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DATE: February 22, 2022

TO: Legislative Reference Library

FROM: Mansco Perry III
Executive Director and Chief Investment Officer

SUBJECT: Report on Investment Consultant Activities

The provisions of Minnesota Statutes, Section 11A.27 require the State Board of Investment (SBI) to file with the Legislative Reference Library a report on investment consultant activities.

The SBI contracts with Aon Investments USA Inc. (Aon), Chicago, IL; Meketa Investment Group, LLC (Meketa), Portland, OR; and Albourne America LLC (Albourne), Norwalk, CT. Aon and Meketa serve as the SBI's general consultant and the annual contract fees per year are $515,000 and $285,000, respectively. Albourne was hired on May 1, 2021 and serves as the SBI's private market consultant. Albourne's pro-rata amount for services provided for the fiscal year is $243,334.

As part of their consultant services, Aon and Meketa are available to the Board, staff and Investment Advisory Council (IAC) to provide perspective, counsel and input on relevant investment related issues. Albourne is available to the Board, staff and IAC to provide back office support and analysis on private market firms and investments.

During the period July 1, 2020 through June 30, 2021, Aon and Meketa provided the following reports:

- Periodic background information for evaluating SBI investment managers
- Quarterly Capital Market Outlook Reports

Attached is an example of the work product each has provided.

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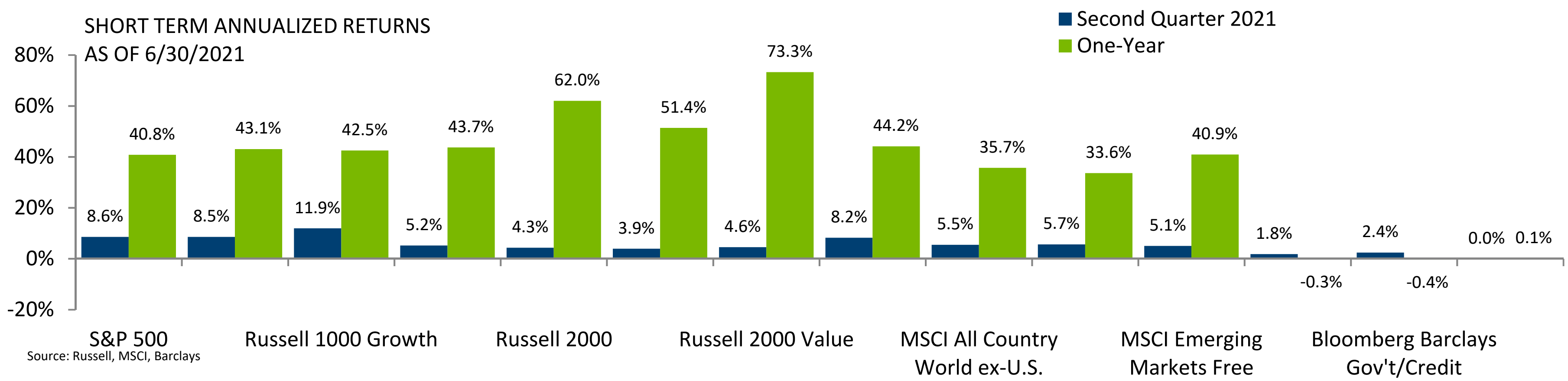
Market Environment

Second Quarter 2021

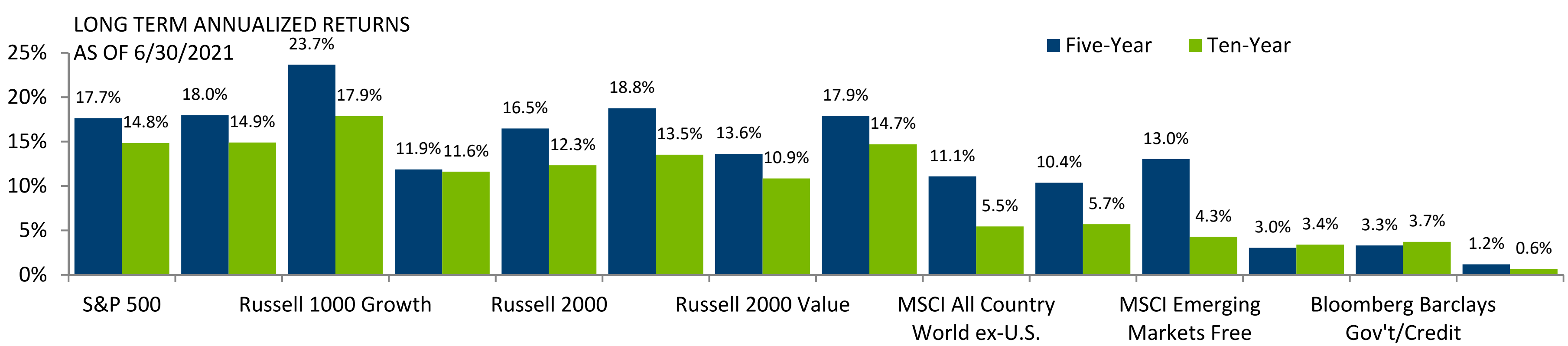
Aon

Investment advice and consulting services provided by Aon Investments USA Inc., an Aon Company.

Market Highlights



Source: Russell, MSCI, Barclays



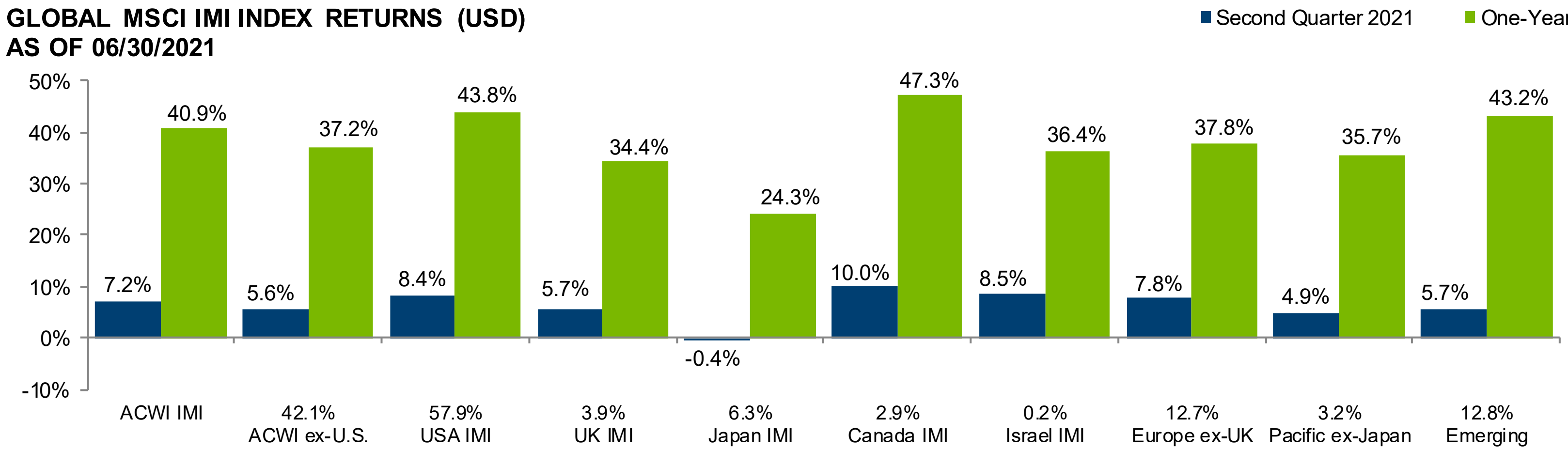
Source: Russell, MSCI, Barclays

Market Highlights

Returns of the Major Capital Markets						
						Periods Ending 6/30/2021
	Second Quarter	Year-to-Date	1-Year	3-Year[1]	5-Year[1]	10-Year[1]
Domestic Equity						
S&P 500	8.6%	15.3%	40.8%	18.7%	17.7%	14.8%
Russell 1000	8.5%	15.0%	43.1%	19.2%	18.0%	14.9%
Russell 1000 Growth	11.9%	13.0%	42.5%	25.1%	23.7%	17.9%
Russell 1000 Value	5.2%	17.1%	43.7%	12.4%	11.9%	11.6%
Russell 2000	4.3%	17.5%	62.0%	13.5%	16.5%	12.3%
Russell 2000 Growth	3.9%	9.0%	51.4%	15.9%	18.8%	13.5%
Russell 2000 Value	4.6%	26.7%	73.3%	10.3%	13.6%	10.9%
Russell 3000	8.2%	15.1%	44.2%	18.7%	17.9%	14.7%
International Equity						
MSCI All Country World ex-U.S.	5.5%	9.2%	35.7%	9.4%	11.1%	5.5%
MSCI World ex USA	5.7%	9.9%	33.6%	8.6%	10.4%	5.7%
MSCI Emerging Markets Free	5.1%	7.5%	40.9%	11.3%	13.0%	4.3%
Fixed Income						
Bloomberg Barclays U.S. Aggregate	1.8%	-1.6%	-0.3%	5.3%	3.0%	3.4%
Bloomberg Barclays Gov't/Credit	2.4%	-2.0%	-0.4%	6.0%	3.3%	3.7%
3 Mo U.S. T-Bills	0.0%	0.0%	0.1%	1.3%	1.2%	0.6%
Inflation						
CPI-U	2.3%	3.6%	5.3%	2.6%	2.4%	1.9%

MSCI Indices show net returns.
All other indices show total returns.
[1] Periods are annualized.

Global Equity Markets



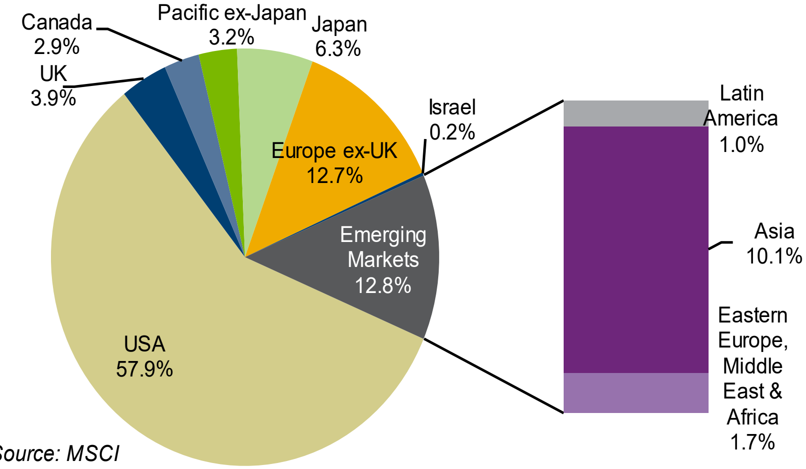
Source: MSCI

- Global equities climbed higher as the economic rebound and falling yields were enough to overcome the worry of emerging COVID-19 variants and uncertainty surrounding the future of U.S. monetary policy. The MSCI All Country World Investable Market Index (ACWI IMI) returned 7.2% for the quarter.
- The U.S. led for the quarter, returning 8.4% compared to 5.6% for non-U.S. equities and outperformed over the trailing one-year period.
- On a regional basis, Canadian equities were the strongest for the quarter, as the Canada IMI returned 10.0%. The index was led higher by its two largest sectors, Financials and Energy. The Energy sector gained 14.0% over the quarter due to rising oil prices.
- Europe ex-UK had a strong quarter as lockdown restrictions eased. All sectors generated positive returns, but Consumer Staples and Health Care were the top contributors to quarterly performance.
- Emerging Markets returned 5.7% for the second quarter but trailed many developed regions.

Global Equity Markets

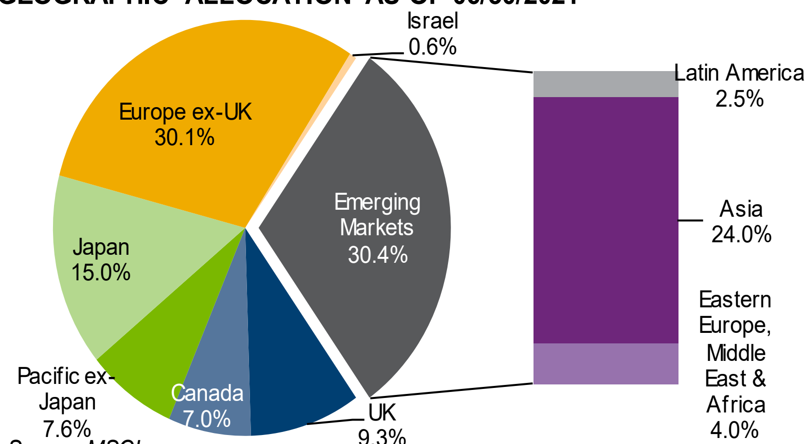
Below is the country/region breakdown of the global and international equity markets as measured by the MSCI All Country World IMI Index and the MSCI All Country World ex-U.S. IMI Index, respectively.

MSCI ALL COUNTRY WORLD IMI INDEX GEOGRAPHIC ALLOCATION AS OF 06/30/2021



Source: MSCI

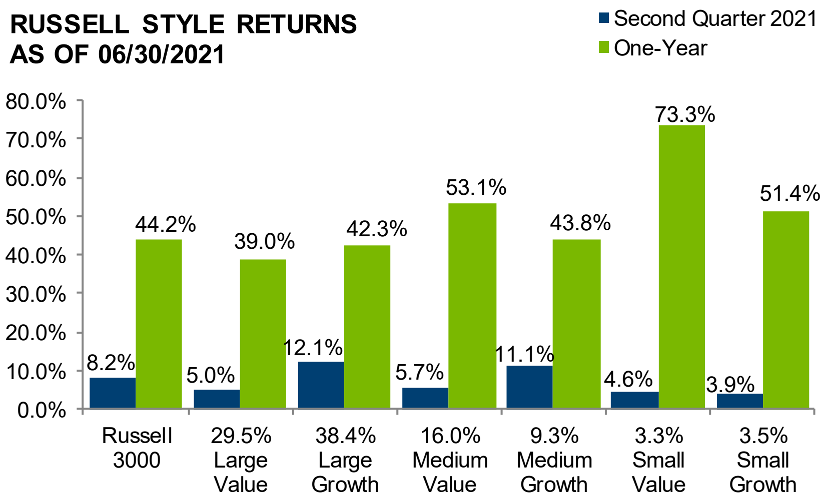
MSCI ALL COUNTRY WORLD EX-U.S. IMI INDEX GEOGRAPHIC ALLOCATION AS OF 06/30/2021



Source: MSCI

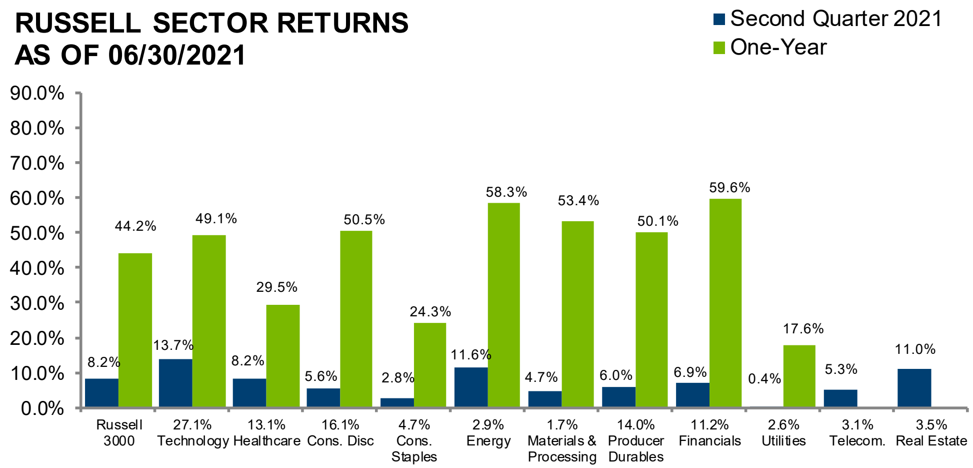
U.S. Equity Markets

RUSSELL STYLE RETURNS
AS OF 06/30/2021



Source: Russell Indexes

RUSSELL SECTOR RETURNS
AS OF 06/30/2021

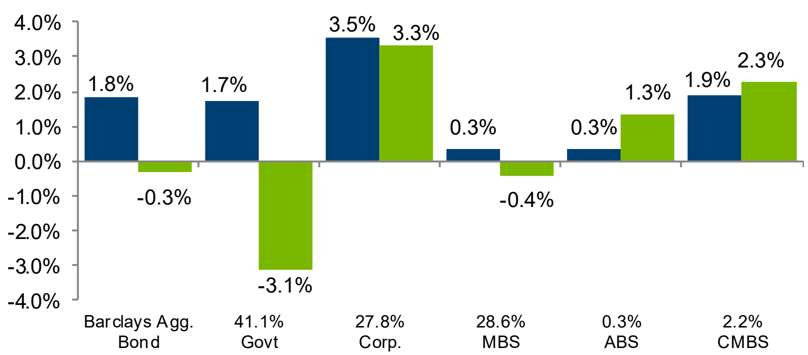


Source: Russell Indexes(New sectors like Telecommunication and Real Estate One-Year chart excluded due to lack of historical data)

- U.S. equities were up over the quarter, supported by continued progress on the vaccination front and improving economic activity. U.S. Treasury yields declined throughout the quarter, which weighed on much of the reflation trade and value-oriented sectors. Sectors the benefit from falling interest rates, such as Technology and Real Estate, fared well during the second quarter.
- The Russell 3000 Index returned 8.2% during the second quarter and 44.2% over the trailing one-year period. All sectors generated positive returns over the quarter, led by strong returns from the Technology and Energy sectors, which returned 13.7% and 11.6% respectively. Utilities returned the least at 0.4%.
- Large and medium cap stocks outperformed small caps over the quarter. Growth stocks outperformed value within large and medium cap stocks. Over the trailing one-year period growth eclipsed value within large cap stocks but medium and small cap value still led their growth counterparts.

