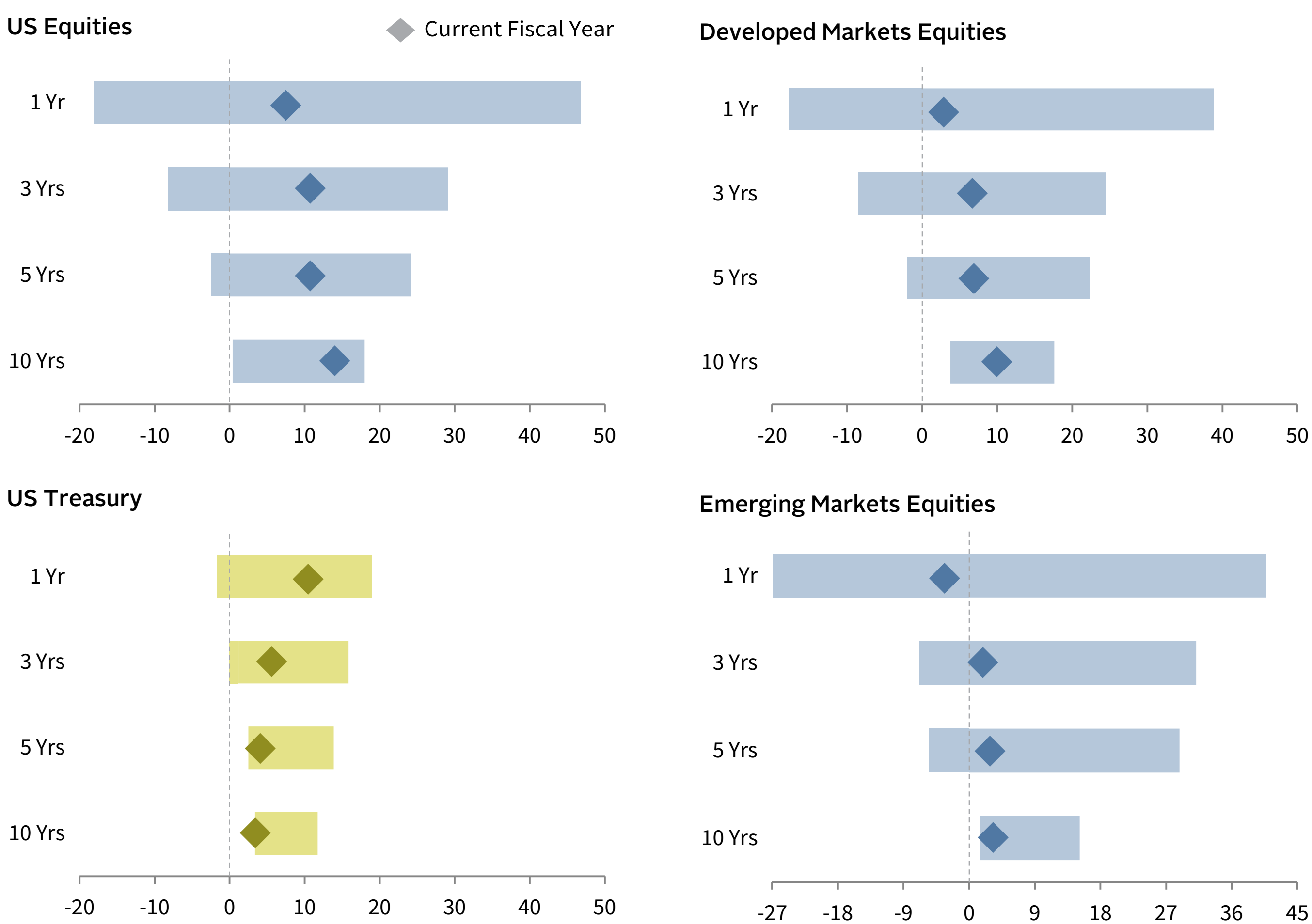
One-year equity and bond returns diverged, with EM equities particularly weak

AVERAGE ANNUAL COMPOUND RETURN RANGE FOR VARIOUS TIME PERIODS

Periods Ended June 30, 2020 • Total Return (%) • US Dollar



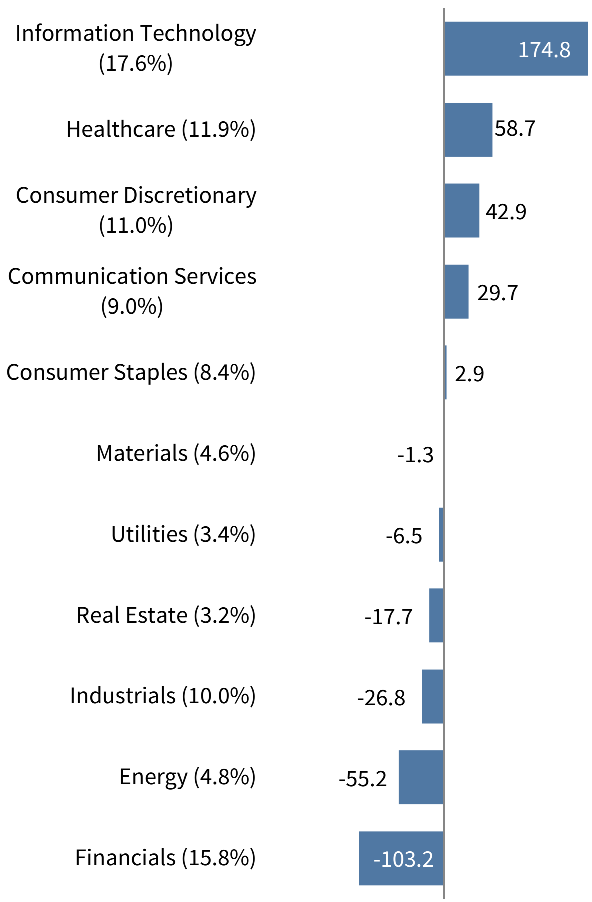
One-year equity returns were below their long-term medians in FY 2020, with non-US stocks posting returns well below their historical medians. Emerging markets returns in particular have been relatively weak over all recent trailing time periods. In contrast, US Treasuries posted their strongest returns since FY 2003. Still, Treasuries have lagged in recent years over longer horizons as interest rates have approached the zero lower bound.

Sources: Global Financial Data, Inc., MSCI Inc., Standard & Poor's, and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

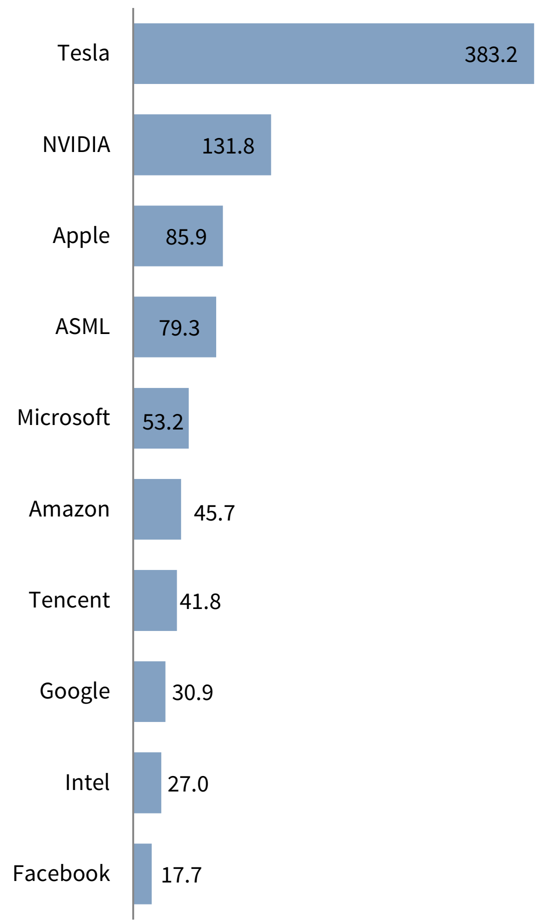
Notes: Ranges reflect the 5th and 95th percentile of fiscal year returns. Asset classes are represented by the following indexes: S&P 500 Index ("US Equities"), MSCI World Index ("Developed Markets Equities"), Bloomberg Barclays US Treasury Index ("US Treasury"), and MSCI Emerging Markets Index ("Emerging Markets Equities"). Total returns for all MSCI indexes are net of dividend taxes. Total returns for the MSCI Emerging Markets Index are gross of dividend taxes prior to fiscal year 2002. The first full fiscal year periods are 1901 for S&P 500, 1971 for MSCI World, 1974 for US Treasury, and 1989 for MSCI Emerging Markets. Data prior to 1968 for US Equities are from Global Financial Data, Inc.

Information Technology has continued to be the market-leading sector

MSCI ACWI RETURN CONTRIBUTION BY SECTOR
June 30, 2019 – June 30, 2020 • Contribution to Total Return (%)



TOP TEN CONTRIBUTING STOCK RETURNS TO MSCI ACWI
June 30, 2019 – June 30, 2020 • Total Return (%)



Information technology has continued to be the stand-out sector in equity markets, and has driven the rebound from the late-March market lows. The business models of many firms in the IT sector have escaped relatively unscathed, and indeed many firms have benefited from the enforced increase in internet-based retail and working from home. The most cyclically sensitive sectors have lagged, indicating some continuing concerns regarding the robustness of the economic recovery.

Sources: FactSet Research Systems and MSCI Inc. MSCI data provided "as is" without any express or implied warranties.
Notes: Data are based on the MSCI All Country World Index. Average sector weights are shown in parenthesis. Return data are in local currency terms and net of dividend taxes. Google includes Alphabet Class A and Class C shares; the return is calculated as the weighted average of the two share class returns. Sector contributions do not add up to 100% as 0.4% of constituents are unassigned.
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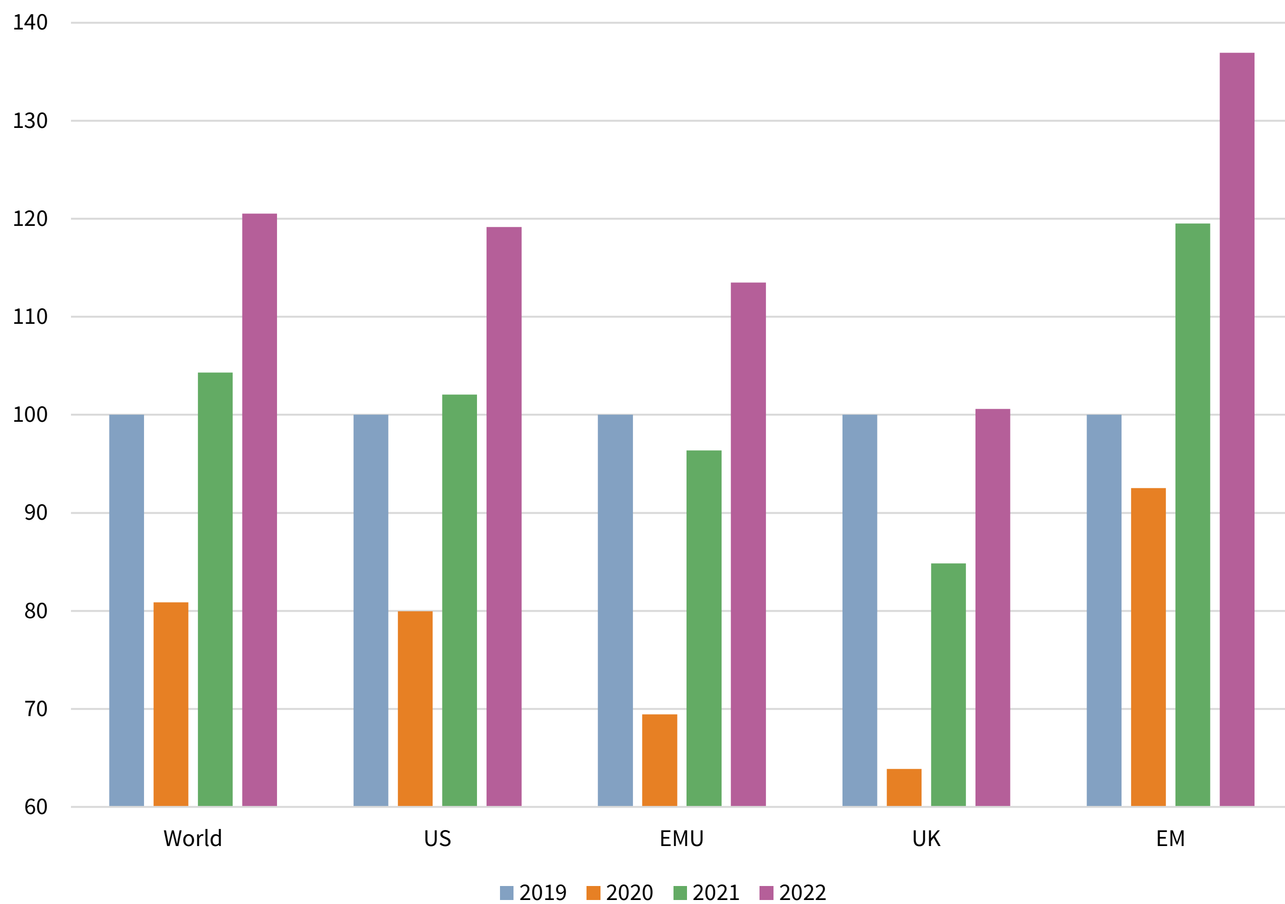
Equity markets expect earnings to return to year-end 2019 levels by the end of 2021