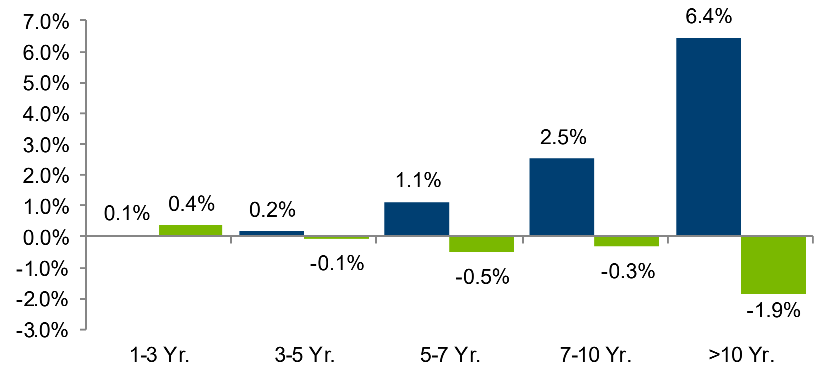
U.S. Fixed Income Markets

BLOOMBERG BARCLAYS AGGREGATE RETURNS BY SECTOR AS OF 06/30/2021



Source: FactSet

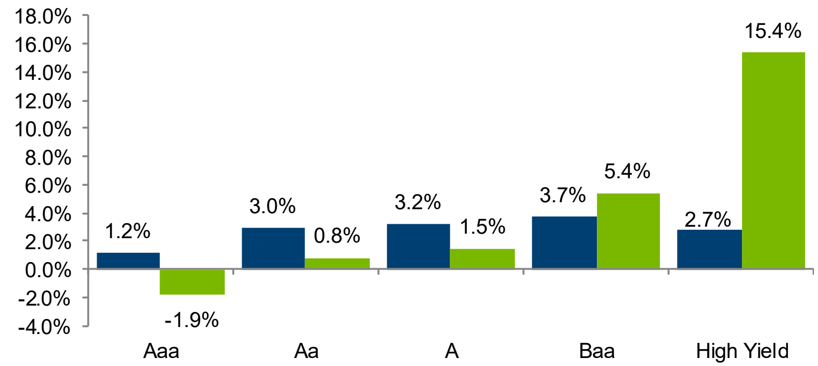
BLOOMBERG BARCLAYS AGGREGATE RETURNS BY MATURITY AS OF 06/30/2021



Source: FactSet

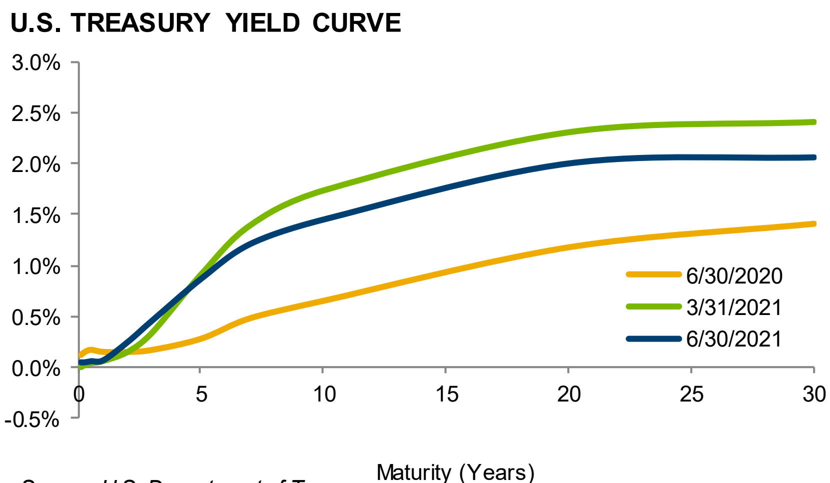
- The Bloomberg Barclays U.S. Aggregate Bond Index rose by 1.8% over the quarter.
- Credit markets benefited from risk-on sentiment during the quarter, with corporate bonds up 3.5% by quarter-end, followed by CMBS bonds which rose by 1.9%.
- Across durations, longer maturity bonds (10+ years) rose the most at 6.4%.
- Within investment grade bonds, lower-credit quality outperformed higher quality issues, with Baa bonds as the best performer returning 3.7%. High yield bonds rose by 2.7%.

BLOOMBERG BARCLAYS AGGREGATE RETURNS BY QUALITY AND HIGH YIELD RETURNS AS OF 06/30/2021

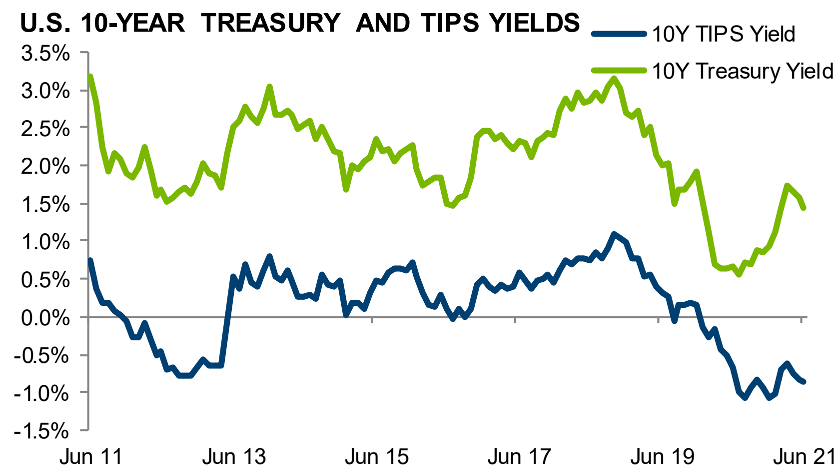


Source: FactSet

U.S. Fixed Income Markets



Source: U.S. Department of Treasury

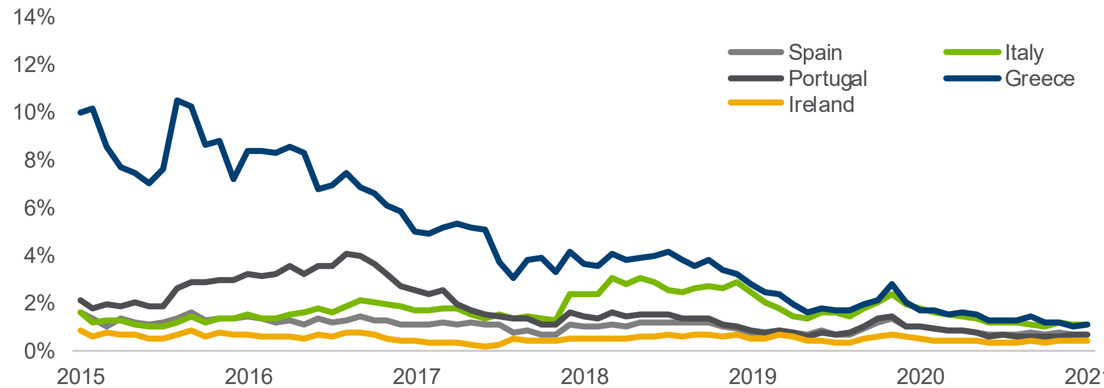


Source: U.S. Department of Treasury

- The U.S. Treasury curve flattened with yields rising at shorter end but falling across medium to longer maturities, despite an uptick in inflation. The US Federal Reserve (Fed) left interest rates unchanged and held its current pace of asset purchases. However, hawkish sentiment emerged with various members voicing a preference to tighten policy sooner rather than later. The dot plot from the June FOMC meeting showed rate hikes could start in 2023.
- The 10-year U.S. Treasury yield ended the quarter 29bps lower at 1.45% and the 30-year yield decreased by 35bps to 2.06%.
- The 10-year TIPS yield fell by 24bps over the quarter to -0.87%.

European Fixed Income Markets

EUROZONE PERIPHERAL BOND SPREADS
(10-YEAR SPREADS OVER GERMAN BUNDS)



Source: FactSet

- European government bond spreads over 10-year German bunds generally widened across the Euro Area. The European Commission upgraded the eurozone's growth forecast to 4.3% this year and 4.4% in 2022 from the previous estimates of 3.8% in both years, citing increasing vaccinations and easing lockdown restrictions.
- German government bund yields rose by 9bps to -0.21% over the quarter. The Eurozone economy fell into a double-dip recession due to varying levels of lockdown stringency in response to a third wave of coronavirus. The economy contracted by 0.6% in Q1 2021. Germany was Europe's worst-hit major economy as it contracted by 1.7%, as falling household consumption failed to offset higher manufacturing exports. Elsewhere, the French economy expanded by 0.4% over the same period.
- Portuguese government bond yields rose by 18bps to 0.39% and Italian government bond yields rose by 17bps to 0.83%.

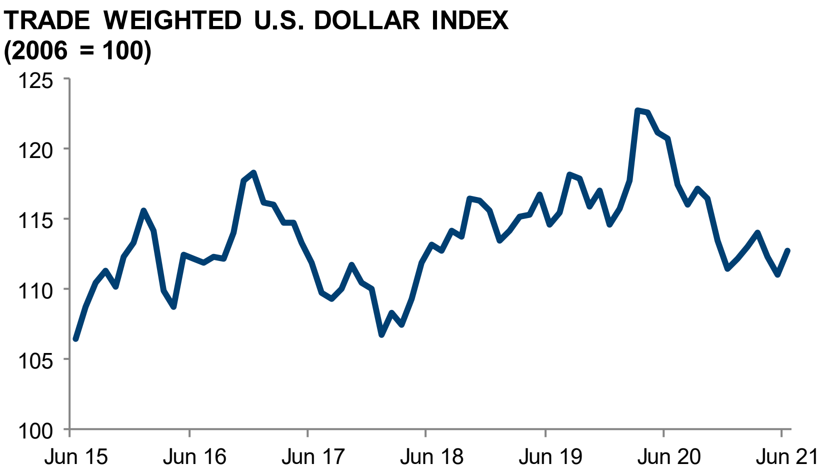
Credit Spreads

Spread (bps)	6/30/2021	3/31/2021	6/30/2020	Quarterly Change (bps)	1-Year Change (bps)
U.S. Aggregate	32	31	68	1	-36
Gov't	0	0	1	0	-1
Credit	77	86	142	-9	-65
Gov't/Credit	34	38	65	-4	-31
MBS	27	12	70	15	-43
CMBS	59	71	132	-12	-73
ABS	22	35	68	-13	-46
Corporate	80	91	150	-11	-70
High Yield	268	310	626	-42	-358
Global Emerging Markets	257	267	393	-10	-136

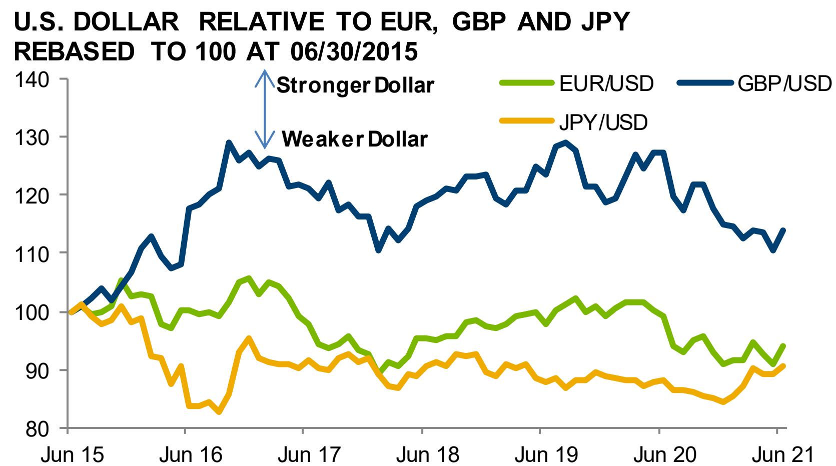
Source: Barclays Live

- Credit spreads continued to tighten during the quarter, with credit spreads over U.S. treasuries narrowing across the board in the second quarter.
- High Yield credit spreads and ABS spreads narrowed the most in Q2 2021, decreasing by 42bps and 13bps over the quarter.

Currency



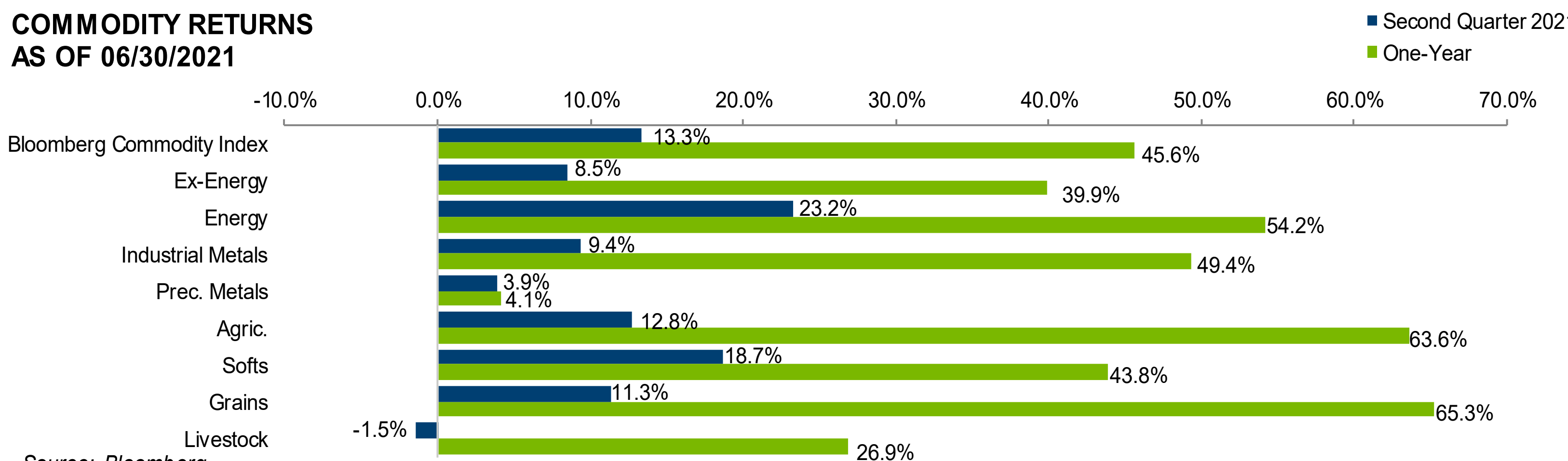
Source: Federal Reserve



Source: FactSet

- The U.S. Dollar depreciated against the Euro and Sterling but appreciated against the Yen. The U.S. dollar fell 1.1% on a trade-weighted basis.
- Sterling fell by 0.6% on a trade-weighted basis over the quarter. The Bank of England unanimously kept its base rate unchanged at 0.1% amid fears of rising inflation. The Monetary Policy Committee also upgraded both UK inflation and growth forecasts. The Sterling appreciated by 0.1% against the U.S. dollar.
- The U.S. dollar depreciated by 0.9% against the Euro whilst it appreciated by 0.4% against the Yen.
- The Bank of Japan kept its interest rate unchanged at -0.1% and target for long-term yields around 0%. It also extended its pandemic relief programme by six months.

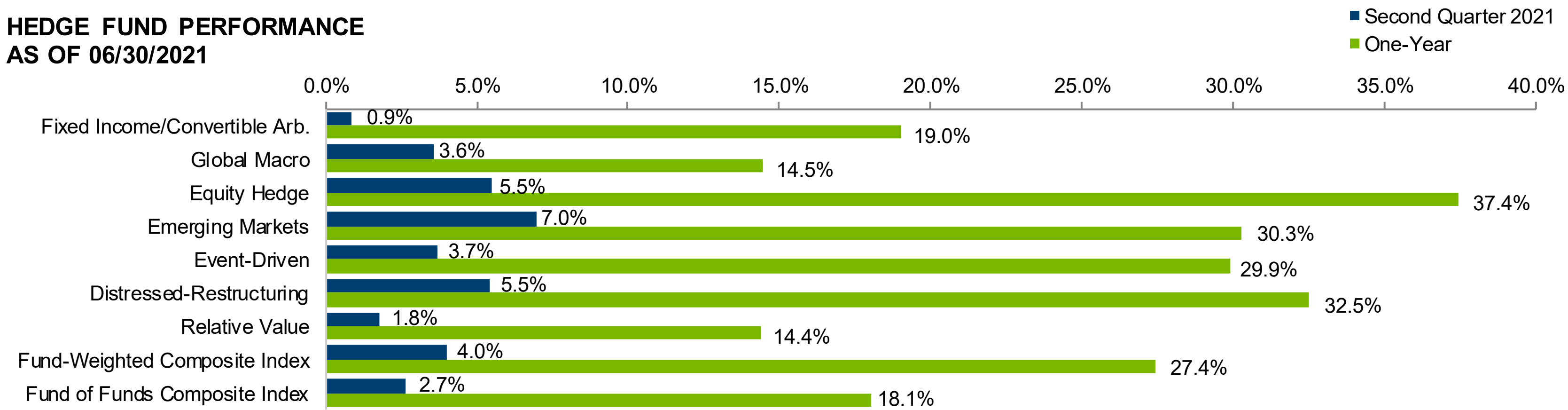
Commodities



Source: Bloomberg
Note: Softs and Grains are part of the wider Agriculture sector

- Commodities had another strong quarter with the Bloomberg Commodity Index up 13.3%. Energy continued to be the standout as consumer demand steadily returned around the world. Agricultural prices also saw large increases over the quarter. Industrial metals continued their positive trend while precious metals rebounded from their first quarter slump.
- Energy was the best performing sector as it rose by 23.2% over the quarter and 54.2% over the trailing one-year period. Crude oil prices rose to their highest level in three years, touching $76 a barrel as the OPEC+ group failed to reach an agreement on raising crude oil production. In July, OPEC+ producers agreed on a slight increase in production, which amounts to an additional 2m barrels a day (b/d) following increases in May and June. Production cuts from 2020 are still in place however, although they were reduced to just under 6m b/d from 10m b/d last year.
- The price of Brent crude oil rose by 18.2% to $75/bbl. while WTI crude oil spot prices rose by 24.2% to $73/bbl.

Hedge Fund Markets Overview

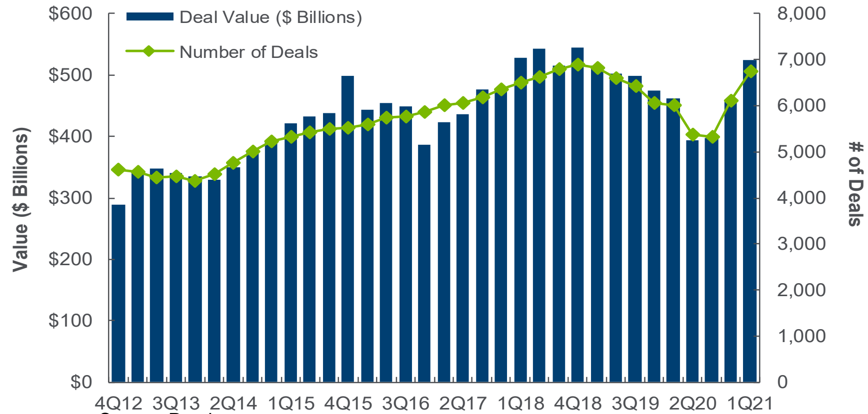


Note: Latest 5 months of HFR data are estimated by HFR and may change in the future.
Source: HFR

- Hedge fund performance was positive across all strategies in the second quarter.
- HFRI Fund-Weighted Composite Index and the HFRI Fund of Funds Composite Index produced returns of 4.0% and 2.7% respectively.
- Over the quarter, Emerging Markets and Equity Hedge strategies were the best performers, returning 7.0% and 5.5% respectively.