EPS FORECASTS REBASED TO YEAR-END 2019 LEVELS

As of July 7, 2020



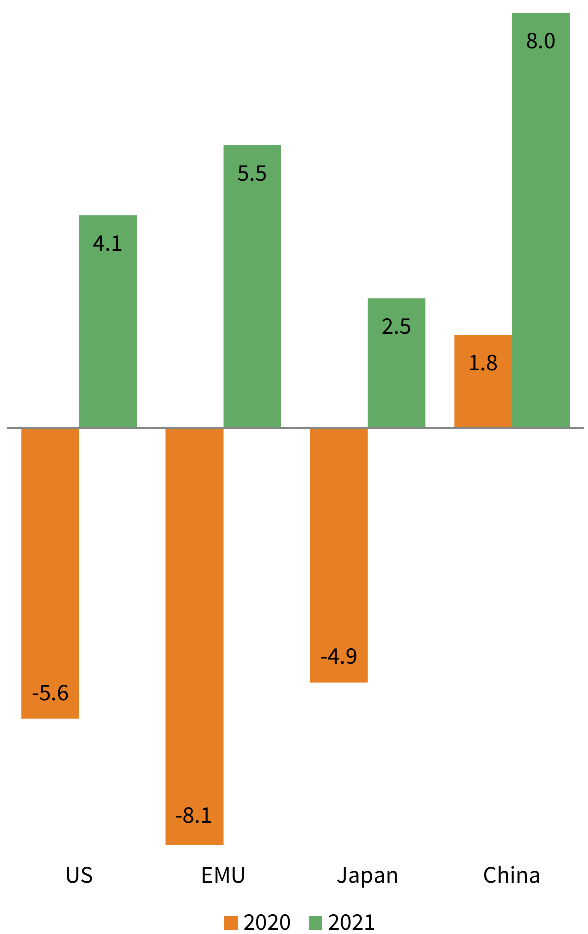
Analysts slashed their CY 2020 earnings estimates on the back of the enforced and self-imposed lockdowns throughout the global economy. However, expectations for a so-called V-shaped recovery are evident in their forecasts for earnings to regain their 2019 highs by the end of 2021. Brexit uncertainty means that the UK is forecast to return to 2019 earnings levels a year later, in 2022. The EM forecasts contain a lot of regional variation; however, the strong aggregate rebound is attributable to a high weighting to the east Asian nations that managed to get the virus outbreak under control relatively quickly.

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

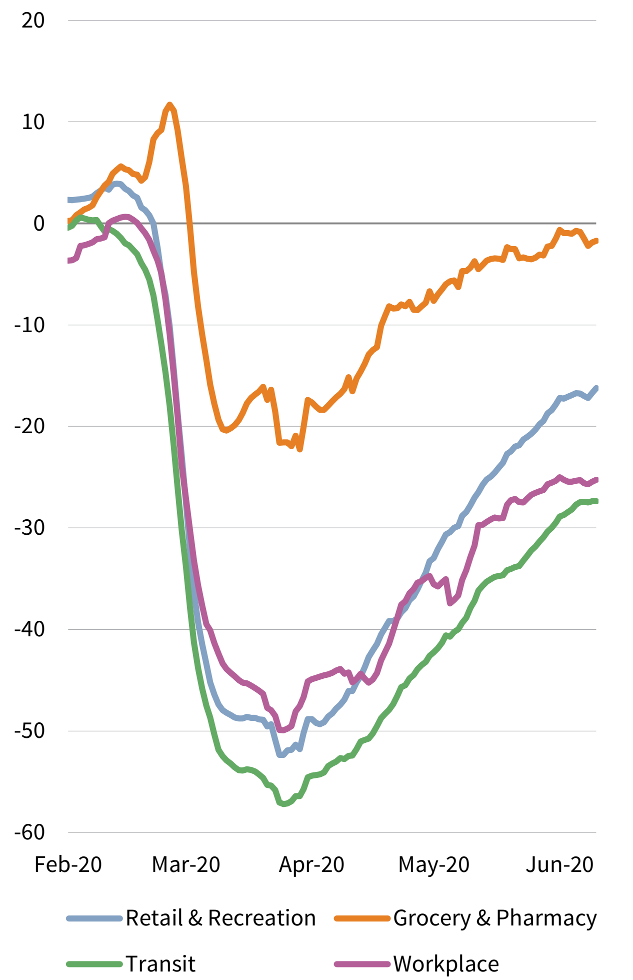
Note: EPS estimates are based on I/B/E/S aggregates of each region's respective MSCI index.

Economic activity collapsed in 2020

2020 & 2021 CONSENSUS GDP GROWTH ESTIMATES
As of June 30, 2020 • Percent (%)



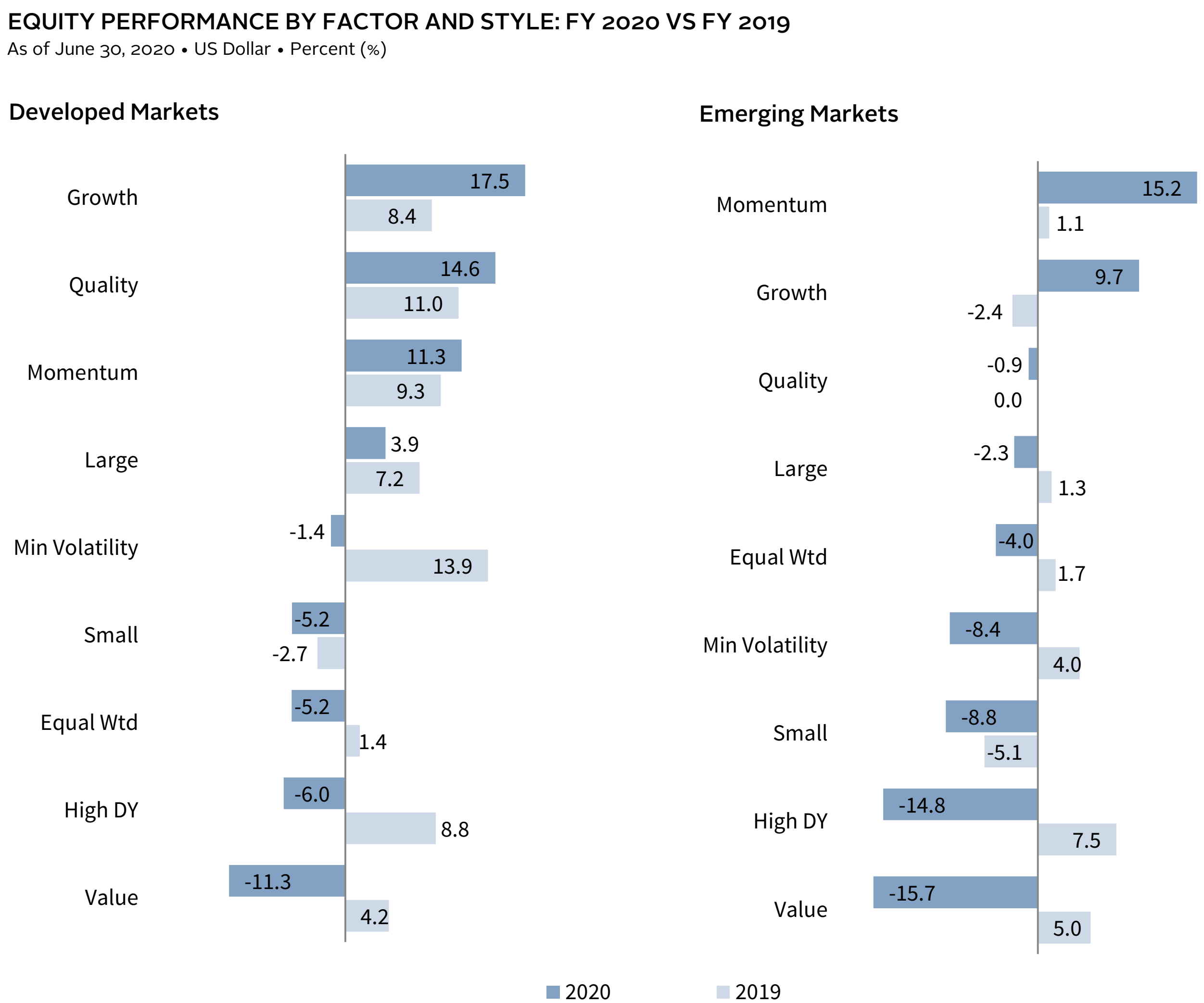
G7 MOBILITY RECOVERY
February 15, 2020 – June 30, 2020 • Percent Change From Baseline (%)



Global economies witnessed the most sudden collapse in economic activity in modern history. A deep but short-lived recession is expected, though economic forecasters are not as optimistic in their expectations for growth next year as equity markets. Mobility data shows a gradual and sustained recovery in activity as lockdowns have been eased, though the return to pre-COVID levels of activity may take some time longer.

Sources: Bloomberg L.P., Google COVID-19 Community Mobility Reports, and Thomson Reuters Datastream.
Notes: 2020 and 2021 GDP growth forecast data are based on median estimates. G7 mobility data are aggregated using the country-level mobility weighted by its GDP. Mobility data reflect seven-day averages, and the mobility baseline is derived from data during the five-week period from January 3, 2020 to February 6, 2020.

Quality and growth continue to lead global equity markets



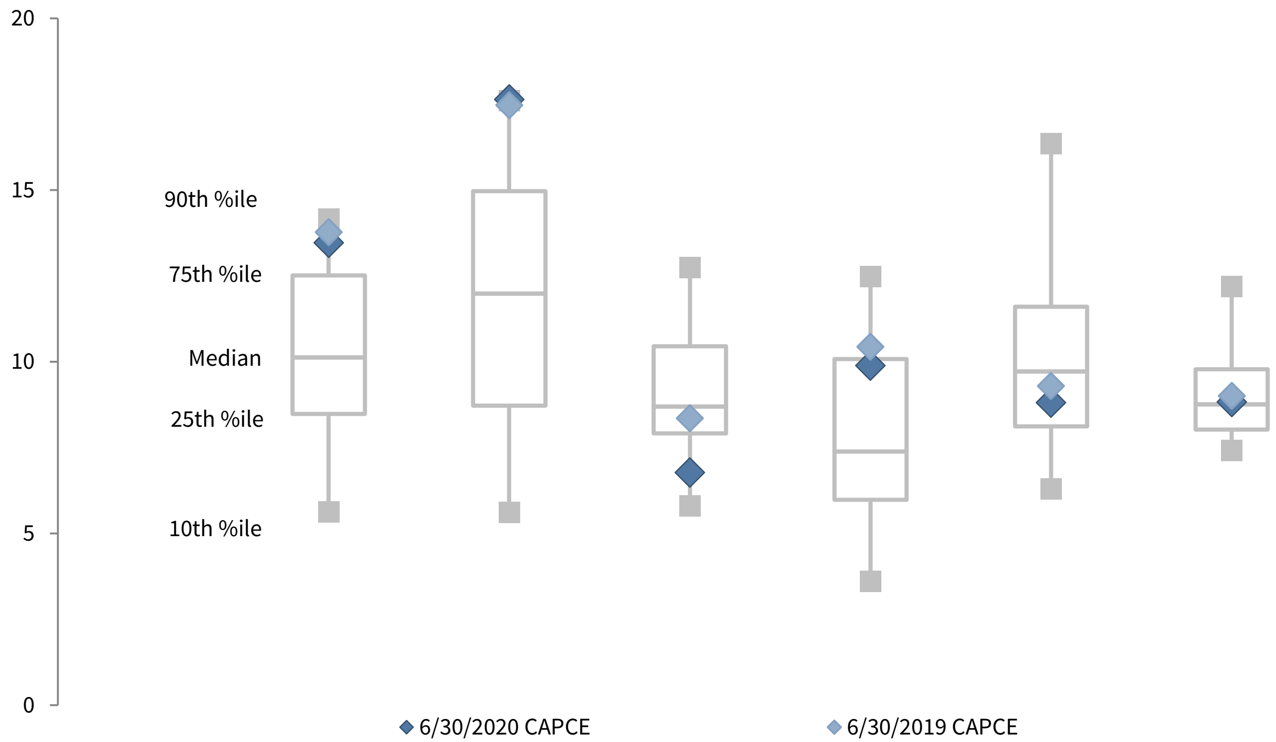
The large decline in interest rates has continued to aid growth stocks due to the discounting effect on the large proportion of their value that is attributable to future years. Additionally, in a world of relatively meager earnings growth, investors have been willing to pay up for that where they can find it, with growth stocks standing out. Quality stocks were helped by their relatively lower use of leverage, which meant that they were less troubled by the funding concerns that many companies endured during the recent market stress. The high proportion of energy stocks in the High DY factor explains its decline relative to last year, as energy prices declined steeply.

Sources: MSCI Inc. and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.
Notes: Factors are based on the MSCI World Index and MSCI Emerging Markets Index. Total return data for all MSCI indexes are net of dividend taxes.

US equity market valuations remain historically elevated

CYCLICALLY ADJUSTED PRICE-TO–CASH EARNINGS (CAPCE) RATIOS BY REGION: FY 2020 VS FY 2019

As of June 30, 2020



% Change	World	US	UK	Europe ex UK	Japan	EM
to 50th %ile	-24.8	-32.1	28.3	-25.4	10.2	-0.8
to 25th %ile	-37.1	-50.6	16.7	-39.5	-7.9	-9.2
to 10th %ile	-58.2	-68.1	-14.3	-63.5	-28.5	-16.1

The rapid rebound in US equity markets, even as earnings have declined, means that valuations have remained near their 90th percentile. This has been aided by the large and swift decline in interest rates. Other regions have seen some cheapening in valuations, in particular the UK, where Brexit concerns continue to weigh on investor sentiment.

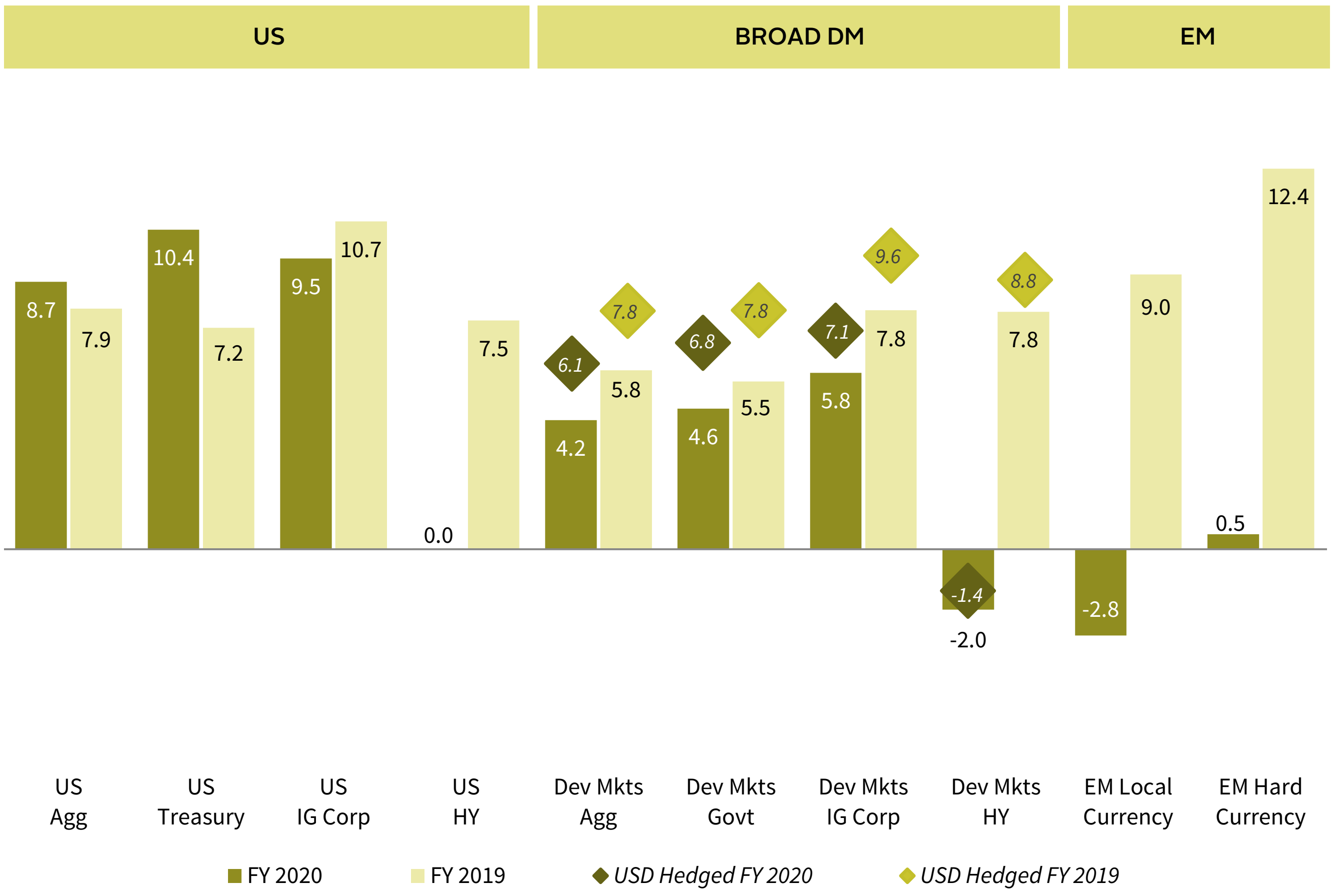
Sources: MSCI Inc. and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

Notes: 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.

Developed sovereign bonds rallied, as QE programs supported sovereigns and corporates

GLOBAL BOND PERFORMANCE: FY 2020 VS FY 2019

Total Return (%) • US Dollar



Core government bond yields fell across the globe as central banks rushed to respond to the large drop in demand in the wake of COVID-19. This response took the form of rate cuts where feasible, and the expansion of quantitative easing programs. The Fed's greater capacity for rate cuts meant that US Treasuries outperformed, while the inclusion of corporate bonds in QE programs helped reverse declines seen earlier in the crisis. EM local currency bonds also rallied in local currency terms as rate cuts were delivered in those nations, however the decline in the value of EM currencies outweighed that tailwind in USD terms.

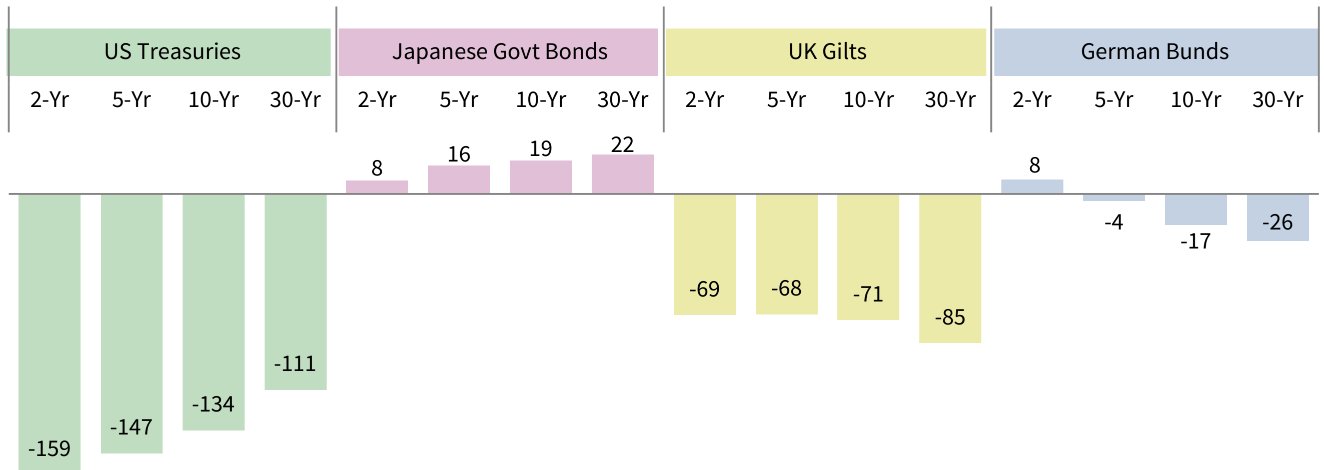
Sources: Bloomberg Index Services Limited, FTSE Fixed Income LLC, J.P. Morgan Securities, Inc., and Thomson Reuters Datastream.

Notes: Asset classes represented by Bloomberg Barclays US Aggregate Bond Index ("US Agg"), Bloomberg Barclays US Treasury Index ("US Treasury"), Bloomberg Barclays US Corporate Investment Grade Bond Index ("US IG Corp"), Bloomberg Barclays US High Yield Bond Index ("US HY"), Bloomberg Barclays Global Aggregate Bond Index ("Dev Mkts Agg"), FTSE World Government Bond Index ("Dev Mkts Govt"), Bloomberg Barclays Global Aggregate Corporate Bond Index ("Dev Mkts IG Corp"), Bloomberg Barclays Global High Yield Bond Index ("Dev Mkts HY"), J.P. Morgan Government Bond Index-Emerging Markets Global Diversified Index ("EM Local Currency"), and J.P. Morgan Emerging Markets Bond Index - Global Diversified Index ("EM Hard Currency").