Private Equity Market Overview – 1Q 2021

LTM Global Private Equity-Backed Buyout Deal Volume

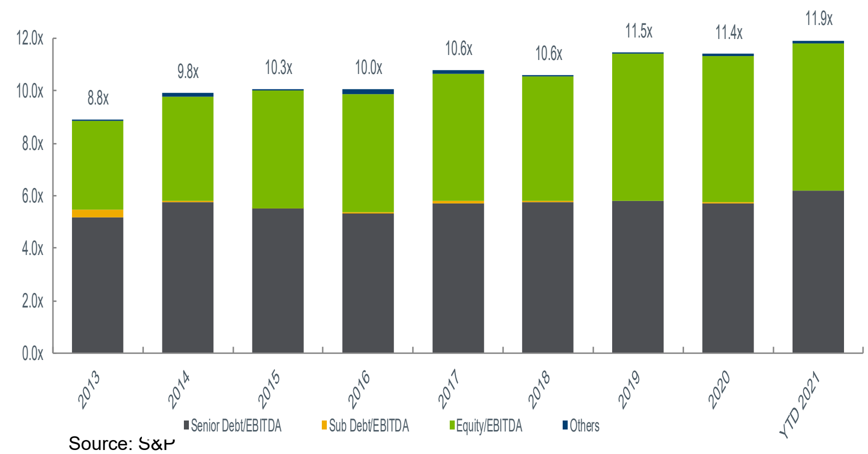


Source: Preqin

- **Fundraising:** In 1Q 2021, $250.1 billion was raised by 641 funds, which was a decrease of 22.0% on a capital basis and 10.5% by number of funds over the prior quarter. Dry powder stood at nearly $2.1 trillion at the end of the quarter, an increase compared to year-end 2020's total of $2.0 trillion.[1]
- **Buyout:** Global private equity-backed buyout deals totaled $176.4 billion in 1Q 2021, which was up 3.8% on a capital basis and down 0.8% by number of deals from 4Q 2020.[1] Through 1Q 2021, the average purchase price multiple for all U.S. LBOs was 11.9x EBITDA, an increase of 0.5x over 2020's average and higher than the five-year average (10.8x).[2] Large cap purchase price multiples stood at 11.9x through 1Q 2021, up compared to 2020's level of 11.3x.[2] In Europe, the average purchase price multiple across European transactions of greater than €500M averaged 12.0x EBITDA on an LTM basis as of 1Q 2021, down from the 12.6x multiple seen at the end of 4Q 2020. Purchase prices for transactions of greater than €1.0 billion decreased to 12.5x on an LTM basis from 13.1x seen at the end of 2020. Globally, exit value totaled $180.8 billion from 720 deals during the first quarter, down from the $193.1 billion in exits from 719 deals during 4Q 2020. However, 1Q 2021's totals were significantly higher than Q1 2020's total of $72.4 billion in value across 473 deals.[1]
- **Venture:** During the first quarter, 1,735 venture-backed transactions totaling $62.1 billion were completed in the U.S., which was an increase on a capital basis over the prior quarter's total of $38.4 billion across 1,657 deals. This was 140.2% higher than the five-year quarterly average of $25.9 billion and marked the strongest quarter on record.[3] Total U.S. venture-backed exit activity totaled approximately $118.1 billion across an estimated 447 completed transactions in 1Q 2021, down from the $149.4 billion across 401 exits in 4Q 2020. Through 1Q 2021, U.S. exit activity represented 39.2% of 2020's total.[4]
- **Mezzanine:** Two funds closed on $200 million during the first quarter. This was down significantly from the prior quarter's total of $17.9 billion raised by 17 funds, and down from 1Q 2020's total of $3.0 billion raised by 8 funds. Estimated dry powder was $51.3 billion at the end of 1Q 2021, down slightly from the $51.8 billion seen at the end of 4Q 2020.[1]

Private Equity Market Overview – 1Q 2021

U.S. LBO Purchase Price Multiples – All Transactions Sizes



Source: S&P

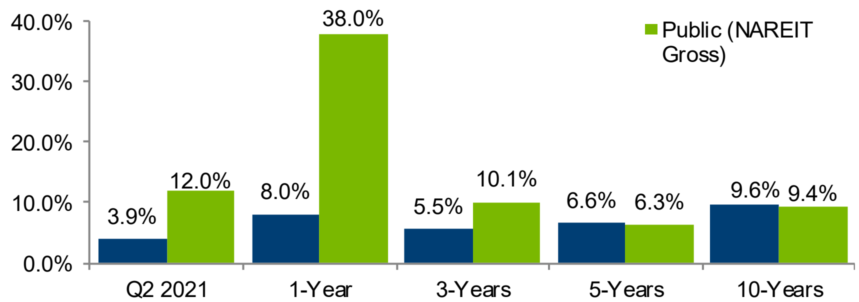
- **Distressed Debt:** The TTM U.S. high-yield default rate was 3.9% at March 2021, which was a decrease from the 4.5% seen at year-end 2020.[5] During the quarter, $12.5 billion was raised by 18 funds, a significant drop from the $38.9 billion raised by 26 funds in 4Q 2020. Distressed funds have raised 17.1% of 2020's total through 1Q 2021.[1] Dry powder was estimated at $143.6 billion at the end of 1Q 2021, which was up from the $135.1 billion seen at the end of 4Q 2020. This remained above the five-year annual average level of $115.0 billion.[1]
- **Secondaries:** 16 funds raised $17.5 billion during the quarter, down significantly from the $32.0 billion raised by 14 funds in 4Q 2020. This was down 20.8% from 1Q 2020.[1] At the end of 1Q 2021, there were an estimated 93 secondary and direct secondary funds in market targeting roughly $43.4 billion.[1] The average discount rate for all private equity sectors finished the quarter at 9.1%, continuing the rebound from the 11.8% discount at the end of 4Q 2020 and from the 18.0% discount at the end of 1Q 2020.[6]
- **Infrastructure:** $21.8 billion of capital was raised by 26 funds in 1Q 2021 compared to $24.0 billion of capital raised by 41 partnerships in 4Q 2020. At the end of the quarter, dry powder stood at an estimated $262.2 billion, up from 4Q 2020's total of $233.8 billion. Infrastructure managers completed 516 deals with an estimated aggregate deal value of $75.9 billion in 1Q 2021 compared to 648 deals totaling $84.5 billion a quarter ago.[1]
- **Natural Resources:** During 1Q 2021, four funds closed on $1.4 billion compared to eight funds totaling $1.5 billion in 4Q 2020. Energy and utilities industry managers completed approximately 29 deals totaling an estimated $6.7 billion through 1Q 2021, which represented 41.0% of energy and utilities deal value during all of 2020.[1]

Sources: [1] Preqin [2] Standard & Poor's [3] PwC/CB Insights MoneyTree Report [4] PitchBook/NVCA Venture Monitor [5] Fitch Ratings [6] Thomson Reuters [7] UBS

Notes: FY=Fiscal year ended 12/31; YTD=Year to date; LTM=Last 12 months (aka trailing 12 months); PPM=Purchase Price Multiples: Total Purchase Price ÷ EBITDA.

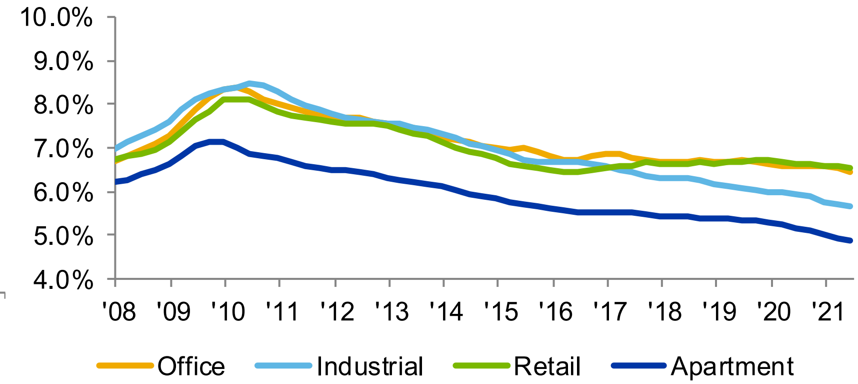
U.S. Commercial Real Estate Markets

PRIVATE VS. PUBLIC REAL ESTATE RETURNS AS OF 6/30/2021



**Second quarter returns are preliminary*
Sources: NCREIF, FactSet

CAP RATES BY SECTOR



Sources: RCA, AON 06/30/2021

- U.S. Core Real Estate returned 3.9%* in the second quarter, equating to an 8.0% total gross return year-over-year, including a 3.9% income return. Limited distressed sales have been witnessed thus far, although plenty of capital has been raised to capitalize on any potential opportunities coming out of COVID-19. Following a sharp contraction in GDP of -3.3% in 2020, the IMF now projects the global economy to expand by 6.0% in 2021. The recovery is forecasted to be swifter and more resilient than the recovery following the 2008 global financial crisis thanks to unprecedented fiscal and monetary policy responses. Real estate capital markets are liquid with transaction volumes picking back up, led in part by ample debt availability.
- Global property markets, as measured by the FTSE EPRA/NAREIT Developed Real Estate Index, returned 6.1% (USD) in aggregate during the second quarter and experienced a cumulative increase of 34.8% over the trailing 1-year period. REIT market performance was driven by Asia Pacific (5.3% USD), North America (11.4% USD), and Europe (8.8% USD). The U.S. REIT markets (FTSE NAREIT Equity REITs Index) returned 12.0% in the second quarter. The U.S. 10-year treasury bond yields decreased 29 bps to 1.45% during the quarter.
- There are now overarching and compelling dynamics benefitting the overall real estate market. Bonds have repriced to record low yields, and now real estate yields present an attractive spread to risk free rates. Rising costs for key real estate construction inputs are driving up replacement costs and are anticipated to quell near-term supply.
- Technology is changing consumption trends and lifestyle preferences globally, driving demand for certain property sectors consistently across regions. The acute circumstances of a recession driven by a virus magnified this effect in 2020. Looking forward, investors should assess what changes to our routines/habits may stick, what regions will they most impact, and how do those impact property specific demand drivers. Townsend is forecasting certain changes to persist post-COVID and has actively re-evaluated our investment strategy to align with the changing economy.
- Townsend has identified high conviction investment themes that are predicated on secular growth trends and strong underlying real estate market fundamentals. These investment themes have commonalities such as anticipated tenant demand growth, natural barriers to supply, and operating complexity that are anticipated to persist medium to long-term.

*Indicates preliminary NFI-ODCE data gross of fees

Notes

1. Preqin
2. Standard & Poors
3. PriceWaterhouseCoopers/CB Insights MoneyTree Report
4. PitchBook/National Venture Capital Association Venture Monitor
5. Fitch Ratings
6. UBS

Notes:

FY: Fiscal year ended 12/31
YTD: Year to date
YE: Year end
LTM: Last twelve months (aka trailing twelve months or TTM)
PPM: Purchase Price Multiples: Total Purchase Price / EBITDA
/bbl: Price per barrel
MMBtu: Price per million British thermal units

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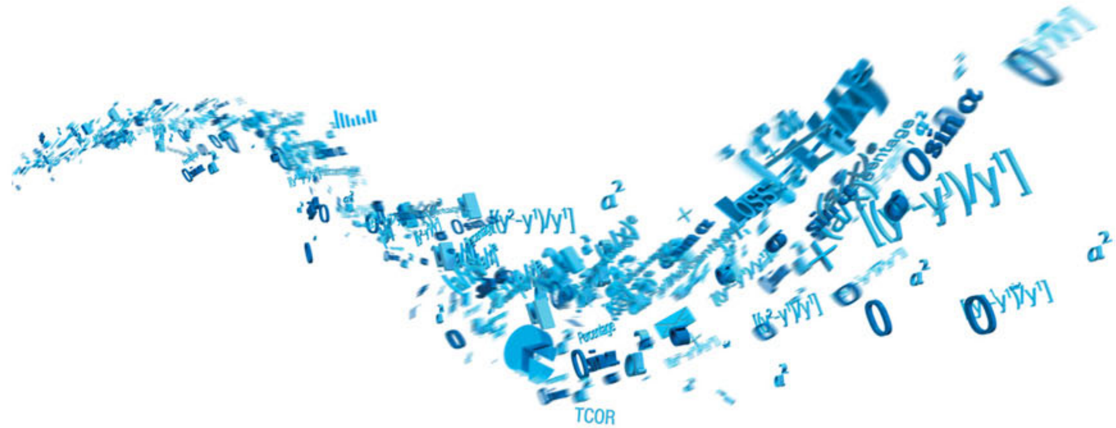
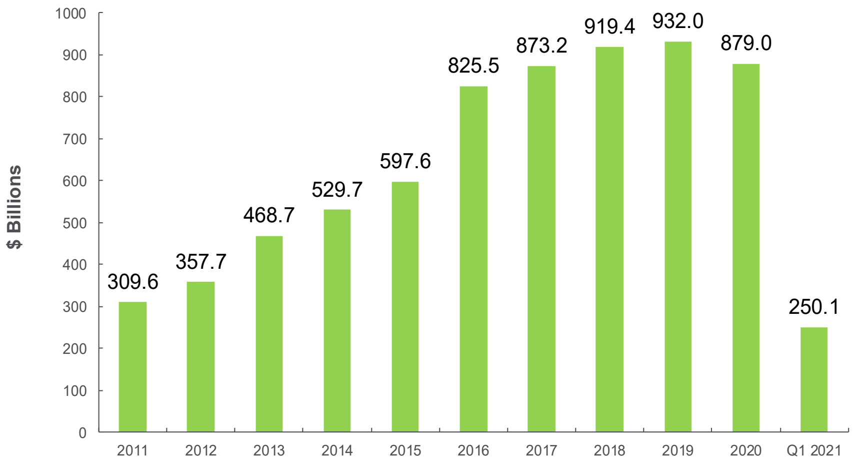


Appendix A:

Global Private Equity Market Overview
1Q 2021

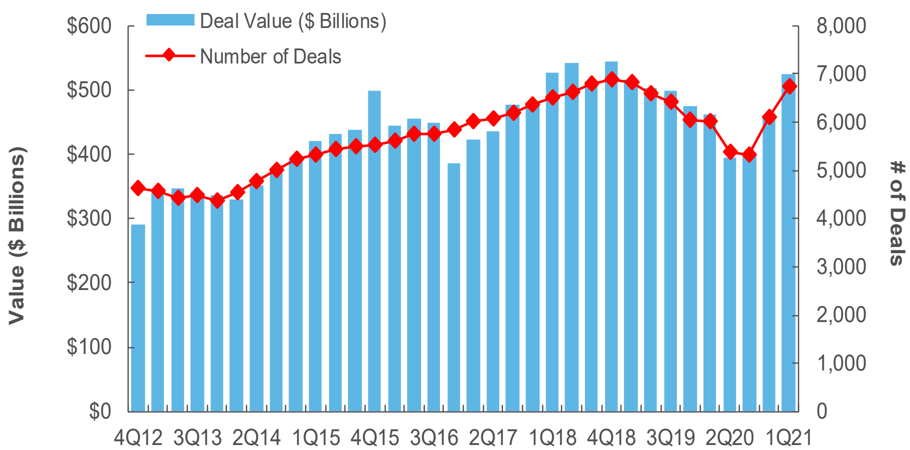
Private Equity Overview

Total Funds Raised



Source: Preqin

LTM Global Private Equity-Backed Buyout Deal Volume



Source: Preqin

Fundraising

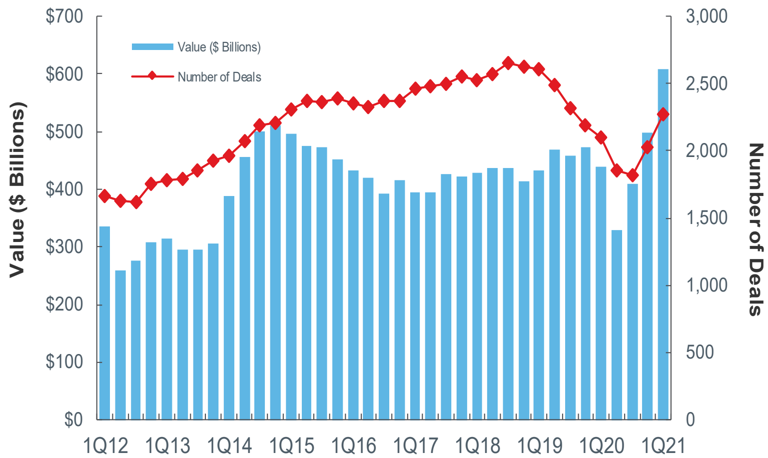
- In Q1 2021, $250.1 billion was raised by 641 funds, which was a decrease of 22.0% on a capital basis and 10.5% by number of funds over the prior quarter. Capital raised through Q1 2021 represented 28.5% of capital raised during calendar year 2020.[1]
  - Q1 2021 fundraising was 9.9% higher, on a capital basis, than the three-year quarterly average, and 2.2% higher by number of funds raised.
  - The majority of capital was raised by funds with target geographies in North America, comprising 65.2% of the quarter's total. This was down slightly from 66.1% in Q4 2020. Capital targeted for Europe made up 22.0% of the total funds raised during the quarter, an increase from 19.2% in Q2 2020. The remainder was attributable to managers targeting Asia and other parts of the world.
- Dry powder stood at nearly $2.1 trillion at the end of the quarter, an increase compared to year-end 2020's total of $2.0 trillion.[1]

Activity

- Global private equity-backed buyout deals totaled $176.4 billion in Q1 2021, which was up 3.8% on a capital basis and down 0.8% by number of deals from Q4 2020.[1]
  - This was 50.5% higher than the five-year quarterly average deal volume of $117.2 billion.
  - Average deal size was $82.4 million in Q1 2021. This was up 12.7% compared to Q1 2020 and up 11.9% relative to the five-year quarterly average.
- European sponsored loan volume totaled €32.0 billion in Q1 2021, up 141.3% compared to Q4 2020's total of €13.3 billion. This was also 108.3% higher than the five-year quarterly average level of €15.4 billion.[3]
- Through Q1 2021, the average purchase price multiple for all U.S. LBOs was 11.9x EBITDA, an increase of 0.5x over 2020's average and higher than the five-year average (10.8x). Large cap purchase price multiples stood at 11.9x through Q1 2021, up compared to 2020's level of 11.3x.[3]
  - Average purchase price multiples for all U.S. LBOs were 1.1x and 1.9x turns (multiple of EBITDA) above the five- and ten-year average levels, respectively.
- In Europe, the average purchase price multiple across European transactions of €500M or greater averaged 12.0x EBITDA on an LTM basis as of Q1 2021, down from the 12.6x multiple seen at the end of Q4 2020. Purchase prices for transactions of greater than €1.0 billion decreased to 12.5x on an LTM basis from the 13.1x seen at the end of 2020.[3]
- Debt remained broadly available in the U.S.
  - The average leverage for U.S. deals in Q1 2021 was 6.2x compared to the five and ten-year averages of 5.7x and 5.5x, respectively.[3]
  - The amount of debt issued supporting new transactions decreased compared to the prior quarter, moving from 62.4% to 54.4%, and was lower than the five-year average of 62.4%.[3]
- In Europe, the average senior debt/EBITDA on an LTM basis ended Q1 2021 at 5.7x, down slightly from the 5.9x observed at Q4 2020.

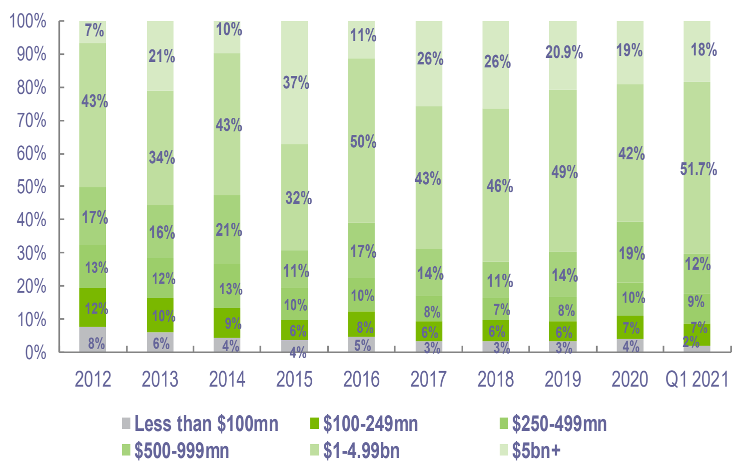
Buyouts / Corporate Finance

LTM PE Exit Volume and Value



Source: Preqin

M&A Deal Value by Deal Size



Source: Preqin

Fundraising

- $109.1 billion was closed on by 162 buyout and growth funds in Q1 2021, compared to $135.9 billion raised by 177 funds in Q4 2020. This was substantially higher than the $79.8 billion raised by 156 funds in Q1 2020.[1]
  - This was above the three-year quarterly average of $102.2 billion and 151 funds.
  - Clayton, Dubilier & Rice XI was the largest fund raised during the quarter, closing on $16.0 billion of commitments.[1]
- Buyout and growth equity dry powder was estimated at $1.1 trillion, up 1.7% from Q4 2020.[1]
- Mega, large, and mid cap buyout funds increased in dry powder compared to Q4 2020 by 10.0%, 22.6% and 14.9%, respectively. Mega cap buyout funds were sitting on $421.3 billion in dry powder at the end of the quarter. Small cap dry powder exhibited the only decrease during the quarter, decreasing to $90.3 billion or a decrease of 50.1% over the prior quarter.[1]
  - An estimated 59.1% of buyout dry powder was targeted for North America, while European dry powder comprised 27.8% and Asia/Rest of World accounted for the remainder.[1]

Activity

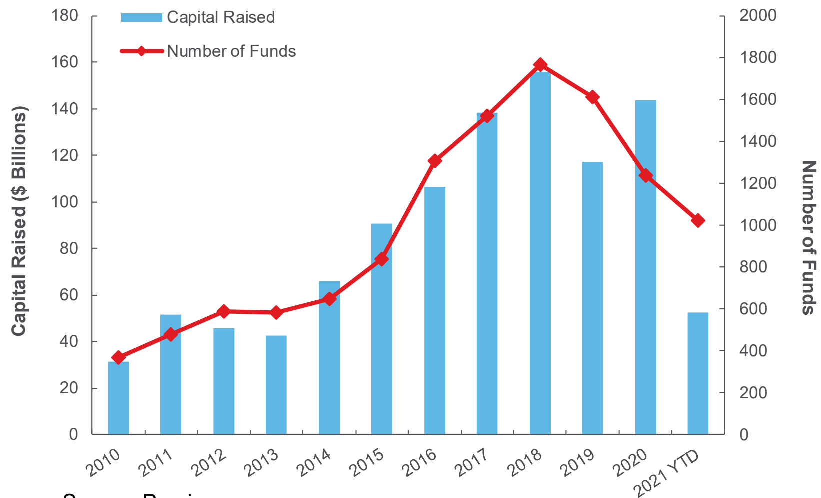
- Global private equity-backed buyout deals totaled $176.4 billion in Q1 2021, which was up 3.8% on a capital basis and down 0.8% by number of deals from Q4 2020.[1] This was 50.5% higher than the five-year quarterly average deal volume of $117.2 billion.
- Through Q1 2021, deal value accounted for 38.6% of 2020's total buyout activity and was 62.9% higher than Q1 2020.
  - Through Q1 2021, deals valued at $5.0 billion or greater accounted for an estimated 18.5% of total deal value compared to 18.9% through 2020 and 20.9% in 2019.[1] Deals valued between $1.0 billion to $4.99 billion represented 51.7% of total deal value through the first quarter.
  - By geography, North American deals accounted for the largest percentage of total deal value at an estimated 62.0% through Q1 2021, while Information Technology deals accounted for the largest percentage by industry at 28.4% of total deal value.
- U.S. Entry multiples for all transaction sizes in Q1 2021 stood at 11.9x EBITDA, up from 2020's level (11.4x).[3]
  - Large cap purchase price multiples stood at 11.9x through Q1 2021, up compared to 11.3x through Q4 2020.[3]
  - In Europe, the average purchase price multiple across European transactions greater than €500M averaged 12.0x EBITDA on an LTM basis as of Q1 2021, down from the 12.6x seen at the end of Q4 2020. Purchase prices for transactions greater than €1.0 billion decreased to 12.5x on an LTM basis from the 13.1x seen at the end of 2020.[3]
  - The portion of average purchase prices financed by equity for all deals was 47.2% through Q1 2021, down from 48.8% in Q4 2020. This remained above the five- and ten-year average levels of 45.7% and 43.6%, respectively.[3]
- Globally, exit value totaled $180.8 billion from 720 deals during the first quarter, down from the $193.1 billion in exits from 719 deals during Q4 2020. However, Q1 2021's totals were significantly higher than Q1 2020's total of $72.4 billion in value across 473 deals.[1]

Opportunity[4]

- Managers targeting the middle and large markets with expertise across business cycles.

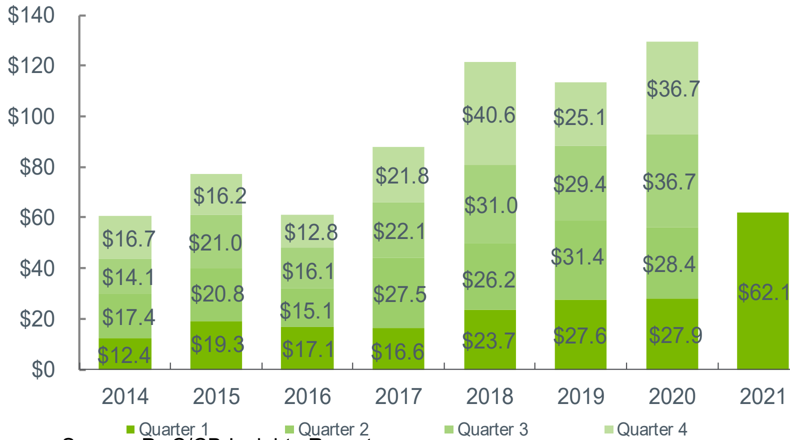
Venture Capital

Venture Capital Fundraising



Source: Preqin

U.S. Venture Capital Investments by Quarter ($B)



Source: PwC/CB Insights Report

Fundraising

- $52.6 billion of capital was raised by 323 funds in Q1 2021, up from the prior quarter's total of $42.6 billion raised by 347 managers. The average fund size increased substantially during the quarter to $174.0 million from $139.0 million.[1]
  - Q1 2021 fundraising was 51.5% higher on a capital basis compared to the three-year quarterly average of $34.7 billion.
  - Tiger Private Investment Partners XIV was the largest fund raised during the quarter, closing on $6.7 billion.
- At the end of Q1 2021, there were an estimated 2,772 funds in market targeting $233.5 billion.[1]
  - Softbank Vision Fund – Latin America was the largest venture fund in market, targeting an estimated $5.0 billion.
  - The majority of funds in market are seeking commitments of $200.0 million or less.
- Dry powder was estimated at $366.0 billion at the end of Q1 2021, up from Q4 2020's total of $331.5 billion and 56.6% higher than the five-year average.[1]

Activity

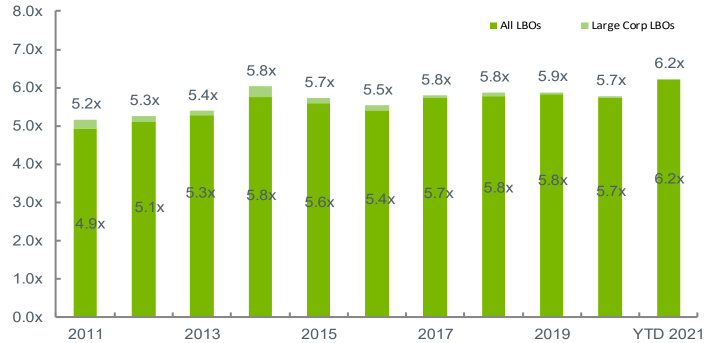
- During the first quarter, 1,735 venture-backed transactions totaling $62.1 billion were completed in the U.S., which was an increase on a capital basis over the prior quarter's total of $38.4 billion across 1,657 deals. This was 140.2% higher than the five-year quarterly average of $25.9 billion and marked the strongest quarter on record.[7]
  - In Q1 2021, there were 107 U.S.-based deals involving unicorn companies, representing roughly $29.5 billion in deal value. This was up by number and value compared to Q4 2020, which saw 72 unicorn-related deals close at a deal value of $13.3 billion. Q1 2021 marked a new record for unicorn-related activity by deal value and number of deals.[8]
- At the end of Q1 2021, median pre-money valuations increased across all series except Series A. Compared to Q4 2020, Seed transactions increased to a median pre-money valuation of $13.7 million from $11.0 million, Series B transactions increased from $113.0 million to $150.0 million, Series C increased from $400.0 million to $450.0 million, and Series D+ increased from $850.0 million to $1.4 billion. Series A median pre-money valuations decreased from $40.0 million to $38.8 million during the quarter.[9]
- Total U.S. venture-backed exit activity totaled approximately $118.1 billion across an estimated 447 completed transactions in Q1 2021, down from the $149.4 billion across 401 exits in Q4 2020. Through Q1 2021, U.S. exit activity represented 39.2% of 2020's total.[8]
  - The number of U.S. venture-backed initial public offerings decreased over Q4 2020, with 50 IPOs completed in Q1 2021. 212 exits occurred by acquisition, marking an increase over the prior quarter, but accounted for only $10.6 billion in exit value. IPOs accounted for $106.5 billion in value compared to $109.5 billion in the prior quarter.[8]

Opportunity [4]

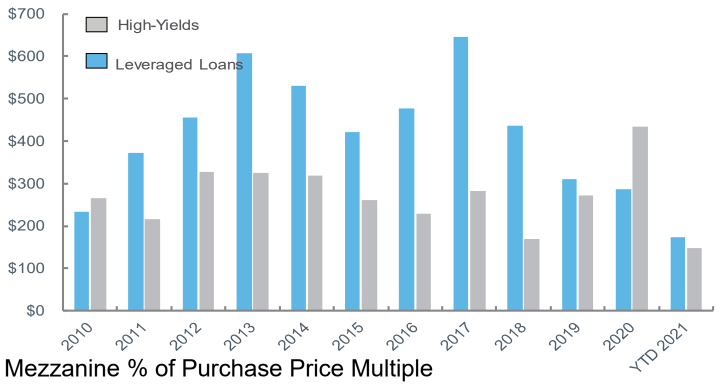
- Early stage continues to be attractive, although we continue to monitor valuations
- Smaller end of growth equity
- Technology sector

Leveraged Loans & Mezzanine

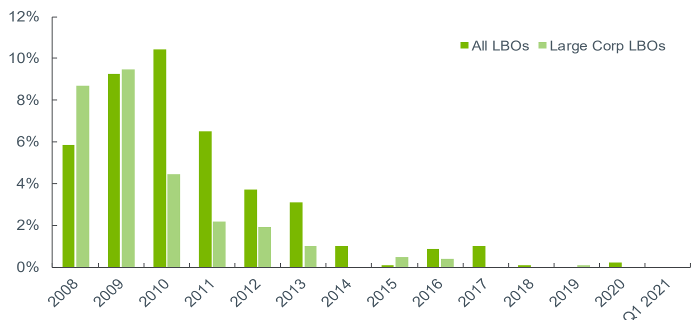
Average Leverage by Deal Size



Debt Issuance ($ Billions)



Mezzanine % of Purchase Price Multiple



Sources from top to bottom: S&P, UBS, & S&P

Leveraged Loans

Fundraising

- New CLO issuance totaled $28.1 billion through Q1 2021 compared to $15.6 billion in Q1 2020.[2]
- High-yield debt issuance totaled $148.0 billion in Q1 2021. 2021's YTD total is 104.5% greater than Q1 2020's total of $72.4 billion.[2]
- Through Q1 2021, leveraged loan mutual fund net flows ended at a net inflow of $9.3 billion.[2]

Activity

- Leverage for all U.S. LBO transactions through Q1 was 6.2x, up from Q4 2020's leverage of 5.7x. Leverage continues to be comprised almost entirely of senior debt. The average leverage level for large cap LBOs was 6.2x through the quarter, down from the 5.7x witnessed in 2020.[3]
- Q1 2021 institutional leveraged loan issuances totaled $172.7 billion, 95.5% greater than the $88.3 billion issued during the same period in 2020.[2]
- 54.5% of new leveraged loans were used to support M&A and growth activity through Q1 2021, down from 62.4% in Q4 2020. This was also below the five-year average of 64.3%.[3]
- European sponsored loan issuance increased substantially to €32.0 during the first quarter compared to €20.8 during Q1 2020. This was 107.2% higher than the five-year quarterly average level of €15.4 billion.[3]

Opportunity

- Funds with the ability to source deals directly and the capacity to scale for large transactions (both sponsored and non-sponsored)
- Funds with an extensive track record, experience through prior credit cycles, and staff with workout experience

Mezzanine

Fundraising

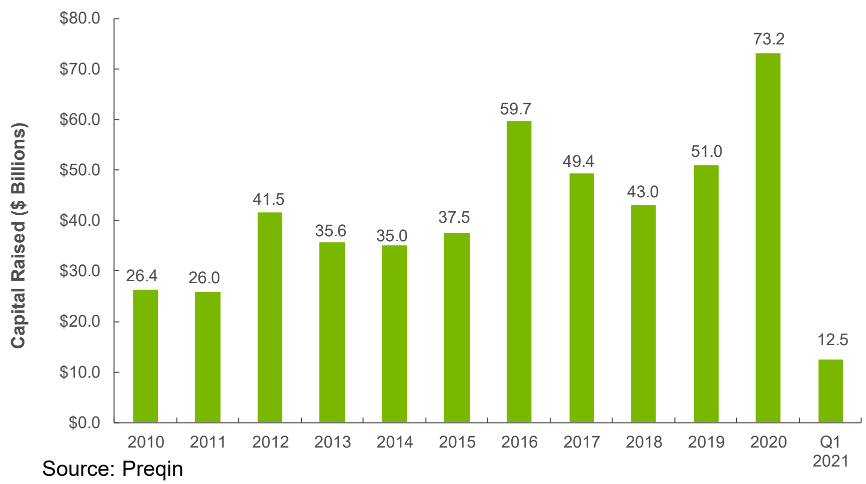
- Two funds closed on $200 million during the first quarter. This was down significantly from the prior quarter's total of $17.9 billion raised by 17 funds, and down from Q1 2020's total of $3.0 billion raised by 8 funds. Through Q1, mezzanine funds have raised only 0.8% of 2020's total of $27.6 billion.[1]
- Estimated dry powder was $51.3 billion at the end of Q1 2021, down slightly from the $51.8 billion seen at the end of Q4 2020.[1]
- An estimated 87 funds are in market targeting $33.2 billion of commitments. GSO Capital Opportunities Fund IV is the largest fund in market targeting commitments of $7.5 billion.[1]

Opportunity [4]

- Funds with the capacity to scale for large sponsored deals

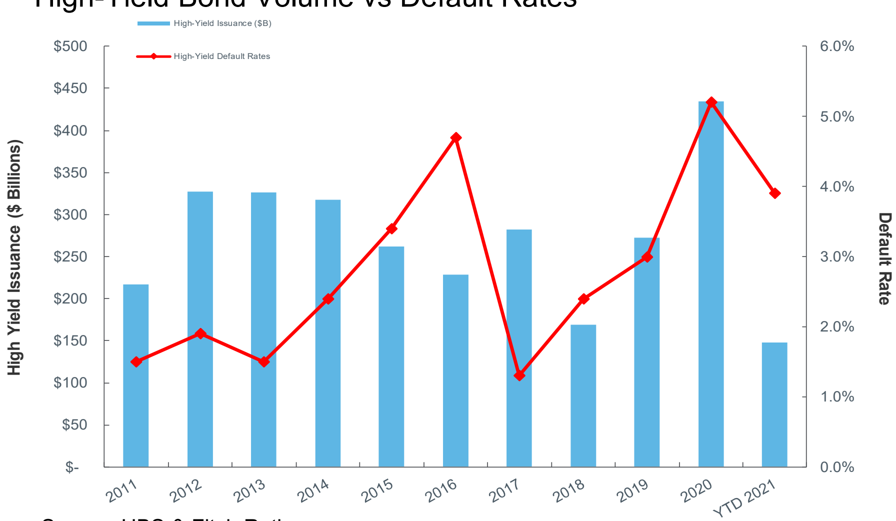
Distressed Private Markets

Distressed Debt, Turnaround, & Special Situations Fundraising



Source: Preqin

High-Yield Bond Volume vs Default Rates



Source: UBS & Fitch Ratings

Fundraising

- During the quarter, $12.5 billion was raised by 18 funds, a significant drop from the $38.9 billion raised by 26 funds in Q4 2020. Distressed funds have raised 17.1% of 2020's total through Q1 2021.[1]
  - Q1 2021's fundraising was 10.2% less than the three-year quarterly average.
  - Capital raised in Q1 2021 represented an increase of 150.0% compared to the $5.0 billion raised in Q1 2020.
  - Atlas Capital Resources IV was the largest fund closed during the quarter, closing on $3.1 billion.
- Dry powder was estimated at $143.6 billion at the end of Q1 2021, which was up from the $135.1 billion seen at the end of Q4 2020. This remained above the five-year annual average level of $115.0 billion.
- Roughly 156 funds were in the market at the end of Q1 2021 seeking $90.0 billion in capital commitments.[1]
  - Distressed debt managers were targeting the most capital, seeking an aggregate $53.3 billion, followed by special situation managers at $33.8 billion.
  - Oaktree Opportunities Fund XI was the largest fund in market with a target fund size of $15.0 billion.