US and UK rates fell across the curve

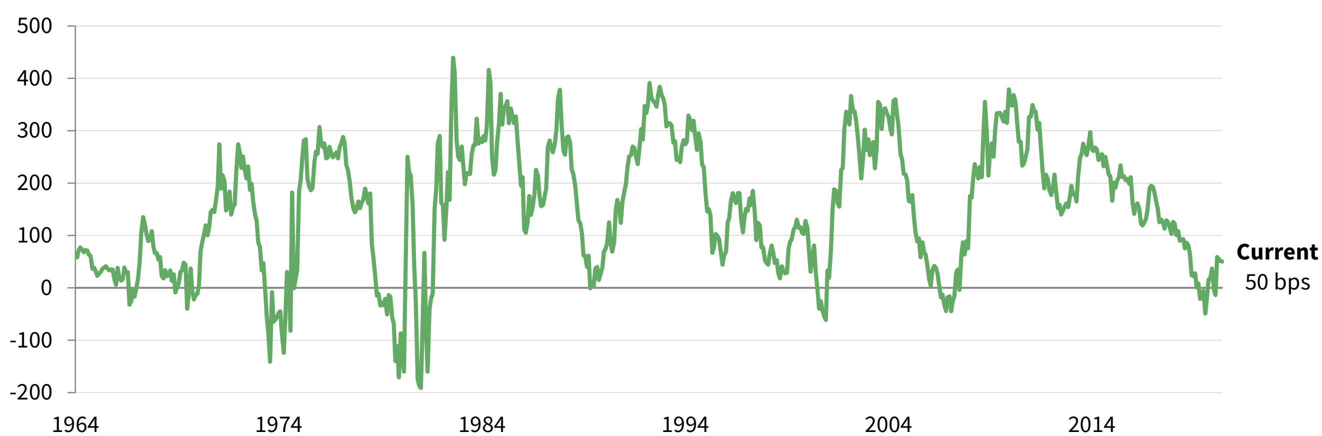
CHANGE IN YIELD VS JUNE 2019 FOR VARIOUS GOVERNMENT BOND MATURITIES

As of June 30, 2020 • Basis Points (bps)



10-YR/3-MO US TREASURY YIELD SPREAD

January 31, 1964 – June 30, 2020 • Basis Points (bps)



Government bond yields fell across the curve in the US and the UK, reflecting the rate cuts delivered by their respective central banks. The more muted reaction of German and Japanese government bonds was due to the ECB and BOJ's reluctance to cut rates further into negative territory.

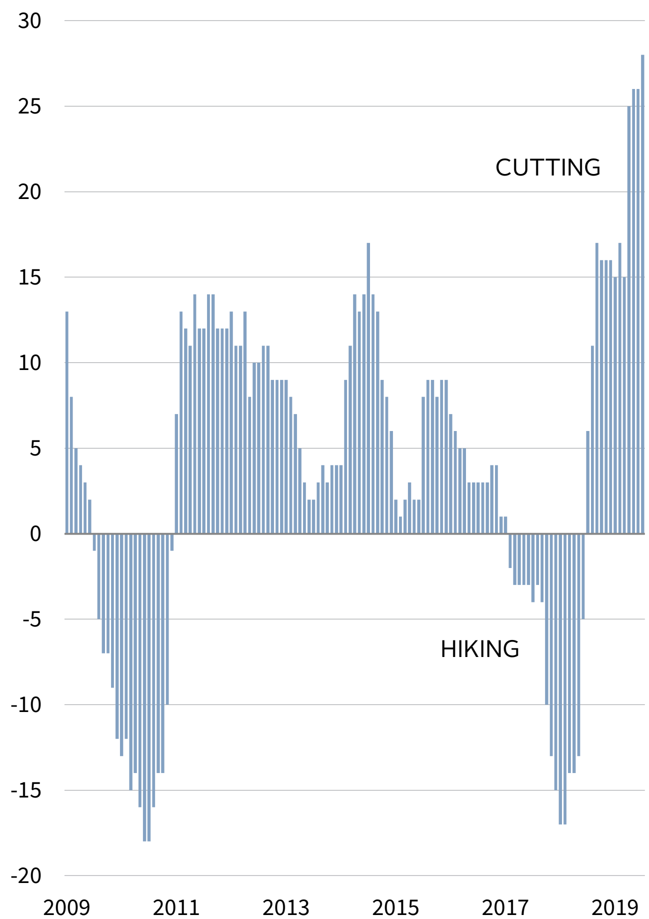
The US yield curve steepened, which is typical of a recessionary environment. Shorter dated bonds are pricing in the expectation that the Fed Funds rate will be at zero for a long time to come.

Sources: Federal Reserve, Global Financial Data, Inc., and Thomson Reuters Datastream.

Central banks pivot from hiking to cutting in order to support economies

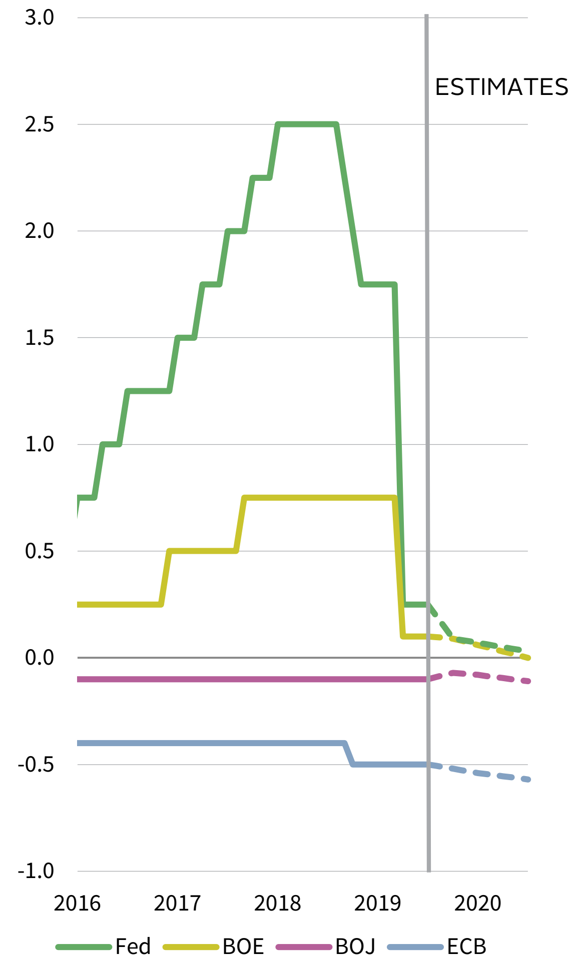
NET NUMBER OF CENTRAL BANKS CUTTING RATES

December 31, 2009 – June 30, 2020



G4 GLOBAL POLICY RATES

December 31, 2016 – June 30, 2021 • Percent (%)



Central banks initially pivoted from hiking to cutting early on in this FY period, in the wake of the fallout from the US-China trade war. The magnitude and scope of these rate cuts then expanded as the scale of the economic challenge that the pandemic presented became clear. The Fed initially delivered three 0.25% cuts in the first half of FY 2020 in response to the trade war, before subsequently taking rates to zero in March. The four major DM central banks all appear to be at what they consider to be their effective lower bound for rates, with the Fed having spoken at length about why they view negative rates as inappropriate for the US economy.

Sources: Bank for International Settlements, Bank of England, Bank of Japan, Bloomberg L.P., European Central Bank, Federal Reserve, National Sources, and Thomson Reuters Datastream.

Notes: Data are monthly. Net cutting represents the number of central banks cutting policy rates minus the number increasing policy rates over a trailing six-month period. Central bank data are based on national sources from 35 of the 38 central banks included in the Bank for International Settlements database; the central banks of Argentina, Iceland, and Turkey are excluded due to data availability. Policy rate data are as of June 30, 2020. Policy rate data are estimated after June 30, 2020, and based on market implied rates.

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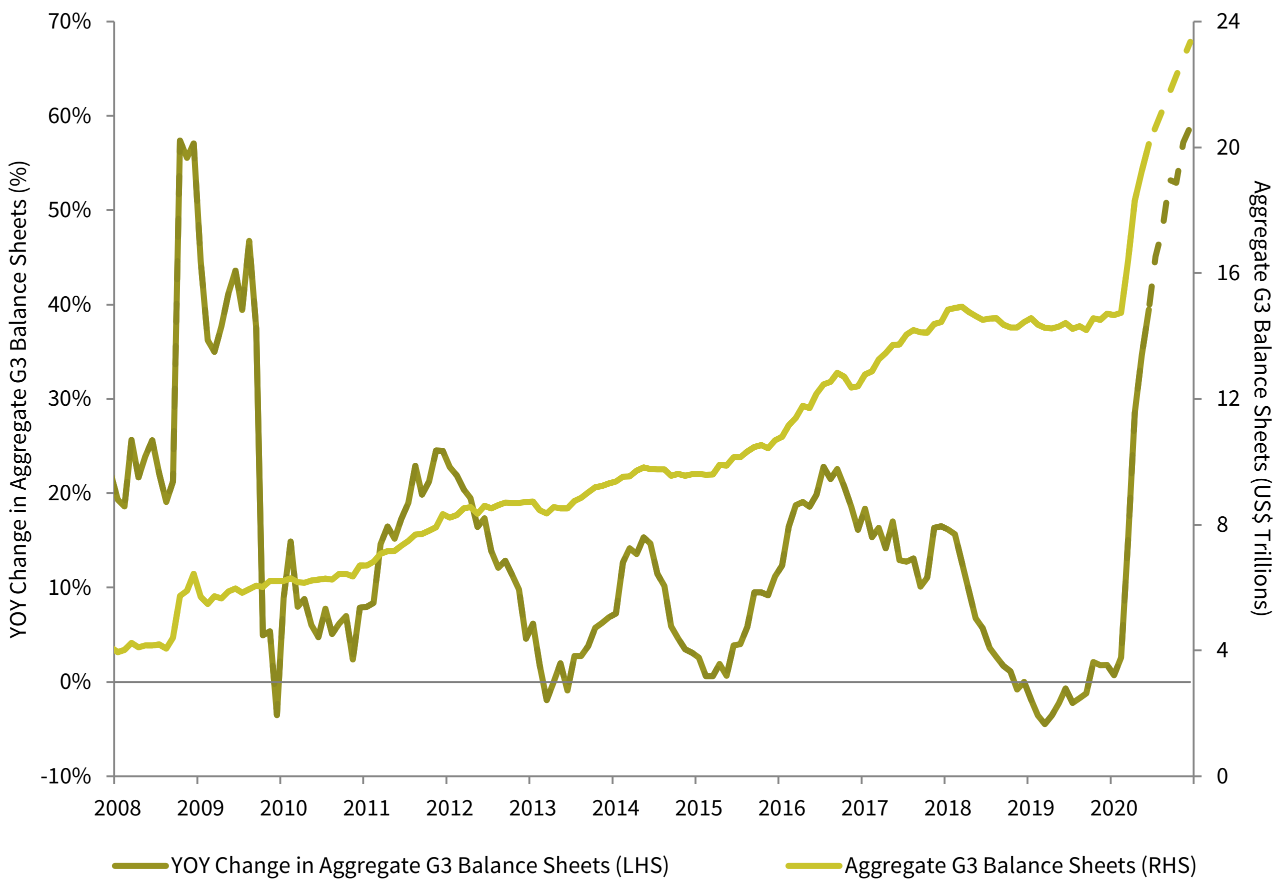
Central bank balance sheets have expanded rapidly as QE was expanded

G3 CENTRAL BANK BALANCE SHEET

December 31, 2007 – December 31, 2020 • US Dollar



Central banks came into this crisis with less room to respond to the deteriorating economic environment with rate cuts than has historically been necessary. Therefore, they were not hesitant in expanding QE programs as a further means of providing monetary support. These programs supported sovereign markets, which experienced some volatility in March due to both investors needing to raise liquidity and the expectation of large-scale government bond issuance. They have also supported corporate markets, which experienced a severe liquidity crunch in the depth of the crisis.