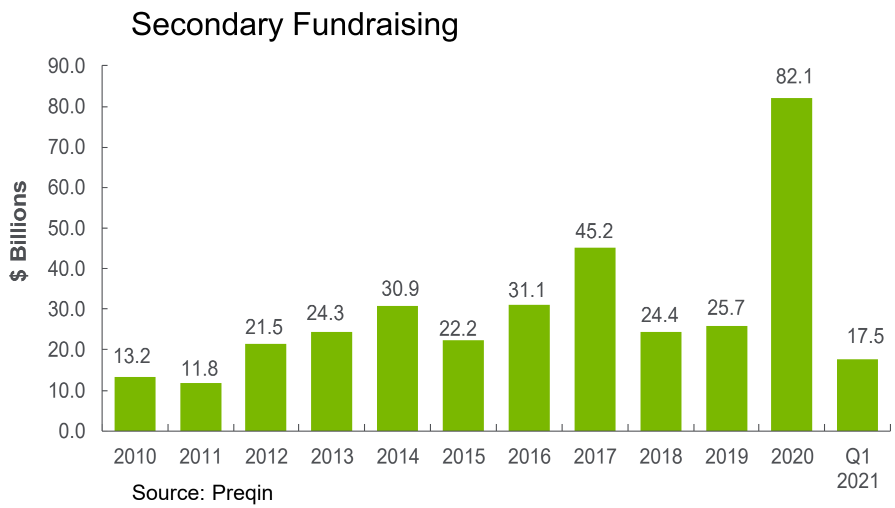
Activity

- The TTM U.S. high-yield default rate was 3.9% at March 2021, which was a decrease from the 5.2% seen at year-end 2020.[6]
- The market dislocation caused by COVID-19 is expected to supply an abundance of distressed opportunities in the next several months.

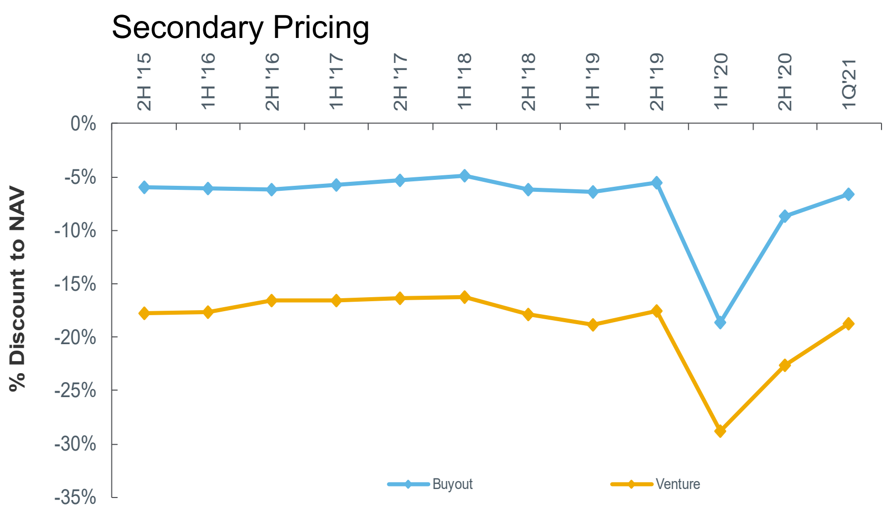
Opportunity [4]

- Funds capable of performing operational turnarounds
- Funds with the flexibility to invest globally

Secondaries



Source: Preqin



Source: UBS

Fundraising

- 16 funds raised $17.5 billion during the quarter, down significantly from the $32.0 billion raised by 14 funds in Q4 2020. This was down 20.8% from Q1 2020.[1]
  - Coller International Partners VIII was the largest fund raised during the quarter, closing on $9.0 billion.
- At the end of Q1 2021, there were an estimated 93 secondary and direct secondary funds in market targeting roughly $43.4 billion. The majority of secondary funds are targeting North American investments.
  - Six funds are currently in market targeting greater than $3.0 billion in capital commitments. Together, these six funds account for $23.3 billion of the $43.4 billion of capital being raised.
  - Landmark Equity Partners XVII is the largest fund being raised, seeking $6.0 billion in commitments.[1]

Activity

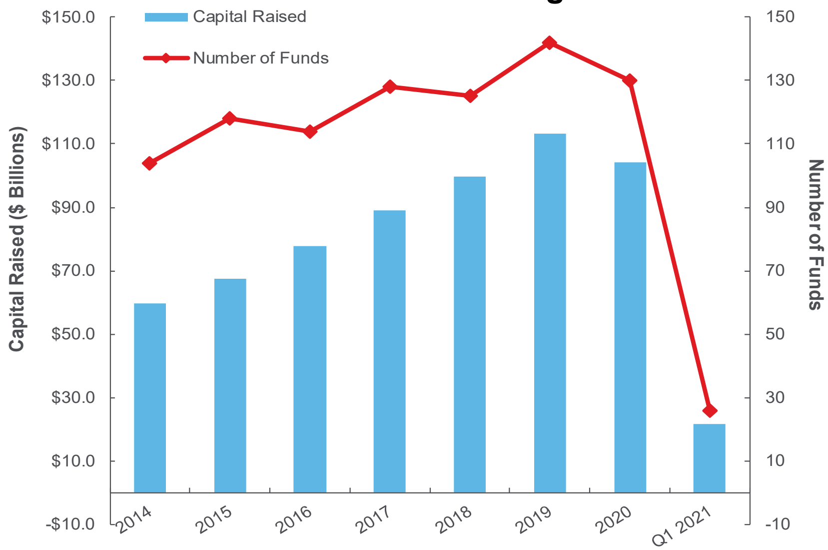
- The market continues to have participation from a broad base of buyers and sellers with opportunistic selling activity from public and private pensions, financial institutions and insurance companies.
- The average discount rate for all private equity sectors finished the quarter at 9.1%, continuing the rebound from the 11.8% discount at the end of Q4 2020 and from the 18.0% discount at the end of Q1 2020. The average buyout pricing discount rebounded to 6.6%, while venture ended at a discount of 18.7%. The average buyout pricing discount for Q1 was up from Q4 2020's 8.7% discount, while the venture discount was up from 22.6%.[2]
- Pricing improvements may continue given the current scarcity of sale portfolios of LP interests combined with the strong fundraising in recent quarters and the pressure to deploy capital.[2]
- Pricing is also expected to strengthen as buyers become more comfortable with the stability of the NAVs used in secondary transactions. Steep discounts may continue for assets of less experienced GPs or for assets in sectors that were more severely impacted by Covid-19.[2]

Opportunity [4]

- Funds that are able to execute complex and structured transactions
- Niche strategies

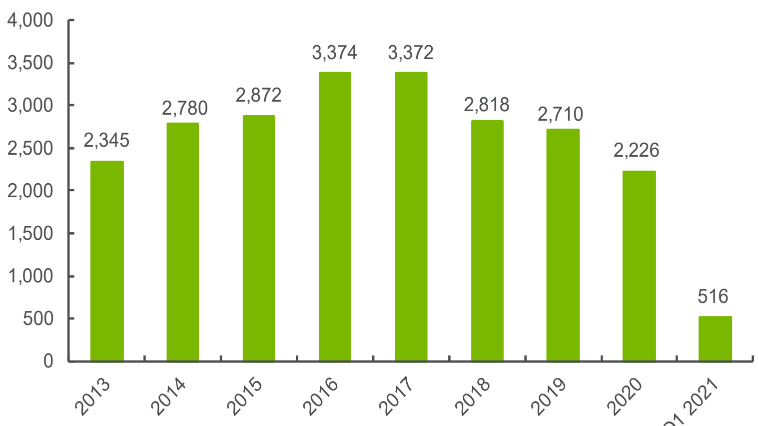
Infrastructure

Global Infrastructure Fundraising



Source: Preqin

Number of Deals Completed



Source: Preqin

Fundraising

- $21.8 billion of capital was raised by 26 funds in Q1 2021 compared to $24.0 billion of capital raised by 41 partnerships in Q4 2020.Through Q1 2021, infrastructure funds have raised 20.9% of 2020's total.[1]
  - BlackRock Global Renewable Power Fund III was the largest fund raised during the quarter, closing on $4.8 billion.[1]
- As of the end of Q1 2021, there were an estimated 281 funds in the market seeking roughly $229.8 billion.[1]
  - EQT Infrastructure V was the largest fund in market and was seeking commitments of €12.5 billion.
- At the end of the quarter, dry powder stood at an estimated $262.2 billion, up from 4Q 2020's total of $233.8 billion.[1]
- Concerns surrounding the relative availability and pricing of assets remain. Fundraising continues to be very competitive given the number of funds and aggregate target level of funds in market. Investor appetite for the asset class persists despite the record levels of dry powder and increased investment activity from strategic and corporate buyers as well as institutional investors.

Activity

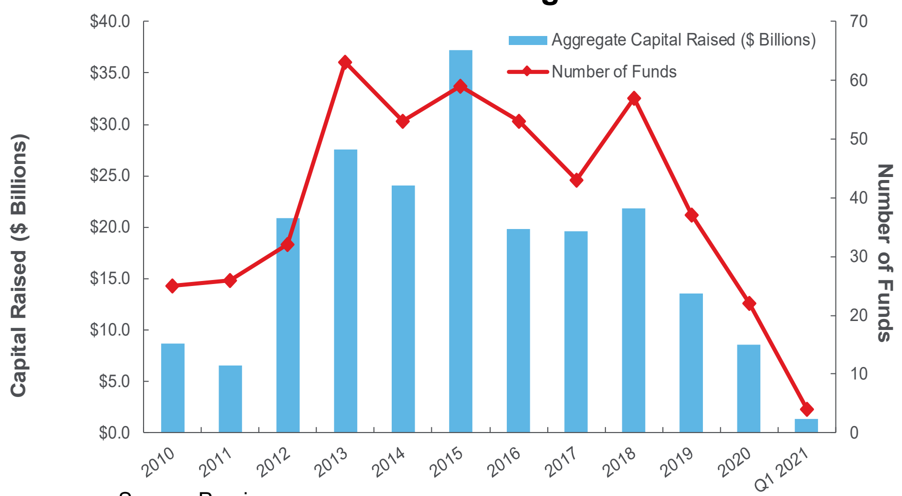
- Infrastructure managers completed 516 deals with an estimated aggregate deal value of $75.9 billion in Q1 2021 compared to 648 deals totaling $84.5 billion a quarter ago.[1]
  - By region, Europe saw the largest number of deals completed, with 42.0% of deals being invested in the region, followed by North America at 30.1%. Asia amassed 9.8% of activity during the quarter.
  - Renewable energy was the dominant industry during the quarter making up 66.0% of transactions, followed by the utilities and conventional energy sectors, which each accounted for 8.2% and 7.6% of deals, respectively. Telecoms accounted for 7.2% of deals during the third quarter.[1]

Opportunity [4]

- Mid-market core+ and value-add infrastructure as well as a platform investing approach continue to offer the best relative value
- Access funds with pre-specified assets with caution due to possible lag in and uncertainty around valuation impact
- Blind-pool funds may be better positioned to take advantage of the market dislocation in certain sub-sectors, however careful review of such strategies is required
- Build-to-core greenfield strategies particularly in the social / PPP infrastructure space offer a premium for investors willing to take on construction / development risk

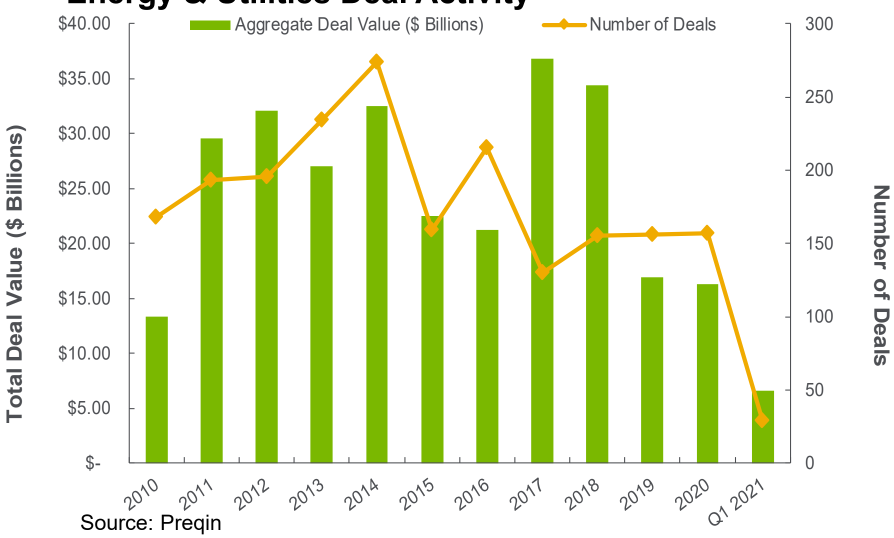
Natural Resources

Natural Resources Fundraising



Source: Preqin

Energy & Utilities Deal Activity



Source: Preqin

Fundraising

- During Q1 2021, four funds closed on $1.4 billion compared to eight funds totaling $1.5 billion in Q4 2020.[1] Through Q1 2021, 16.3% of 2020's total has been raised.
  - Appian Natural Resources Fund II was the largest fund raised during the quarter, securing commitments of $775.0 million.
- At the end of the first quarter, there were roughly 107 funds in the market targeting an estimated $39.9 billion in capital.[1]
  - Quantum Energy Partners VIII was the largest fund raising capital with a target fund size of $5.5 billion.
- Dry powder stood at $40.9 billion at the end of Q1 2021, which was 1.7% lower than Q4 2020's level of $41.6 billion and down from the five-year average level by 19.9%.[1]

Activity

- Energy and utilities industry managers completed approximately 29 deals totaling an estimated $6.7 billion through Q1 2021, which represented 41.0% of energy and utilities deal value during all of 2020.[1]
- Crude oil prices increased during the quarter.
  - WTI crude oil prices increased 32.6% during the quarter to $62.33 per bbl. This was an increase of 113.4% compared to Q1 2020.[11]
  - Brent crude oil prices ended the quarter at $65.41/bbl, up 30.8% compared to the prior quarter, and up 104.3% from Q1 2020.[11]
- Natural gas prices (Henry Hub) finished Q1 2021 at $2.62 per MMBtu, which was up 1.6% from Q4 2020 and up 46.4% from Q1 2020.[11]
- A total of 430 crude oil and natural gas rotary rigs were in operation in the U.S. at the end of the quarter. This was up by 22.5% from the prior quarter but down 35.2% over Q1 2020.[14]
  - Crude oil rigs represented 78.4% of the total rigs in operation. 66.2% of the 337 active oil rigs were in the Permian basin.
  - 47.3% and 33.0% of natural gas rigs at the end of Q1 2021 were operating in the Haynesville and Marcellus basins, respectively.
- The price of iron ore (Tianjin Port) ended the quarter at $168.18 per dry metric ton, up from $155.43 at the end of Q4 2020.[12]

Opportunity [4]

- Acquire and exploit existing oil and gas strategies over early-stage exploration in core U.S. and Canadian basins
- Select midstream opportunities

Notes

1. Preqin
2. UBS
3. Standard & Poor's
4. Aon Investments USA Inc.
5. Moody's
6. Fitch Ratings
7. PriceWaterhouseCoopers/National Venture Capital Association MoneyTree Report
8. PitchBook/National Venture Capital Association Venture Monitor
9. Cooley Venture Financing Report
10. U.S. Energy Information Administration
11. Bloomberg
12. Setter Capital Volume Report: Secondary Market
13. KPMG and CB Insights
14. Baker Hughes

Notes:
FY: Fiscal year ended 12/31
YTD: Year to date
YE: Year end
LTM: Last twelve months (aka trailing twelve months or TTM)
PPM: Purchase Price Multiples: Total Purchase Price / EBITDA
/bbl: Price per barrel
MMBtu: Price per million British thermal units

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Appendix B:

Real Estate Market Update

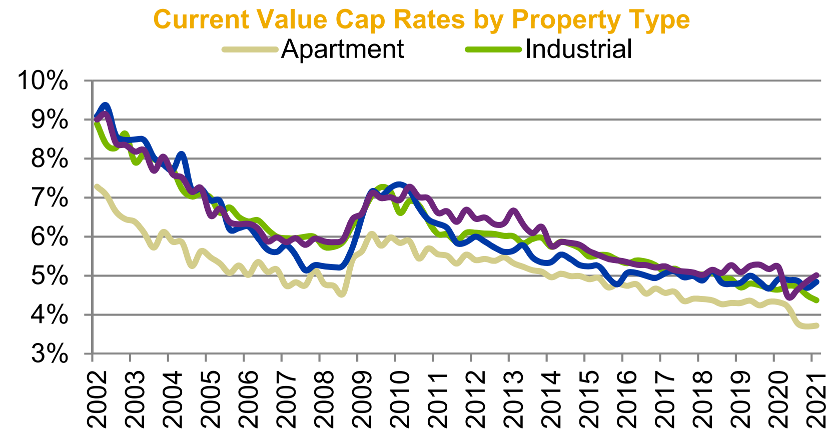
1Q 2021

United States Real Estate Market Update (1Q21)

General

- As a result of the COVID-19 pandemic, national, state and local governments across the world implemented stay-at-home orders, which caused a near complete halt of the world economy in the 1st half 2020. Governments dramatically expanded expenditures in order to protect people and businesses from large-scale disruption. In 1Q21, equity markets continued to bounce back from the March 2020 rout and even exceeded prior highs, and the S&P 500 produced a gross total return of 6.2%. The MSCI US REIT index continued to rebound and produced a return of 8.8% and returned close to pre-COVID levels.

- The U.S. entered a recession in February 2020, but the economy has since rebounded with the accelerated development and rollout of vaccines. In the 1st quarter, GDP grew at an annualized rate of 6.4%. The unemployment rate peaked in April at 14.7% and has since declined to 6.1% at quarter end 1Q21. The Federal Reserve has acted aggressively via quantitative easing and rate cuts, thus far financial markets have stabilized. The world economy shrunk by -3.3% in 2020 but is forecasted to grow 6.0% in 2021.