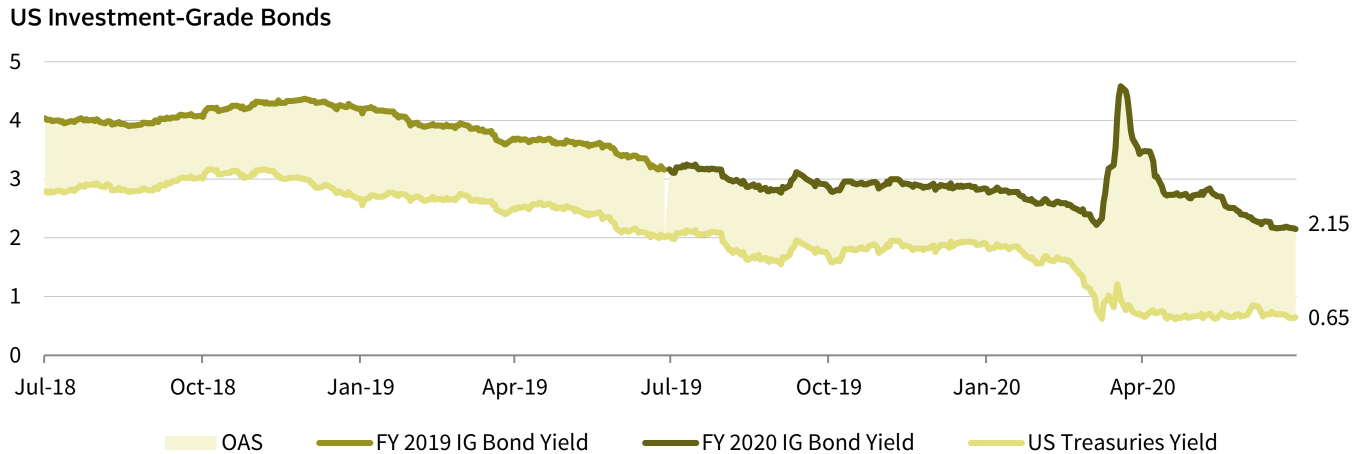
Sources: Bloomberg L.P., Goldman Sachs, J.P. Morgan Securities, Inc., MSCI Inc., and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

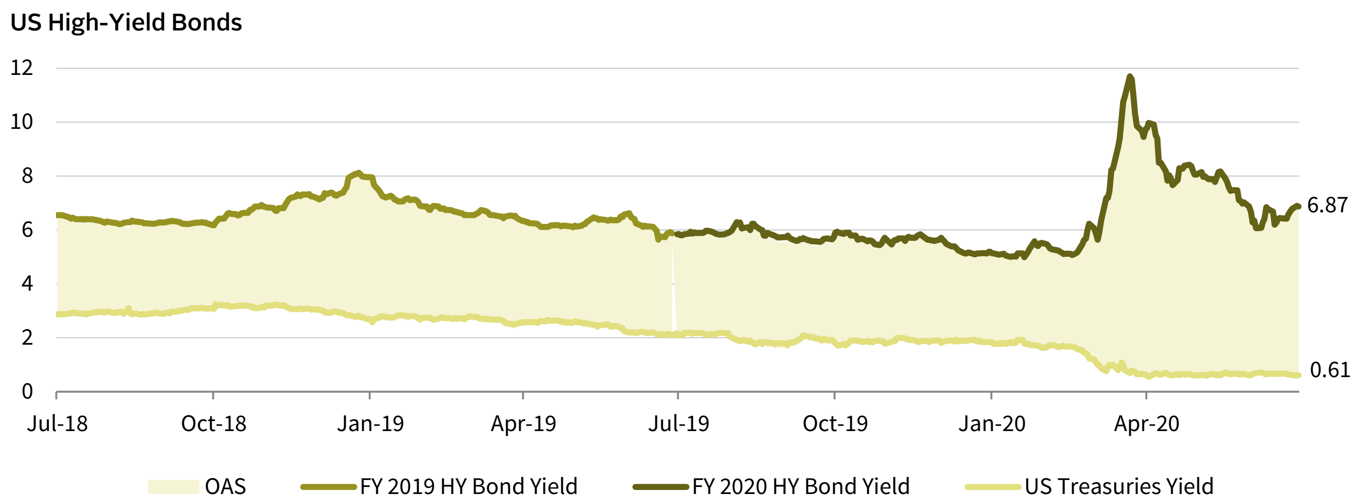
Notes: The G3 central balance sheet consists of the balance sheets of the US Federal Reserve, European Central Bank, and Bank of Japan. Estimates are represented by dotted lines and begin after June 30, 2020. Estimates for US and Europe are based on Goldman Sachs calculations, and estimates for Japan are based on J.P. Morgan estimates. Exchange rate forecasts are based on Bloomberg medians as of July 24, 2020.

Corporate bond spreads spiked wider during the COVID-19 crisis

OPTION-ADJUSTED SPREADS ON US INVESTMENT-GRADE AND HIGH-YIELD BONDS: FY 2019 and FY 2020

July 1, 2018 – June 30, 2020 • Percent (%)





After trending downward during the first half of FY 2020, corporate bond spreads in both the investment-grade and high-yield markets blew out in the midst of the pandemic. Support from Fed QE programs, which purchased corporate bonds for the first time, helped to stabilize the market when the sell-off was in its most severe phase. Since then, a broader recovery in risk sentiment has helped spreads narrow further. Indeed, rock-bottom Treasury yields have helped to push the all-in yield on investment-grade bonds to fresh all-time lows.

Sources: Bloomberg Index Services Limited, and Thomson Reuters Datastream.

Notes: Data for US investment-grade (IG) bonds are represented by the Bloomberg Barclays US Corporate Investment Grade Bond Index, and data for US high-yield (HY) bonds are represented by the the Bloomberg Barclays US High Yield Bond Index. US Treasuries yields are calculated by subtracting the IG and HY OAS from the IG and HY bond yields.

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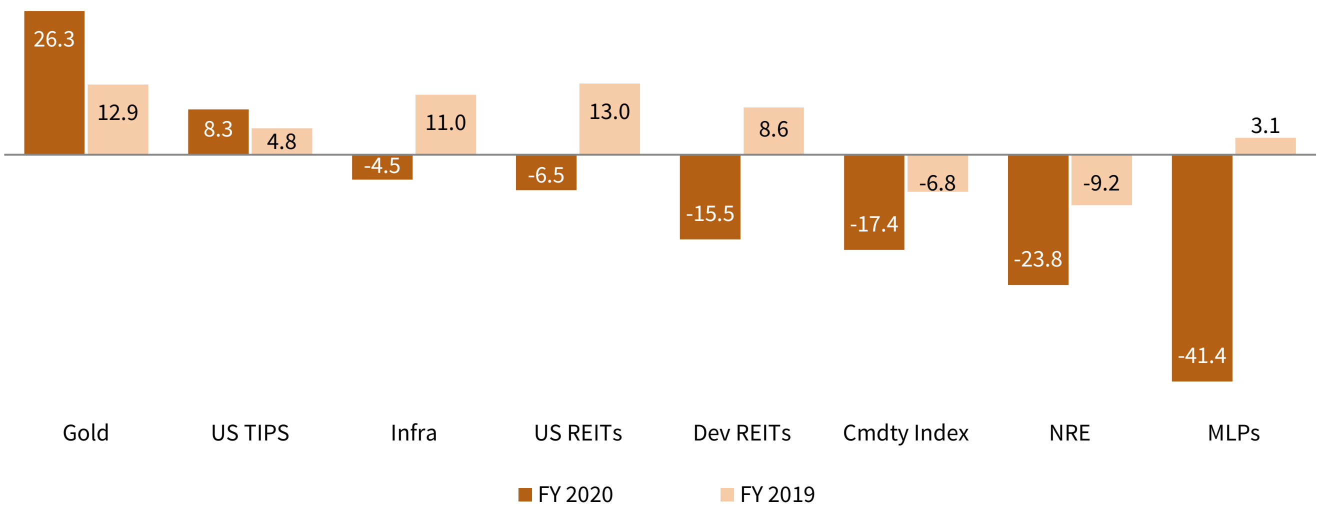
Gold and TIPS supported by declining real yields, while commodity demand has declined

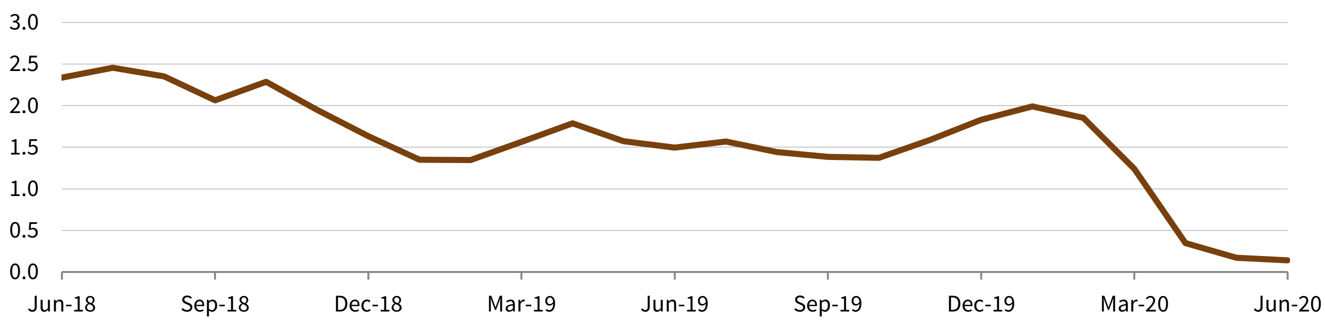
REAL ASSET AND INFLATION SENSITIVE PERFORMANCE: FY 2020 VS FY 2019

Total Return (%) • US Dollar



G7 CPI YOY % CHANGE

June 30, 2018 – June 30, 2020 • Percent (%)



Declining real yields have supported gold and TIPS, even as inflation has fallen, with the former also benefiting from a safe-haven bid. Widespread economic shutdowns have depressed the demand for many commodities, pushing down prices. The impact on energy, and oil specifically, has been exacerbated by geopolitical tensions in the oil markets. Meanwhile, real estate has suffered both directly from the lockdown, and also from fears that the widespread adoption of working from home may have implications for the future demand of commercial real estate in particular.

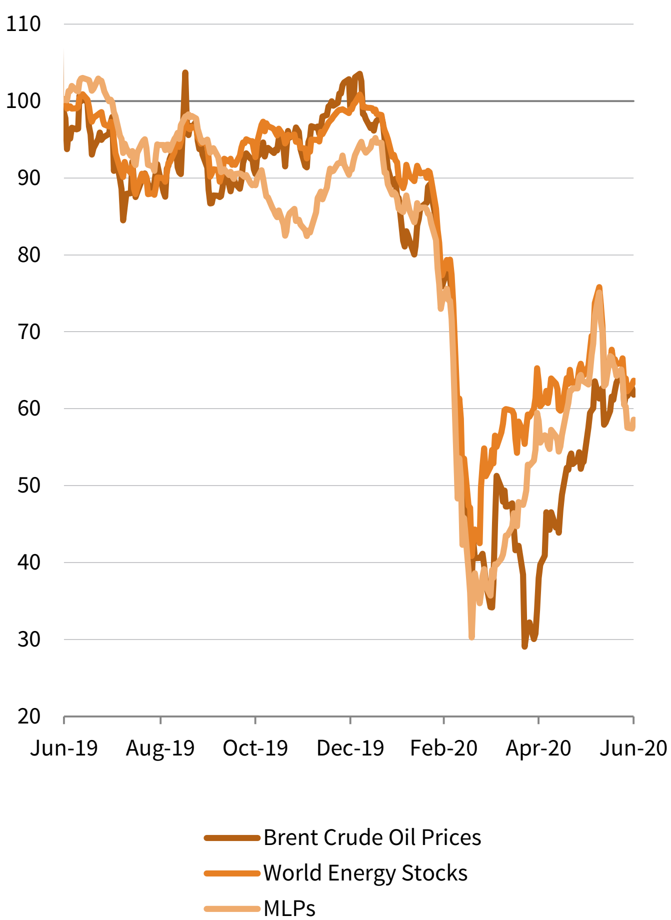
Sources: Alerian, Bloomberg Index Services Limited, Bloomberg L.P., EPRA, FTSE International Limited, Intercontinental Exchange, Inc., MSCI Inc., Nareit, OECD, and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

Notes: All returns are total returns, except those for gold, which are based on spot price returns. Asset classes represented by the following: LBMA Gold Price ("Gold"), Bloomberg Barclays US TIPS Index ("US TIPS"), MSCI World Infrastructure Index ("Infra"), FTSE® NAREIT All Equity REITs Index ("US REITs"), FTSE® EPRA/NAREIT Developed Real Estate Index ("Dev REITs"), Bloomberg Commodity TR Index ("Cmdty Index"), market cap-weighted Datastream World Energy Index and Datastream World Basic Resources Index blend ("NRE"), and Alerian MLP Total Return Index ("MLPs"). Total return data for all MSCI indexes are net of dividend taxes. G7 inflation data are as of May 31, 2020.

Oil declined due to demand, production, and storage concerns

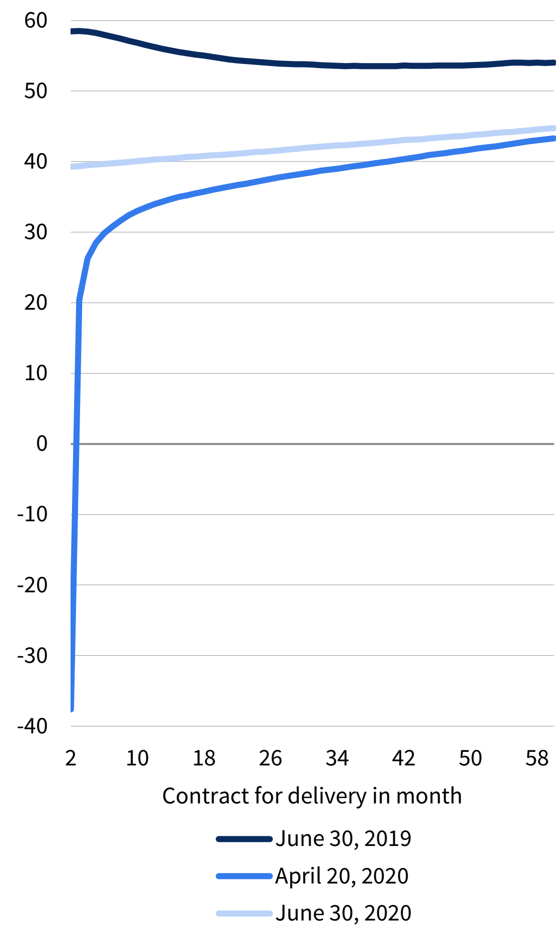
PERFORMANCE OF SELECT ENERGY ASSETS

June 30, 2019 – June 30, 2020 • June 30, 2019 =100 • US Dollar



WTI CRUDE OIL FUTURES CURVE

As of July 9, 2020 • US Dollar



Energy markets suffered a dual impact in the latter part of FY 2020. Even as demand for oil was declining due to the virus-induced lockdowns, Russia and Saudi Arabia announced an increase in oil production, accelerating these price declines. This has had particular implications for companies involved in the US shale space, given their relatively high production costs. The resulting glut of oil, and a lack of storage capacity at Cushing in Oklahoma, meant that short-dated WTI contracts briefly traded at deeply negative prices in mid-April.

Sources: Alerian, Bloomberg L.P., Intercontinental Exchange, Inc., MSCI Inc., and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

Notes: Brent Crude Oil Prices, World Energy Stocks, and MLPs are represented by the ICE Brent Crude Near-Month Futures, MSCI World Energy Index, and the Alerian MLP Total Return Index, respectively. Total return data for all MSCI indexes are net of dividend taxes. Data on LHS graph are daily. Data on RHS gragh reflect prices of WTI Crude Oil futures contracts as traded on the New York Mercantile Exchange.

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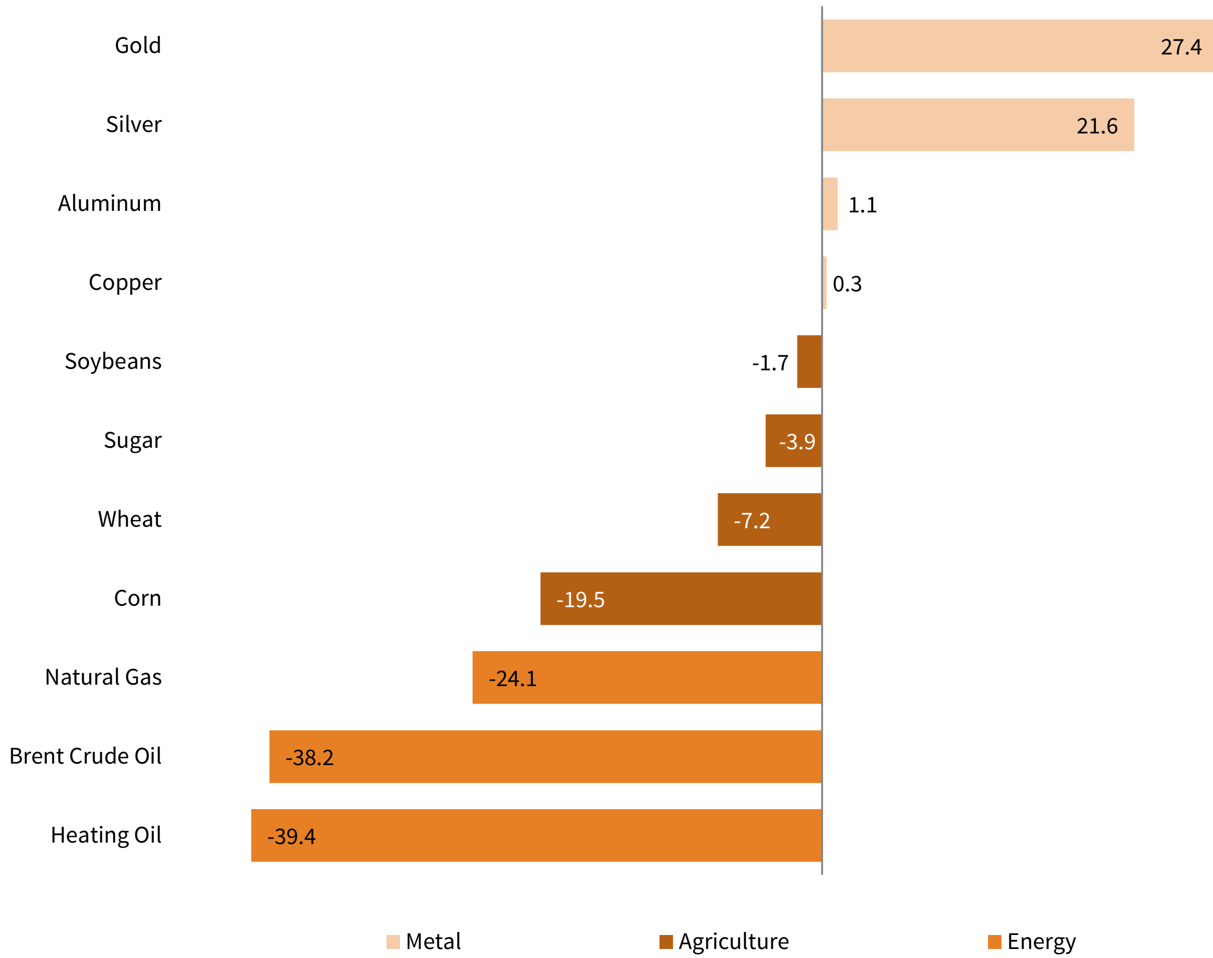
Restricted demand has seen broad falls in commodity prices

SELECT COMMODITY SPOT PERFORMANCE: FY 2020

As of June 30, 2020 • Percent (%) • US Dollar



Source: Bloomberg L.P.

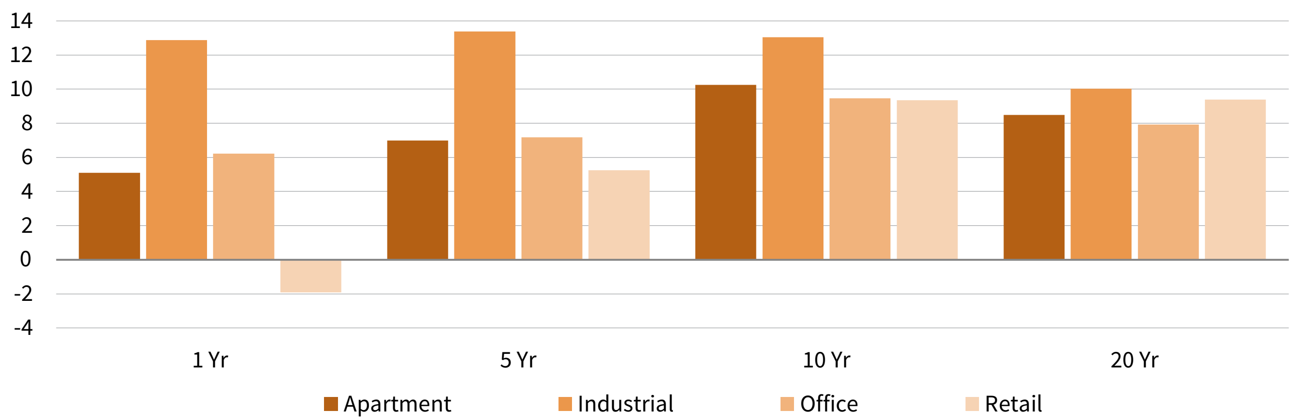
Note: Spot returns reflect changes in near-month futures contracts, as reported by Bloomberg L.P.

Energy markets have suffered the steepest declines in the commodities space; however, the price of most commodities has fallen during FY 2020. Lockdowns have depressed current activity, and expectations of future growth, thereby impacting the expected demand for a range of these commodities. Gold and silver stand out as prominent exceptions to this pattern. Both precious metals have been supported by declining real yields, with prices further boosted by safe-haven demand.

Retail property remains a sector under pressure

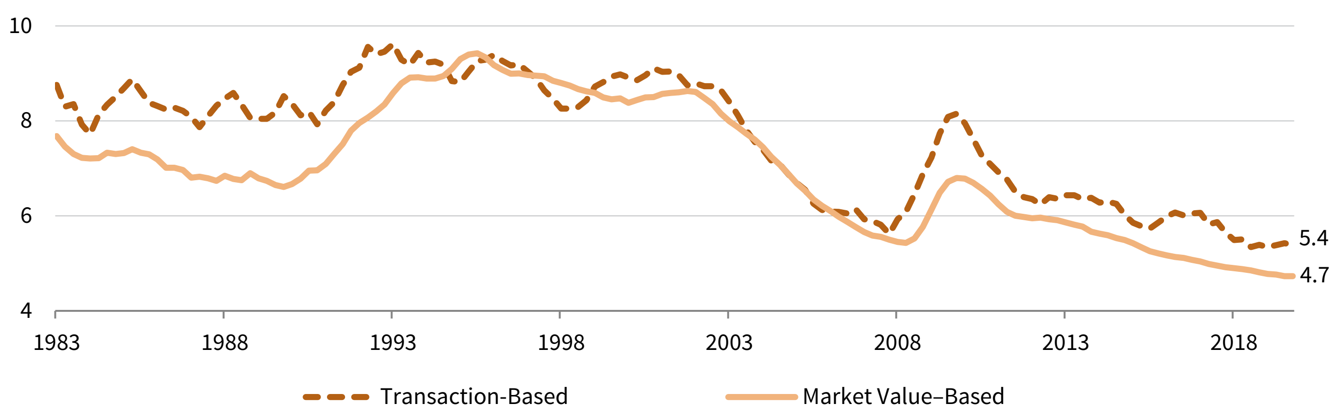
RETURNS BY PROPERTY TYPE

As of First Quarter 2020 • AACR (%) • US Dollar



ALL PROPERTY CAP RATES

Second Quarter 1983 – First Quarter 2020 • Percent (%)



Source: National Council of Real Estate Investment Fiduciaries.