Source: NCREIF

Commercial Real Estate

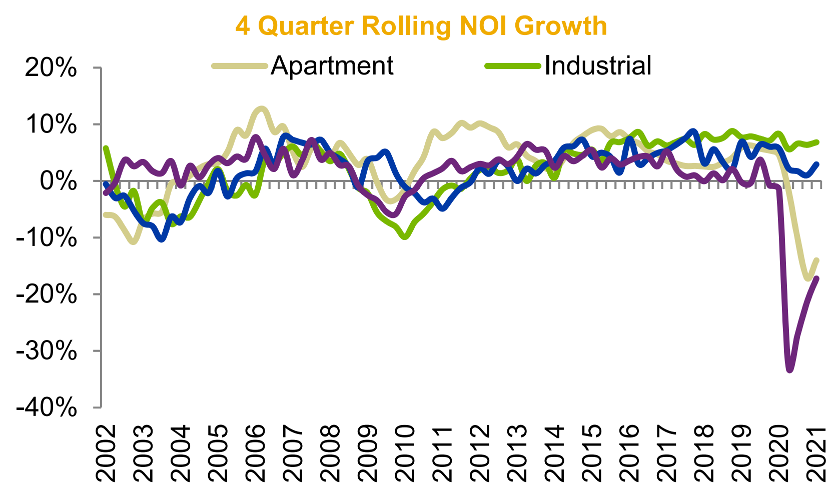
- Through April of 2021, transaction volume was up by 60% YoY, after rebounding from a COVID-19 induced slowdown. Transaction volume has been the strongest in the apartment and industrial sectors.

- Transaction cap rates (5.9%) expanded +34 bps during the quarter. Current valuation cap rates declined for industrial (-13 bps). The office (+15 bps) and retail (+16 bps) property sectors experienced cap rate expansion. Apartment valuation cap rates were flat.

- NOI growth has substantially diverged between property sectors due to the impacts of COVID-19. Retail NOI has contracted substantially (-17%) YoY as rent collections declined and retailers were shutdown. Apartment NOI contracted (-14%), primarily driven by declines in CBD effective market rents.

- In the first quarter of 2021, $34 bn of aggregate capital was raised by real estate funds. There continues to be substantial dry powder,~$362 billion, seeking exposure to private real estate.

- 10-year treasury bond yields rose 80 bps to 1.7% during the quarter as a result of an improving economic growth outlook and growing inflationary pressures.



Source: NCREIF

Sources: Bureau of Economic Analysis, U.S. Census Bureau, St. Louis Fed, NCREIF, Real Capital Analytics, Bloomberg LP., Preqin.

United States Property Matrix (1Q21)

TOWNSEND® GROUP
an Aon company

INDUSTRIAL

- In 1Q21, industrial properties were the highest returning sector at 4.7% and outperformed the NPI by 300 bps.
- Transaction volumes fell to $21.6 billion in the first quarter of the year, resulting in a 23.0% decrease year-over-year. Individual asset sales increased 23.4% year-over-year, while portfolio purchases turned in a year-over-year volume decrease of 21.9%. At slightly over $21.6 billion, the industrial sector decreased a significant $20.1 billion quarter-over-quarter.
- The industrial sector turned in NOI growth of 6.8% over the past year, an increase from the prior periods TTM growth of 6.4% in 4Q20. Market rent growth is expected to decelerate compared to its pre-pandemic levels but remains strong.
- Vacancy increased by 5 bps year-over-year to 3.5%, remaining close to all-time historic lows. E-commerce continues to drive demand.
- Industrial cap rates compressed approximately 30 bps from a year ago, to 4.4%. Industrial overall fundamentals still top all property sectors.

MULTIFAMILY

- The apartment sector delivered a 1.7% return during the quarter, performing in line with the NPI.
- Transaction volume in the first quarter of 2021 fell to $38.1 billion, resulting in a decrease of 6.0% year-over-year. This volume continues to make multifamily the most actively traded sector for the fifteenth straight quarter.
- Cap rates remained steady at 3.7% through the quarter, compressing 60 bps year-over-year. Multifamily cap rates remain at the lowest level observed in years, driven by continued decrease in NOI and increases in valuation.
- The multifamily sector saw increasing vacancy rates throughout the entirety of 2020 due to the global pandemic. As 2021 begins, the sector appears to have shaken the trend as vacancy rates decreased 90 bps quarter-over-quarter, though still 70 bps higher than a year ago. Various rent concessions have helped managers to maintain tenants through out the pandemic, these concessions will continue to have various impacts on NOI over the next few quarters. The aging millennials have begun shifting their desires to suburban living, but continued home price appreciation has deterred the full effect of this migratory trend.

OFFICE

- The office sector returned 1.0% in 1Q21, 70 bps below the NPI return over the period.
- Transaction volumes decreased by 32.0% year-over-year in the first quarter. Transaction volume equaled $21.2 billion for the quarter, a decrease of $9.4 billion quarter-over-quarter. Single asset transactions accounted for 62.0% of volume.
- Office sector vacancy rates have expanded since the beginning of the pandemic due to work from home orders and uncertainty revolving around the future of office space. Office continues to be the highest vacancy property type at close to 12.4%.
- NOI growth in the office sector looks to have begun its recovery, 2.9% TTM growth for the quarter, after falling for three straight periods.
- Office cap rates compressed from a year ago to approximately 4.8%, a compression of just 5 bps. Office-using job growth was stunted significantly in 2020 due to many work from home orders. Though we are beginning to observe a slow but steady flow back to in-office work, there is still uncertainty in the sector as many companies remain hesitant.

RETAIL

- As of 1Q21, the retail sector delivered a quarterly return of -0.5%, performing 225 bps below the NPI.
- Transaction volumes totaled $8.8 billion in the first quarter, falling 34% year-over-year. Single asset transactions accounted for just over 86.5% of all sales volume for the quarter.
- Cap rates have compressed approximately 20 bps within the sector over the last year, to 5.0%. The current valuation cap rate did expand quarter-over-quarter by 20 bps due to slight downward valuation adjustments made across the sector in general.
- NOI growth slightly increased though still significantly negative, -17.2% over the last year. This is a 4.1% increase from last quarter. Retail is expected to continue to suffer from the shift towards e-commerce and hesitance of the consumer.
- Retail vacancy rates increased 235 bps over the past year to 9.9%. Many big box stores have closed as the need for retail space shrinks, translating to a negative outlook for rent growth. Paired with the global economic crisis, which has had a significant negative impact on this sector.

Sources: Real Capital Analytics, Green Street, NCREIF

Global Real Estate Market Update (1Q21)

TOWNSEND® GROUP
an Aon company

- Global investment activity during the first quarter of 2021 was down significantly relative to 4Q20 and by 19% over the year compared to 2020. During 1Q21, transaction volumes recovered significantly in the APAC regions while the EU and US continued to experience significant depression.

- Increased availability of the vaccine has driven an uptick in investor appetite, specifically in regions that were among the first to be affected by the virus such as APAC. Interest in the quarter was concentrated primarily in multifamily properties, as well as senior housing.

Global Total Commercial Real Estate Volume - 2020 - 2021

$ US Billions	Q1 2021	Q1 2020	% Change Q1 21 - Q1 20	Full Year Ending 1Q21	Full Year Ending 1Q20	% Change Full Year
Americas	89	122	-27%	347	560	-38%
EMEA	64	85	-25%	293	396	-26%
Asia Pacific	123	128	-4%	786	802	-2%
Total	275	335	-18%	1426	1758	-19%

Source: Real Capital Analytics, Inc., Q1' 21

- Investment activity in the Americas witnessed a sharp decline and fell by 38% year-over-year. Despite a slow down in COVID cases, the roll out of the vaccine hasn't helped spur investment to pre-COVID levels. Transaction volume in the US decreased 37% relative to 4Q20.

- In the Asia Pacific region, volumes were still slightly down year-over-year, but transaction activity remained the same relative to 4Q20. Singapore, Taiwan, and Hong Kong saw improvements in deal activity during 1Q21, while mainland China overtook Japan as the top market.

- Although investment activity dropped in the EMEA region, it dropped less than the Americas, with a 26% year-over-year decline. Apartment transactions in the region were up a noteworthy double-digit rate.

- In the office sector, global leasing activity declined by over 31% year-over-year and vacancy rates increased by 70 bps to 13.6%. The declines represent a continued uncertainty about future office space needs. US coastal markets have been more affected than lower-cost and high-growth markets. Across the main European markets, leasing activity fell 23% year-over-year. In the APAC region, net absorption increased for the third consecutive quarter.

- Despite a recovery in sales, the retail sector continued to suffer globally as the shutdowns and social distancing measures of the COVID-19 outbreak posed challengers for operators. The bifurcation between property types (necessity-based vs malls/street retail) and markets (urban vs suburban) has continued to widen. However, gateway cities, such as New York and London, have seen noteworthy increases in leasing activity.

- With the multifamily market recording the quarter's only increase in investments globally, the sector remains the most liquid in commercial real estate highlighting its attractiveness. Throughout the world, the re-opening of businesses has contributed to a pickup in urban demand, leading to a growth in asking rents, as the number of tours and leases increased during the quarter.

- Industrial yields continued to compress due to strong market fundamentals and heightened demand. US vacancy rates fell to 5.2% in 1Q21. EMEA vacancy rates slightly climbed to 4.7% for the quarter, while the Asia Pacific region saw a dip to 11.4%.

Global Outlook - GDP (Real) Growth % pa, 2020-2022

	2020	2021	2022
Global	**-3.3**	**6.0**	**4.4**
Asia Pacific	**0.2**	**5.1**	**5.0**
Australia	-2.4	4.5	3.3
China	2.3	8.5	5.5
India	-7.5	9.8	6.8
Japan	-4.7	2.6	2.2
North America	**-3.9**	**6.4**	**4.0**
US	-3.5	6.5	4.0
Middle East	**-2.8**	**3.1**	**4.1**
European Union	**-6.0**	**4.5**	**4.3**
France	-8.1	5.8	3.9
Germany	-4.8	3.4	4.1
UK	-10.1	6.1	5.5

Source: Bloomberg

Sources: Jones Lang LaSalle Research, Real Capital Analytics, Inc., CBRE

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200 E. Randolph Street

Suite 700

Chicago, IL 60601

ATTN: Aon Investments Compliance Officer

Capital Markets Outlook & Risk Metrics

As of June 30, 2021

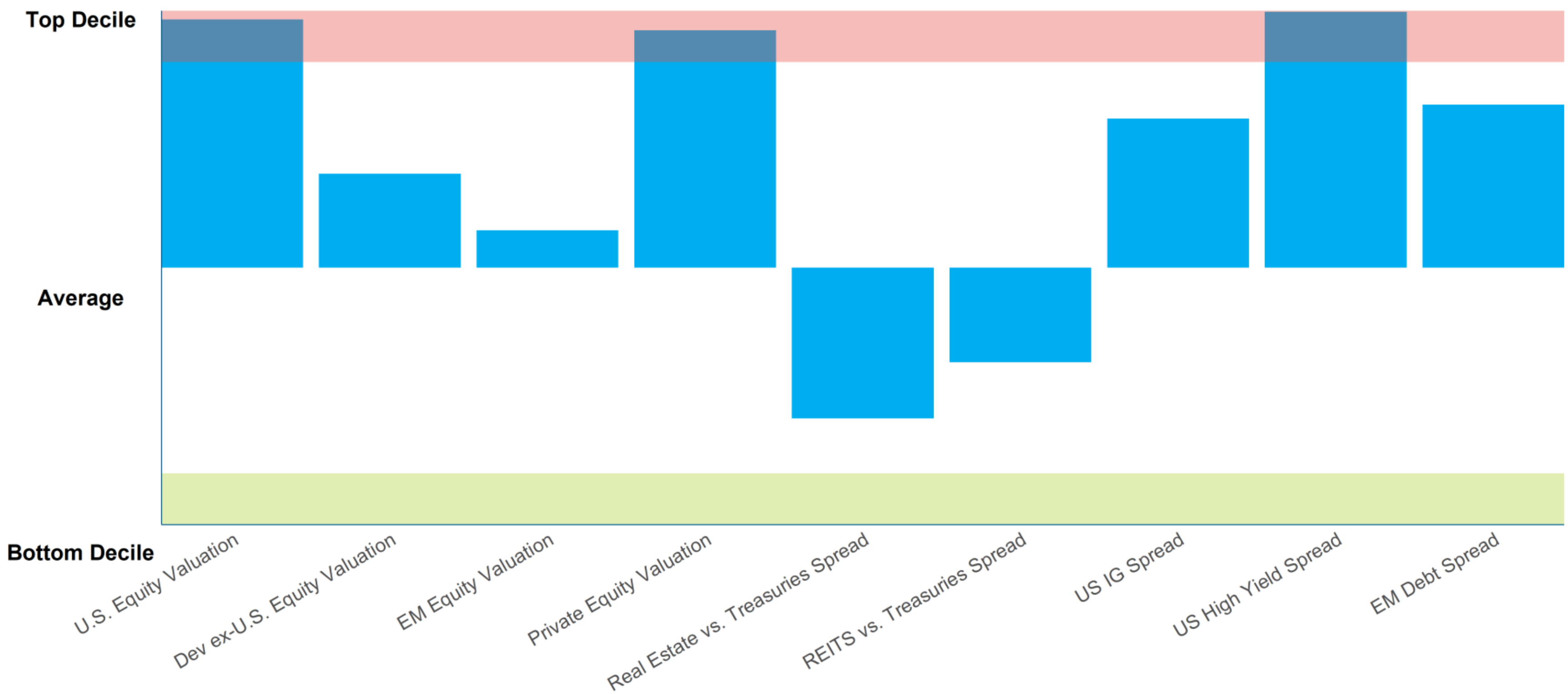
Capital Markets Outlook

Takeaways

- The rotation to value and cyclical stocks took a pause in June, as growth stocks outperformed value stocks.
- Outside the US, emerging market equities outperformed developed market equities, and like the US, growth outperformed value.
- Fixed income markets posted modest positive returns, with the Barclays TIPS index returning 0.6% and the Barclays Aggregate index gaining 0.7%.
- The Bloomberg Commodities index returned 1.9% in June, but commodity-related stocks retraced some of their gains, with the S&P Global Natural Resources index returning -2.2%.
- Global infrastructure stocks posted mixed returns in June, while REITs saw small gains.
- The US vaccination efforts combined with the re-opening of major parts of the US economy have lifted 2021 GDP forecasts for the US to 6.5%.
- COVID-related setbacks have eased in Europe, likewise lifting growth expectations there for 2021.
- According to the World Health Organization, global COVID cases have been falling since January. While the efficacy of many of the vaccines is promising, governments are closely monitoring new COVID variants.
- Questions around the Biden administration's policy agenda and its ability to implements it are paramount on investors' minds, especially on questions related to growth and inflation.
- Investors are likewise keeping an eye on monetary policy, specifically the timing and pace of which the Fed may start to dial back some of its stimulus.

Risk Overview/Dashboard (1)

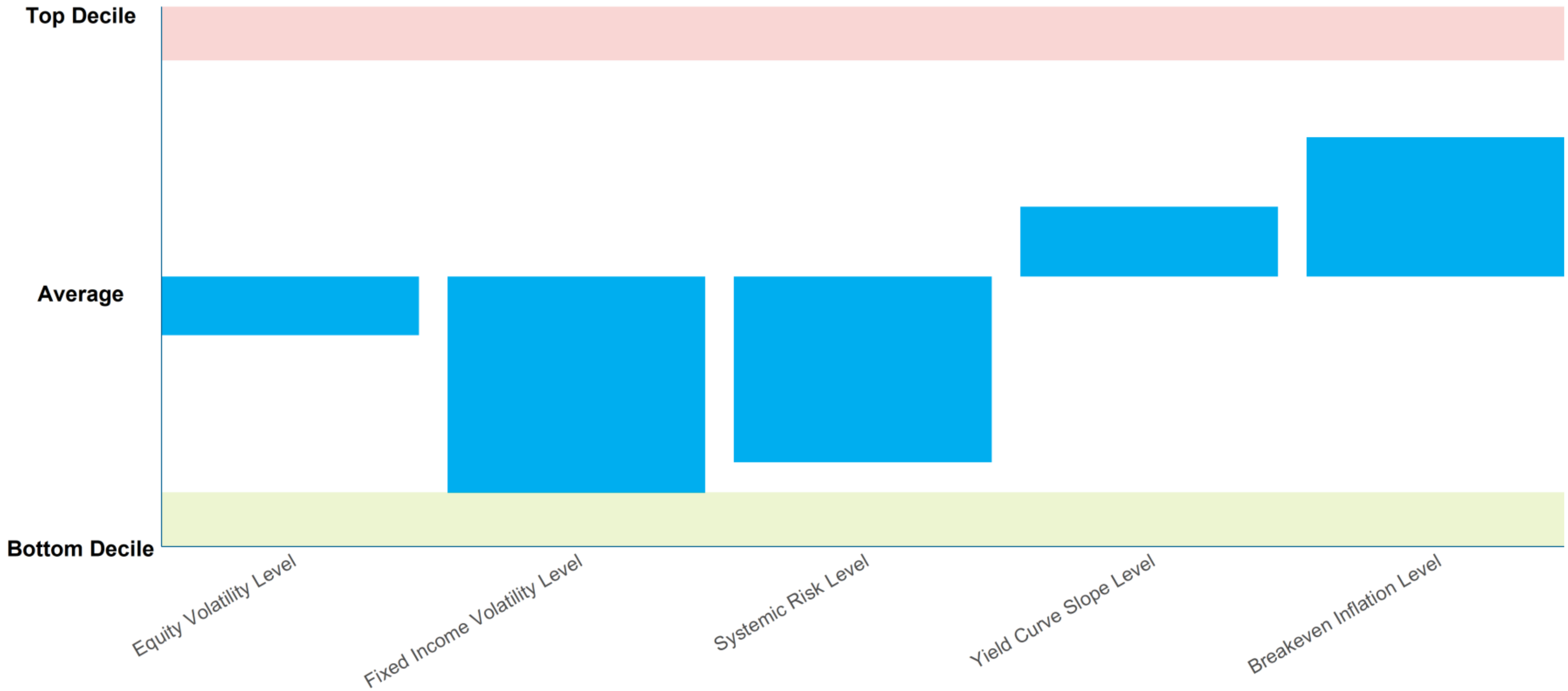
(As of June 30, 2021)[1]



- Dashboard (1) summarizes the current state of the different valuation metrics per asset class relative to their own history.