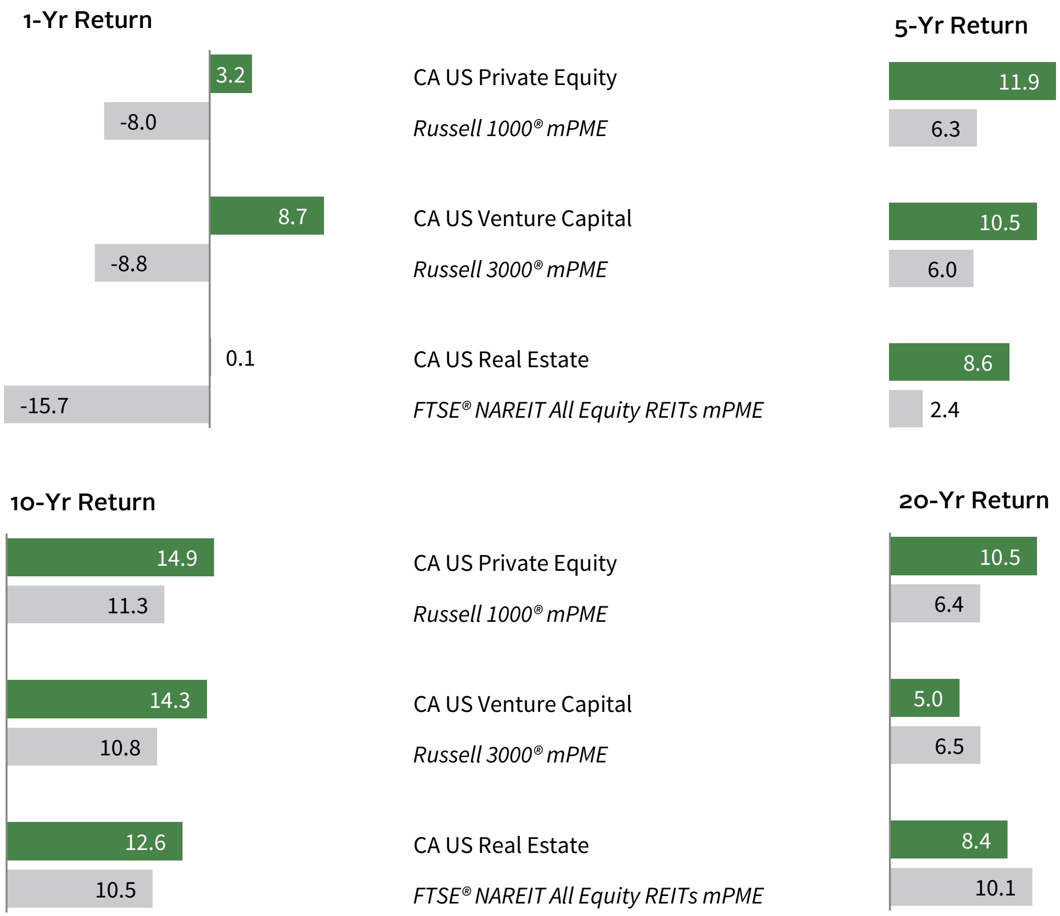
Notes: AACR represents total returns. Cap-rate data represent a four-quarter moving average. All data are quarterly.

Property price appreciation slowed across the board as we moved into 2020. Retail remained the sector most under pressure, experiencing its worst quarter since 2009. While the secular trend away from brick-and-mortar retail has impacted the sector over the past several years, this year it has borne the brunt of the economic lockdowns that have seen consumers remain at home. Despite a moderately slowing growth rate, industrial property once again performed strongly over the year, with e-commerce and logistics firms insulated from the worst of the economic impacts of the pandemic.

Private markets have outperformed public investments over the past year

PERFORMANCE OF SELECT CAMBRIDGE ASSOCIATES PRIVATE INVESTMENT INDEXES VS PUBLIC EQUIVALENTS

As of First Quarter 2020 • Percent (%)



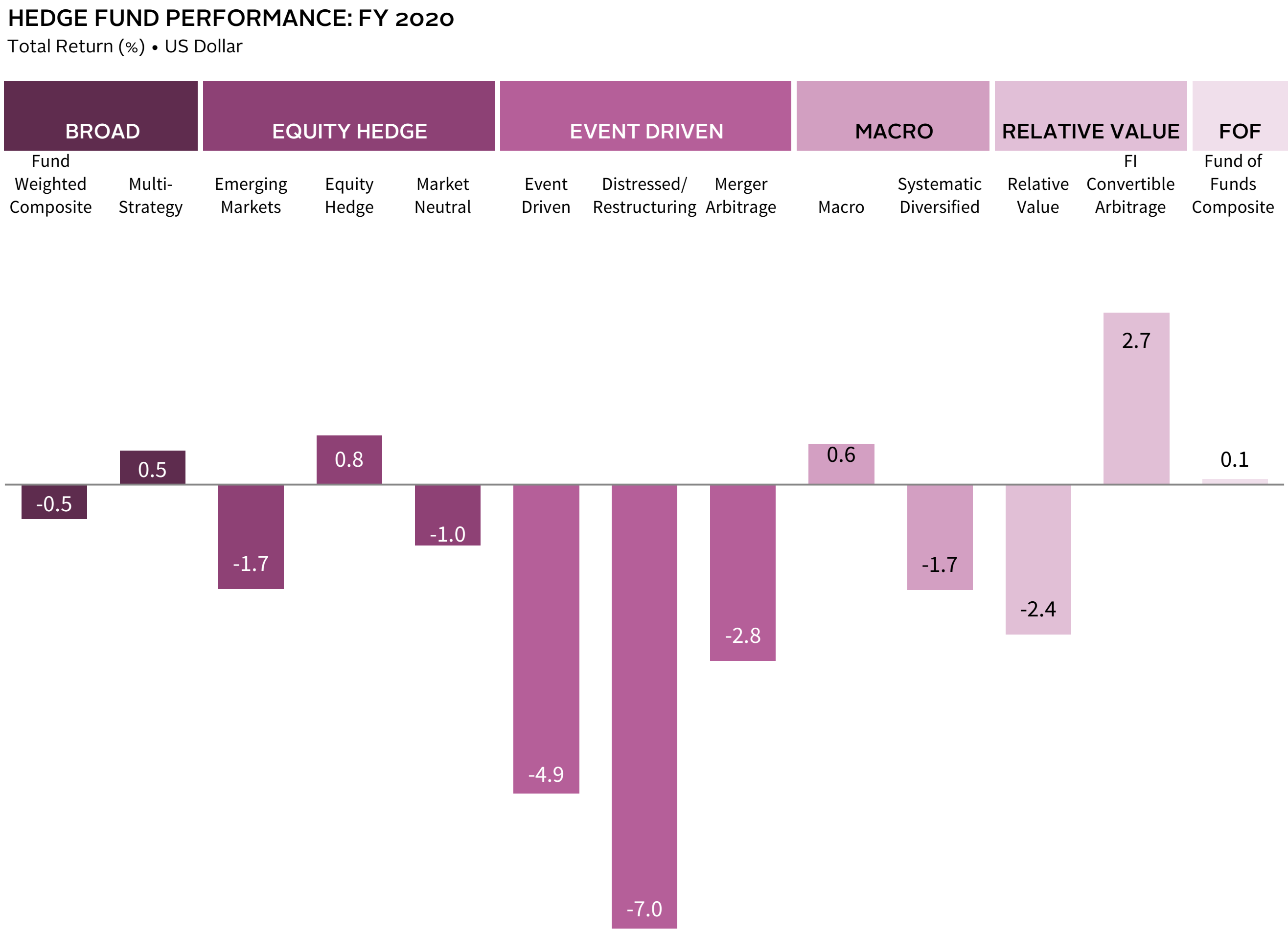
Private markets returns were more muted, albeit still positive, over the most recent 1-year period. By contrast, comparable public markets posted negative returns as they proved more sensitive to the emerging threat of COVID-19. This outperformance of private markets is also witnessed over longer horizons, with the three private indexes presented all outperforming over 5- and 10-year horizons.

Sources: Cambridge Associates LLC, FTSE International Limited, Nareit, and Thomson Reuters Datastream.

Notes: Private indexes are pooled horizon IRRs, net of fees, expenses, and carried interest. The CA Modified Public Market Equivalent (mPME) replicates private investment performance under public market conditions. The public index's shares are purchased and sold according to the private fund cash flow schedule, with distributions calculated in the same proportion as the private fund, and mPME net asset value is a function of mPME cash flows and public index returns.

1788q mod

A weak year for hedge fund returns, broad-based across strategies



Preliminary data from Hedge Fund Research, Inc., suggest performance across the primary hedge fund strategies was weak in FY 2020, with the widely followed HFRI Fund Weighted Composite down 0.5%. Performance in the latter half of calendar year 2019 was relatively strong, as equity markets continued to advance while the US-China trade war gradually de-escalated. However, a swift decline in prices across nearly all asset classes in 2020, combined with a rapid recovery, proved to be a difficult environment to navigate.

Source: Hedge Fund Research, Inc.

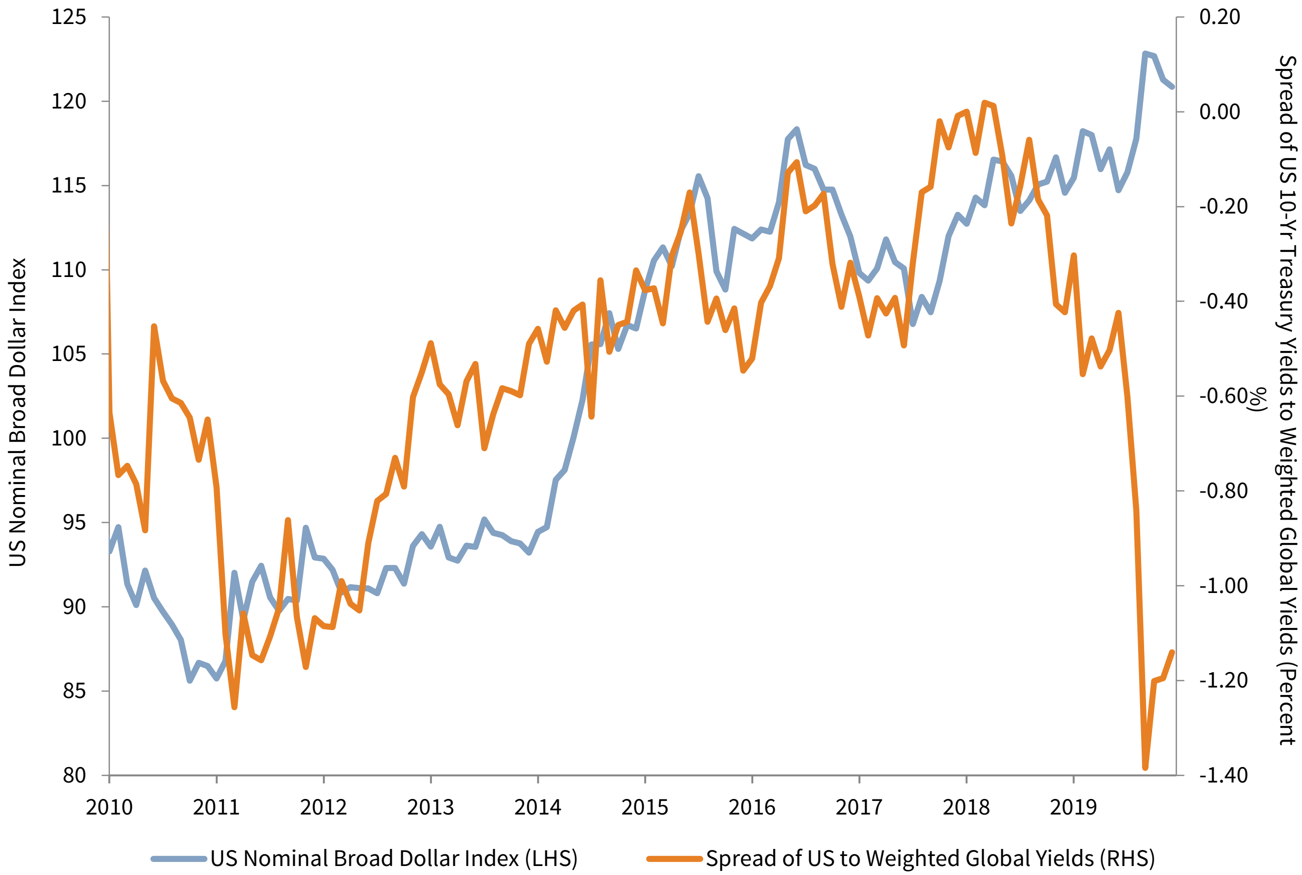
Note: Hedge Fund Research data are preliminary for the preceding five months.

4125m mod

US dollar appreciated due to flight-to-safety inflows

SPREAD OF US YIELDS TO GLOBAL EQUIVALENTS

July 31, 2010 – June 30, 2020



The US dollar appreciated in two episodes during FY 2020, both due to flight-to-safety behavior on the part of global investors. The first was a period of moderate appreciation as the US-China trade war rumbled on. An apparent thawing of Sino-US relations saw some of this appreciation start to unwind, when the onset of COVID-19 saw the US dollar appreciate sharply. The rapid decline in risk assets saw the dollar become increasingly attractive due to its safe-haven status. This rise in the dollar took place despite the US losing the support of the interest rate differential which had been a driver of its multi-year appreciation.

Sources: Bloomberg, L.P., FTSE International Limited, and Thomson Reuters Datastream

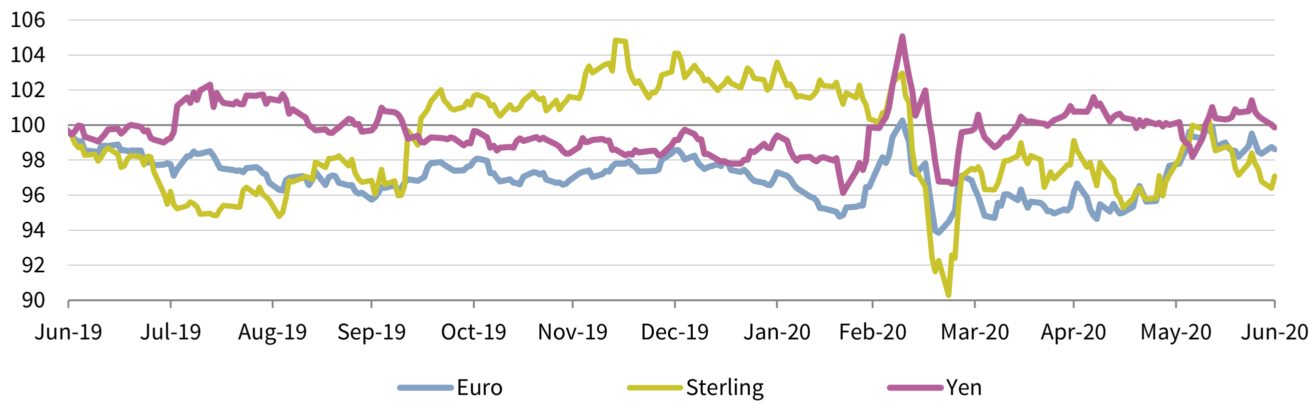
Notes: The global yield series is construcuted by taking the ten-year government bond yields of the nine currency regions that currently have the largest weights in the Federal Reserve "US Nominal Broad Dollar Index" series, and weighting them in proportion to their historical weights. This series is then subtracted from the US ten-year Treasury yield to create the "Spread" series.

EM currencies bore the brunt of the US dollar's strength

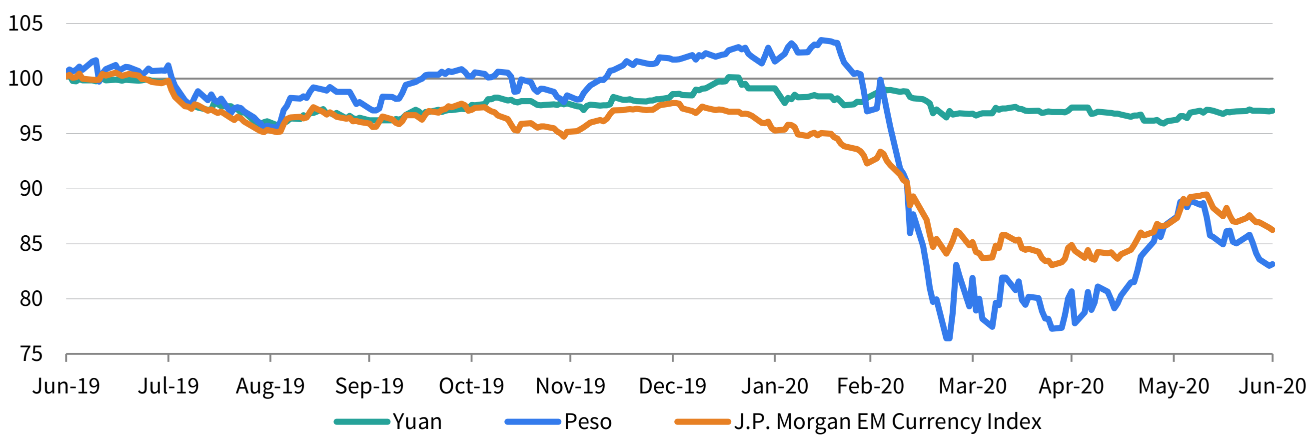
SELECT NOMINAL CURRENCY MOVEMENTS VS THE US DOLLAR

June 30, 2019 – June 30, 2020 • June 30, 2019 = 100

Euro, Sterling, and Yen vs US Dollar



Yuan, Peso, and J.P. Morgan EM Currency Index vs US Dollar



The Euro and Sterling depreciated against the dollar, both during the trade-war environment and then again during the pandemic. Sterling, in particular, experienced a large decline at the peak of the market crisis in March. However, both currencies have rebounded somewhat, with the Euro and Sterling finishing down 1.4% and 2.9%, respectively, against the dollar. By contrast, the Yen finished broadly unchanged versus the dollar due to the safe-haven status it enjoys amongst Japanese investors. Emerging markets currencies suffered much steeper declines due to the large outflows experienced by their equity and bond markets.

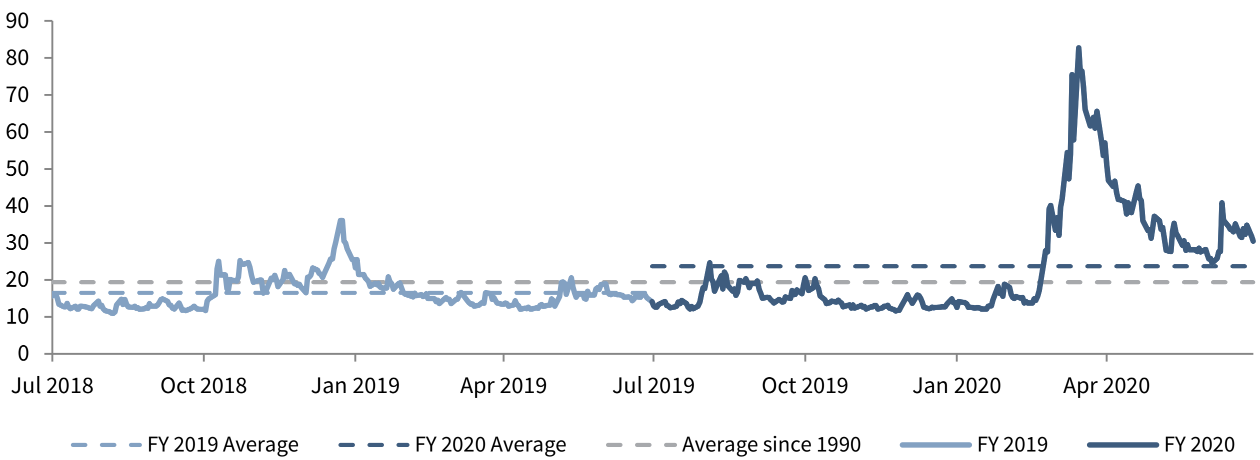
Sources: J.P. Morgan Securities, Inc. and Thomson Reuters Datastream.

Note: Data are daily.

Equity volatility rose sharply as markets declined

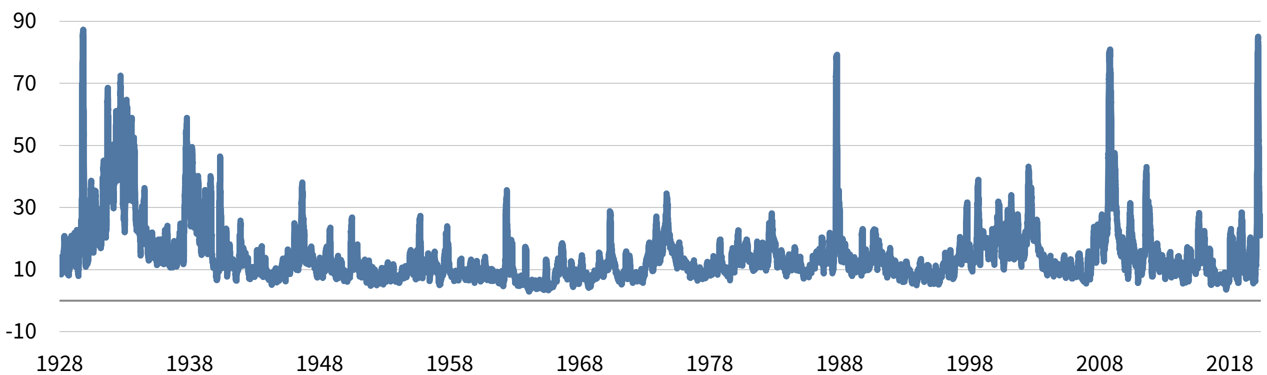
S&P 500 IMPLIED VOLATILITY: FY 2019 & FY 2020

July 1, 2018 – June 30, 2020 • Index Level



S&P 500 ANNUALIZED 30-DAY REALIZED VOLATILITY

February 6, 1928 – June 30, 2020 • Percent (%)



The VIX rose sharply during the market sell-off in first quarter of 2020. This was justified by the large rise in realized volatility, which matched some of the most extreme volatility environments witnessed over the past 100 years. While the VIX has largely normalized in the ensuing months, volatility remains somewhat elevated in comparison to its long-run average.

Sources: Chicago Board Options Exchange, Global Financial Data, Inc., Standard & Poor's, and Thomson Reuters Datastream.

Notes: The Chicago Board Options Exchange Volatility Index (VIX) measures the implied volatility of near-term S&P 500 Index options. Data are daily.

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