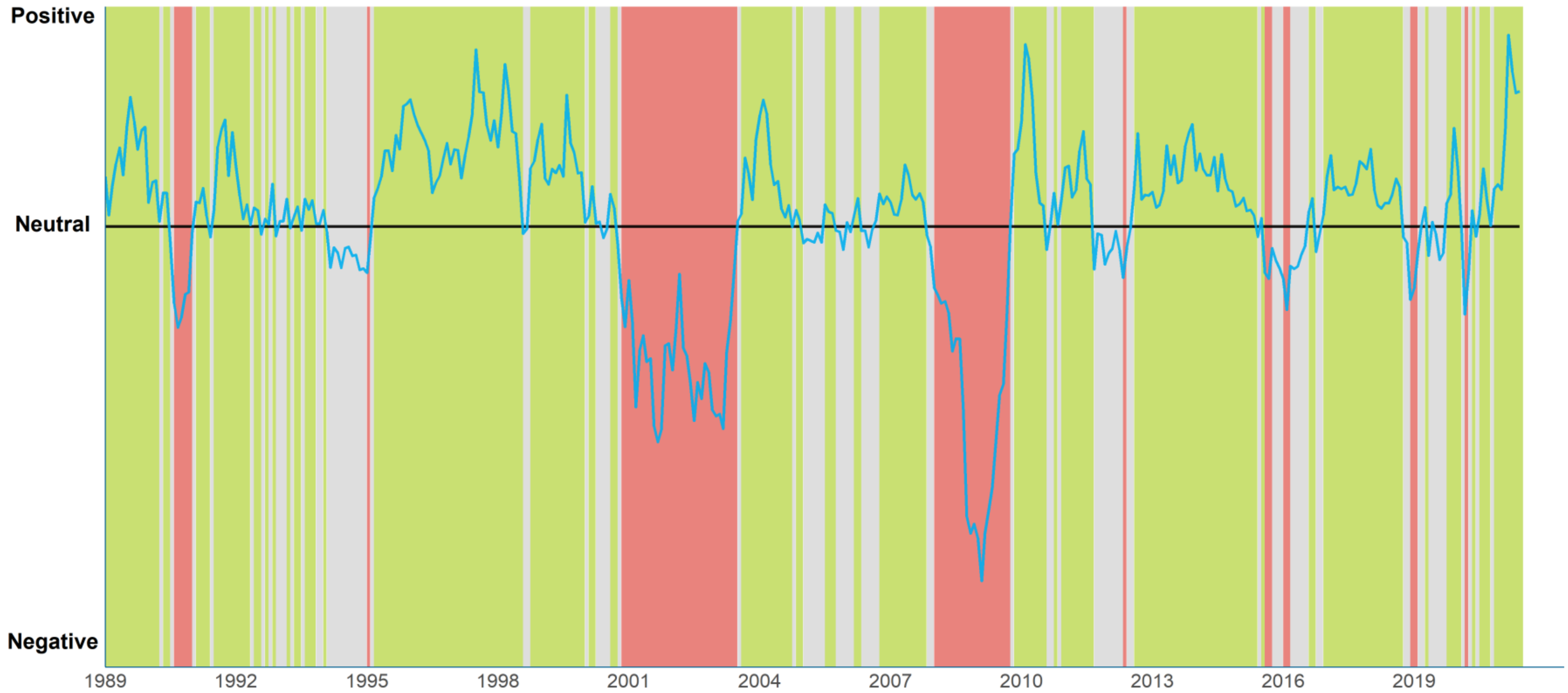
[1] With the exception of Private Equity Valuation, that is YTD as of December 31, 2020.

Risk Overview/Dashboard (2)
(As of June 30, 2021)



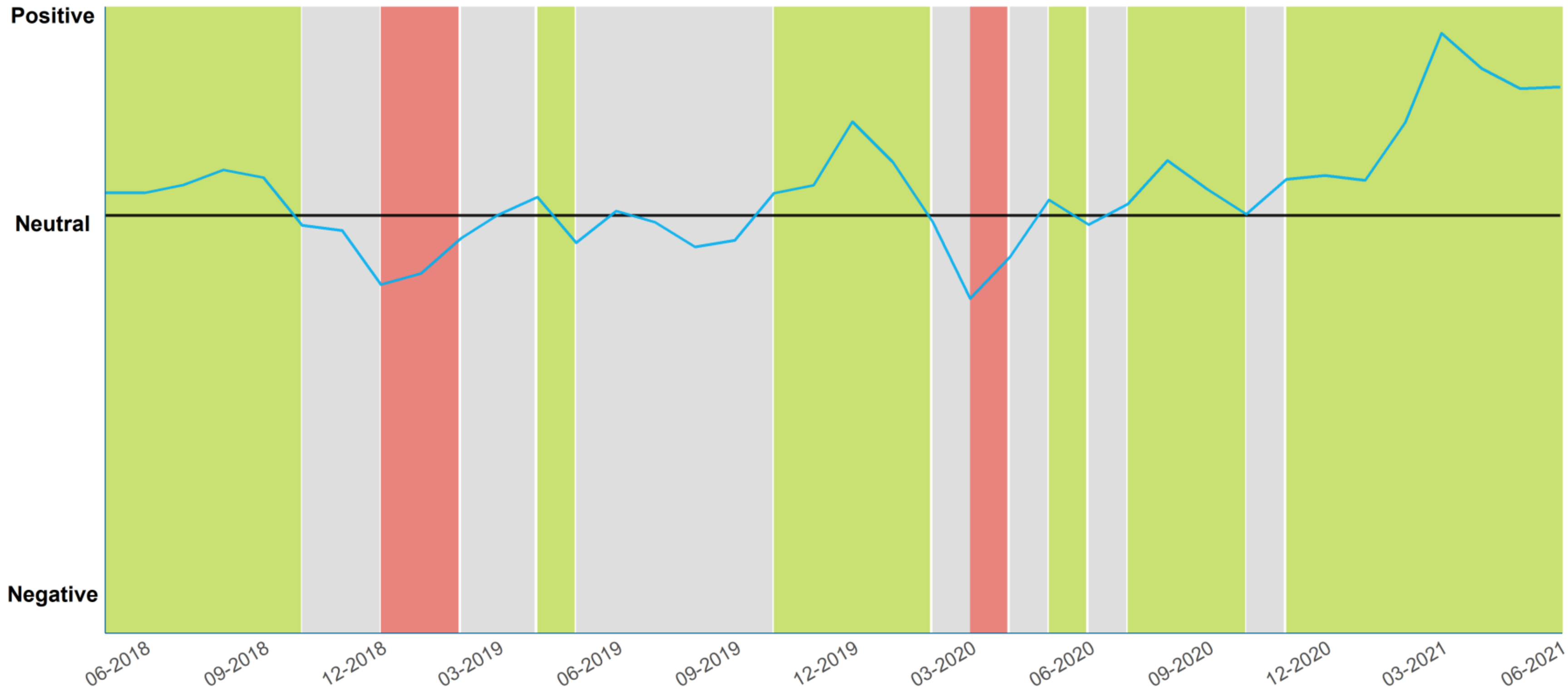
- Dashboard (2) shows how the current level of each indicator compares to its respective history.

Market Sentiment Indicator (All History)
(As of June 30, 2021)



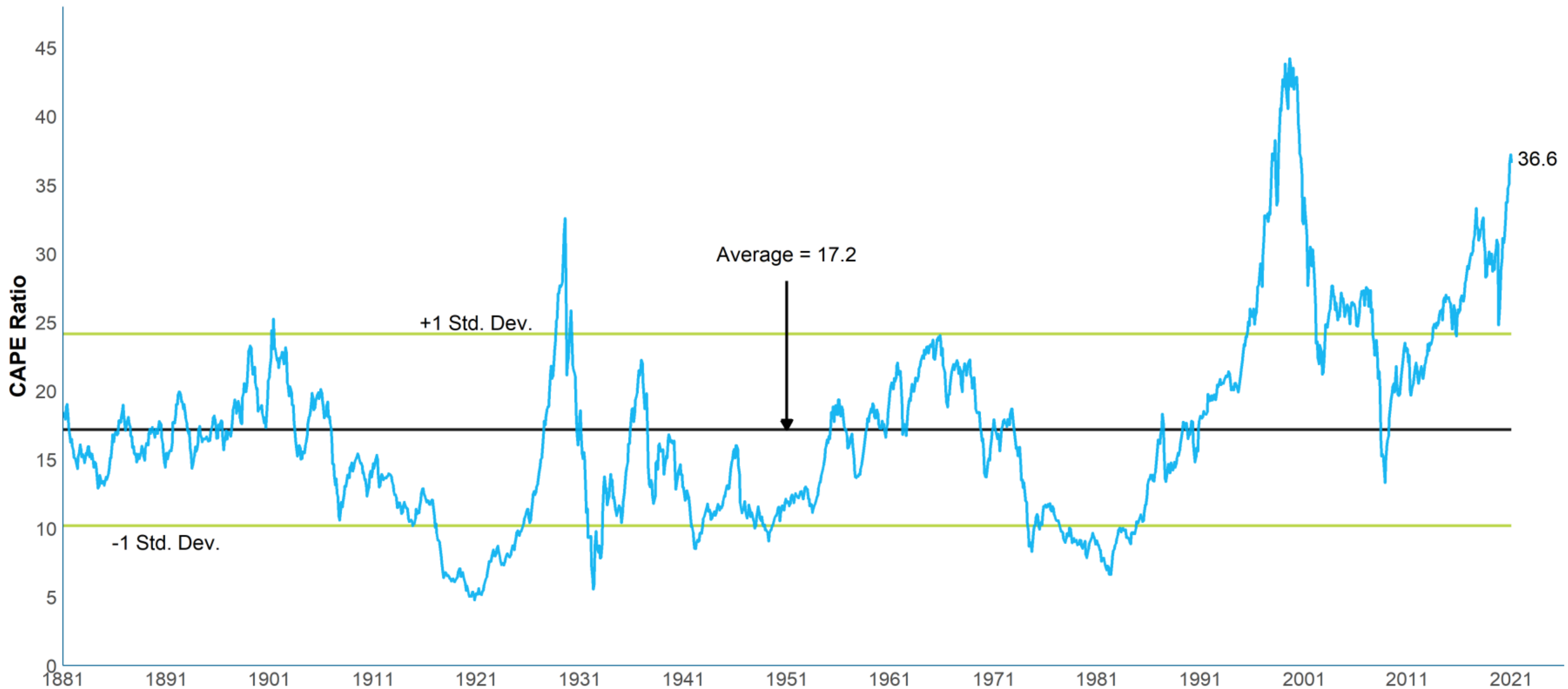
Market Sentiment Indicator (Last Three Years)

(As of June 30, 2021)



US Equity Cyclically Adjusted P/E[1]

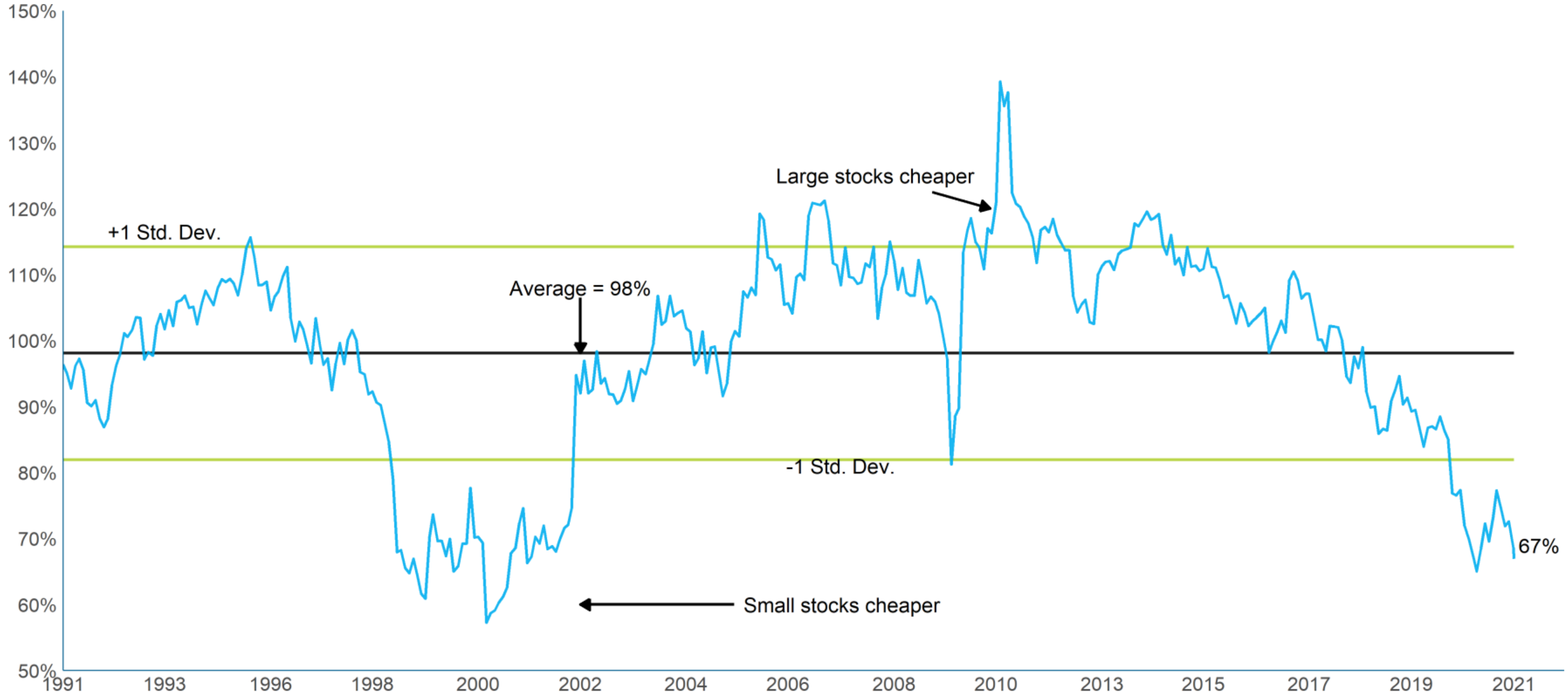
(As of June 30, 2021)



- This chart details one valuation metric for US equities. A higher (lower) figure indicates more expensive (cheaper) valuation relative to history.

[1] US Equity Cyclically Adjusted P/E on S&P 500 Index. Source: Robert Shiller, Yale University, and Meketa Investment Group.

Small Cap P/E vs. Large Cap P/E[1]
(As of June 30, 2021)



- This chart compares the relative attractiveness of small cap US equities vs. large cap US equities on a valuation basis. A higher (lower) figure indicates that large cap (small cap) is more attractive.

[1] Small Cap P/E (Russell 2000 Index) vs. Large Cap P/E (Russell 1000 Index) - Source: Russell Investments. Earnings figures represent 12-month "as reported" earnings.

Growth P/E vs. Value P/E[1]
(As of June 30, 2021)

- This chart compares the relative attractiveness of US growth equities vs. US value equities on a valuation basis. A higher (lower) figure indicates that value (growth) is more attractive.

[1] Growth P/E (Russell 3000 Growth Index) vs. Value (Russell 3000 Value Index) P/E - Source: Bloomberg, MSCI, and Meketa Investment Group. Earnings figures represent 12-month "as reported" earnings.

Developed International Equity Cyclically Adjusted P/E[1]

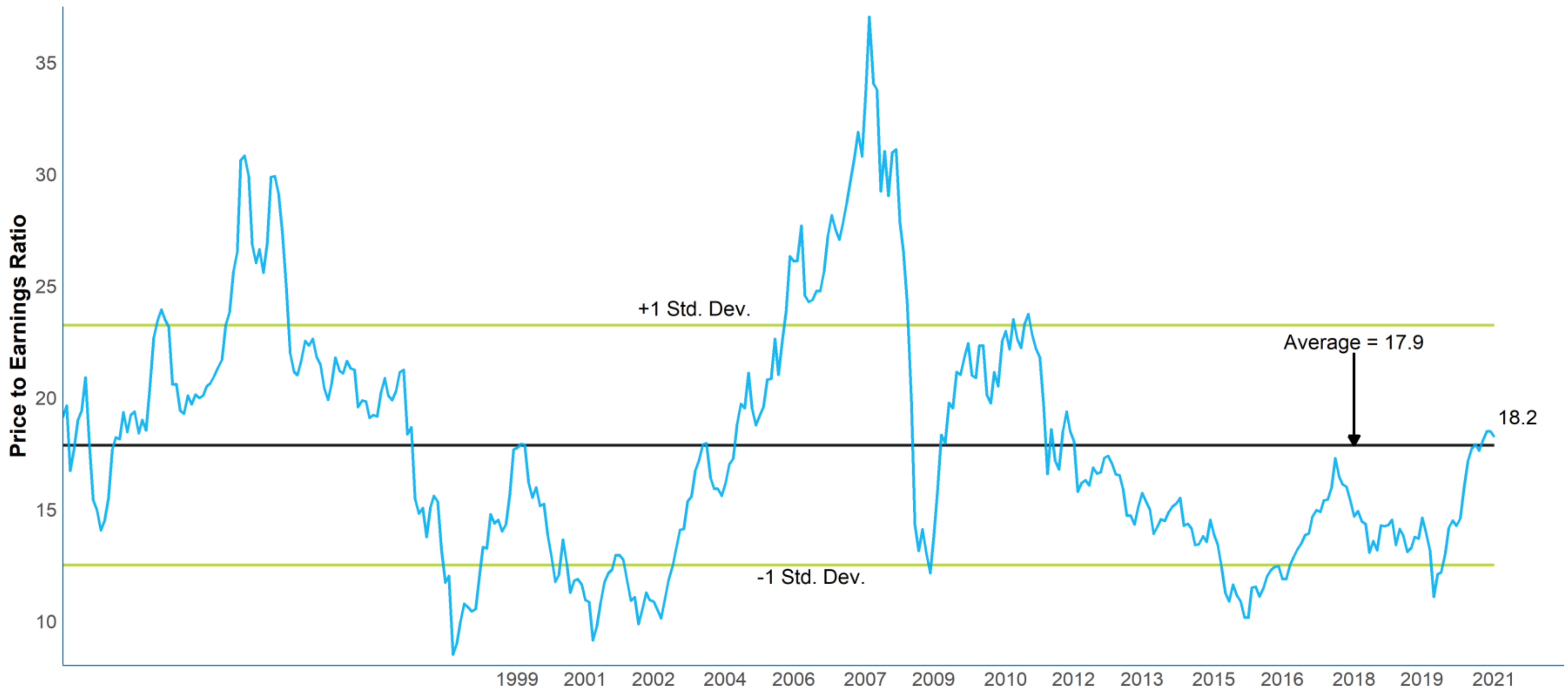
(As of June 30, 2021)

- This chart details one valuation metric for developed international equities. A higher (lower) figure indicates more expensive (cheaper) valuation relative to history.

[1] Developed International Equity (MSCI EAFE Index) Cyclically Adjusted P/E – Source: MSCI and Bloomberg. Earnings figures represent the average of monthly "as reported" earnings over the previous ten years.

Emerging Market Equity Cyclically Adjusted P/E[1]

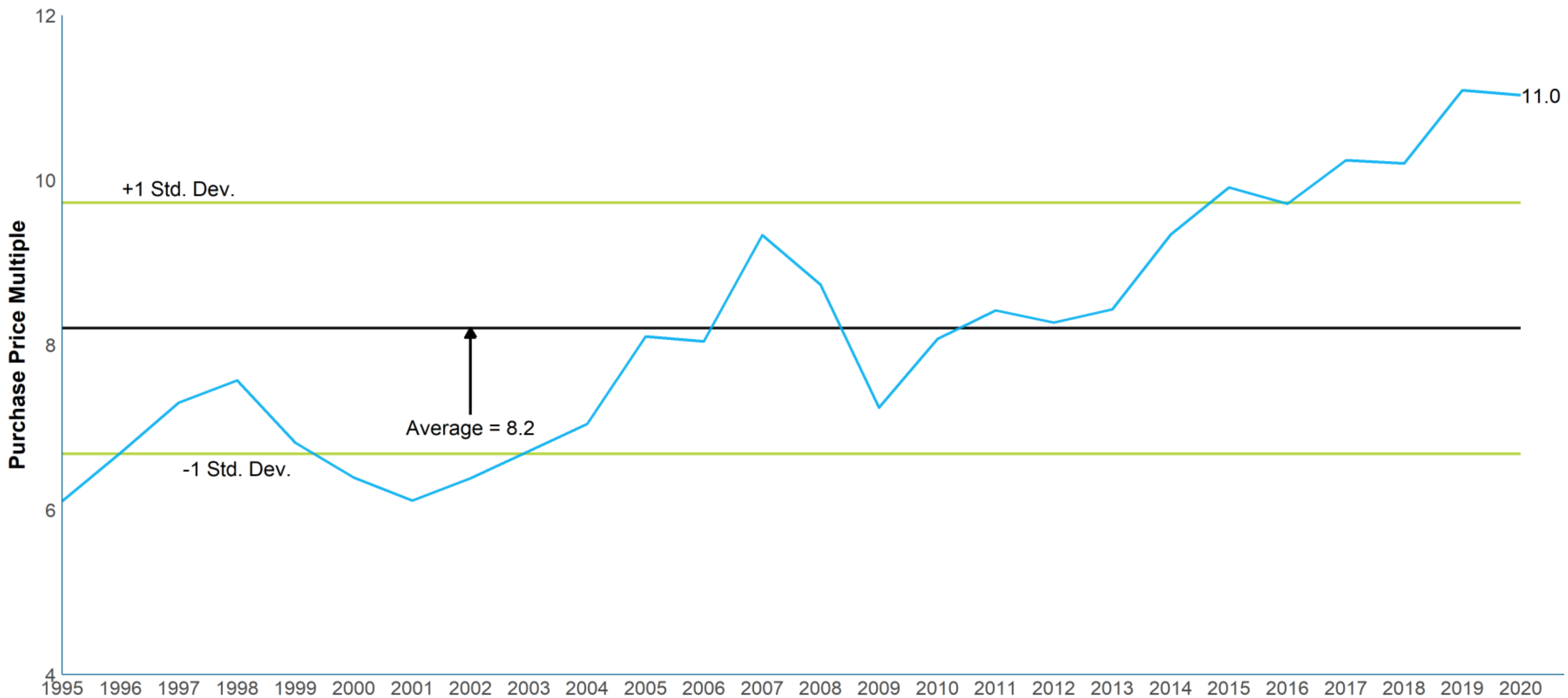
(As of June 30, 2021)



- This chart details one valuation metric for emerging markets equities. A higher (lower) figure indicates more expensive (cheaper) valuation relative to history.

[1] Emerging Market Equity (MSCI Emerging Markets Index) Cyclically Adjusted P/E – Source: MSCI and Bloomberg. Earnings figures represent the average of monthly "as reported" earnings over the previous ten years.

Private Equity Multiples[1]
(As of February 28, 2021)[2]

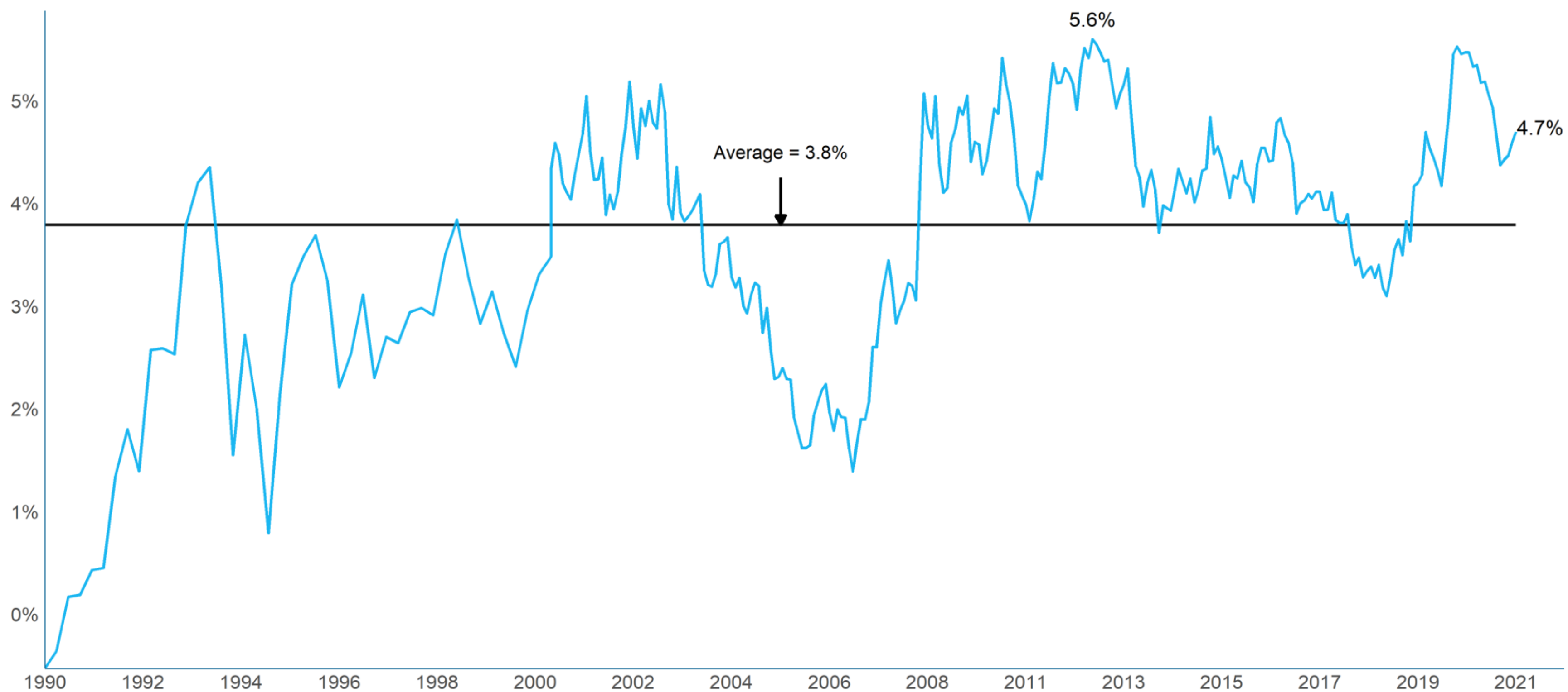


- This chart details one valuation metric for the private equity market. A higher (lower) figure indicates more expensive (cheaper) valuation relative to history.

[1] Private Equity Multiples – Source: S&P LCD Average EBITDA Multiples Paid in All LBOs.

[2] Annual Data, as of December 31, 2020

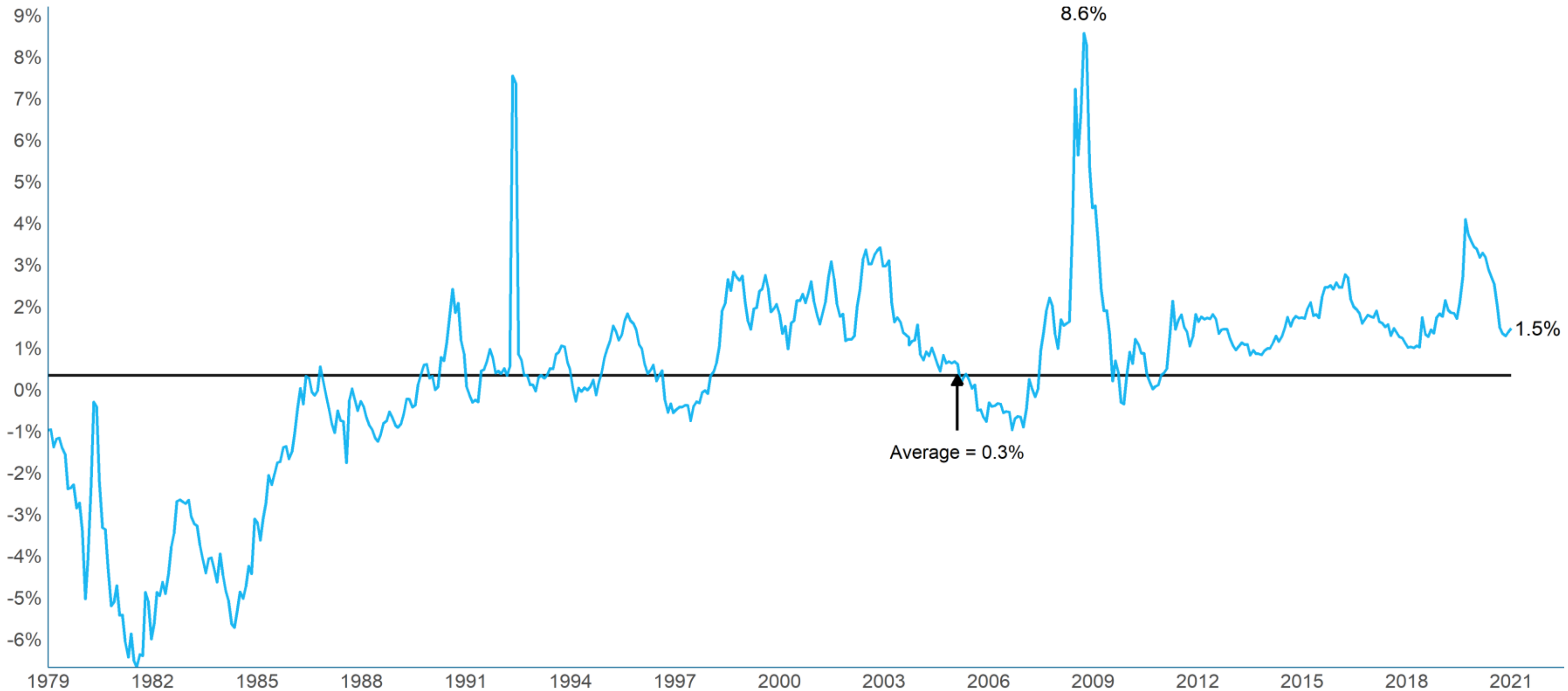
Core Real Estate Spread vs. Ten-Year Treasury[1]
(As of June 30, 2021)



- This chart details one valuation metric for the private core real estate market. A higher (lower) figure indicates cheaper (more expensive) valuation.

[1] Core Real Estate Spread vs. Ten-Year Treasury – Source: Real Capital Analytics, US Treasury, Bloomberg, and Meketa Investment Group. Core Real Estate is proxied by weighted sector transaction based indices from Real Capital Analytics and Meketa Investment Group.

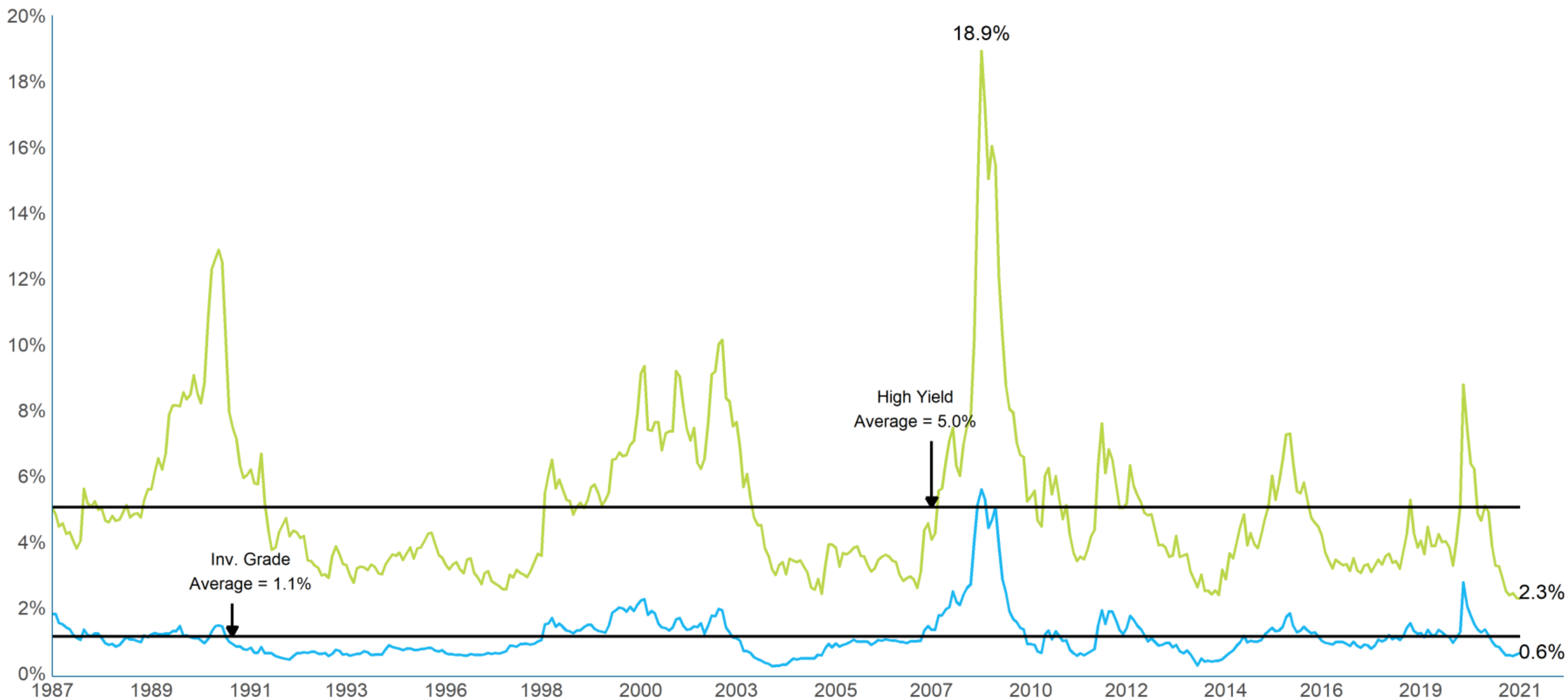
REITs Dividend Yield Spread vs. Ten-Year Treasury[1]
(As of June 30, 2021)



- This chart details one valuation metric for the public REITs market. A higher (lower) figure indicates cheaper (more expensive) valuation.

[1] REITs Dividend Yield Spread vs. Ten-Year Treasury – Source: NAREIT, US Treasury. REITs are proxied by the yield for the NAREIT Equity Index.

Credit Spreads[1]
(As of June 30, 2021)



- This chart details one valuation metric for the US credit markets. A higher (lower) figure indicates cheaper (more expensive) valuation relative to history.

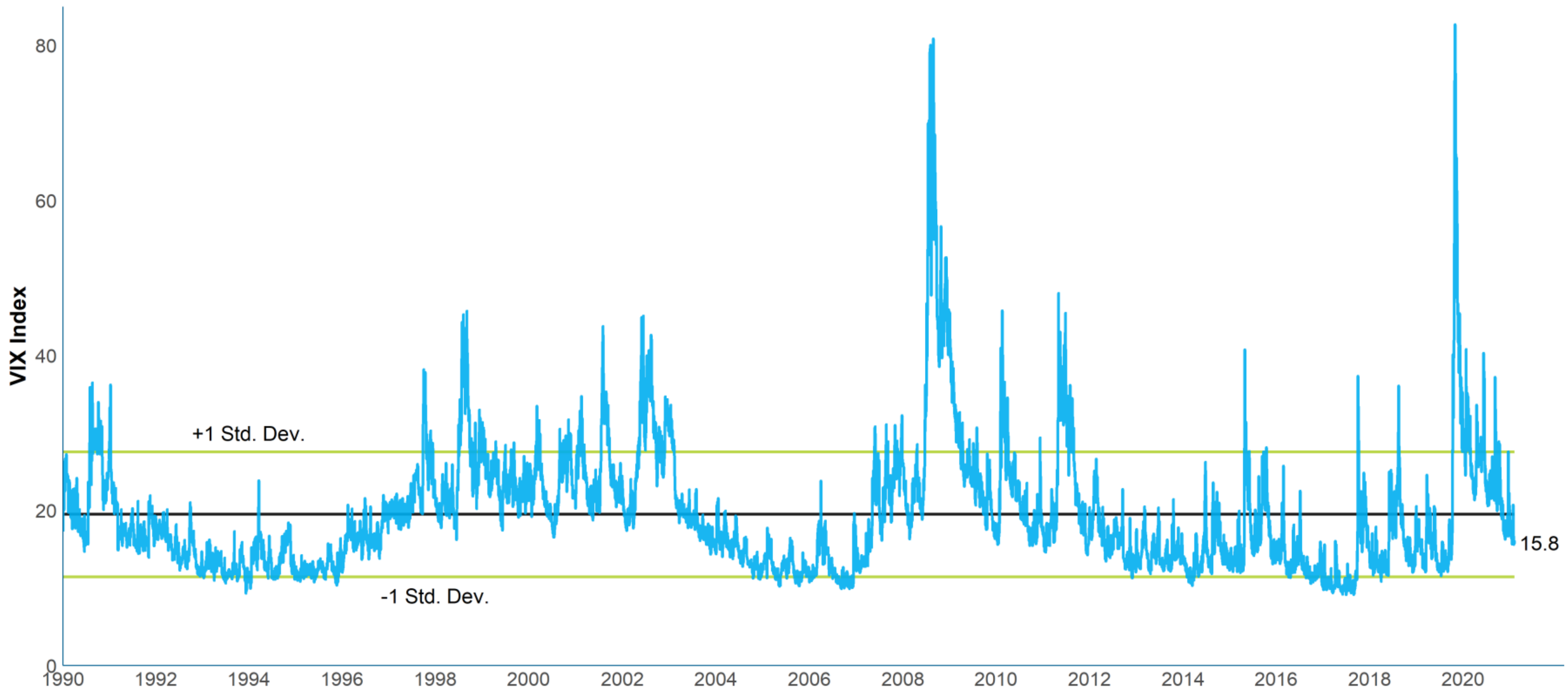
[1] Credit Spreads – Source: Barclays Capital. High Yield is proxied by the Barclays High Yield Index and Investment Grade Corporates are proxied by the Barclays US Corporate Investment Grade Index. Spread is calculated as the difference between the Yield to Worst of the respective index and the 10-Year US Treasury yield.

Emerging Market Debt Spreads[1]
(As of June 30, 2021)

- This chart details one valuation metric for the EM debt markets. A higher (lower) figure indicates cheaper (more expensive) valuation relative to history.

[1] EM Spreads – Source: Bloomberg. Option Adjusted Spread (OAS) for the Bloomberg Barclays EM USD Aggregate Index.

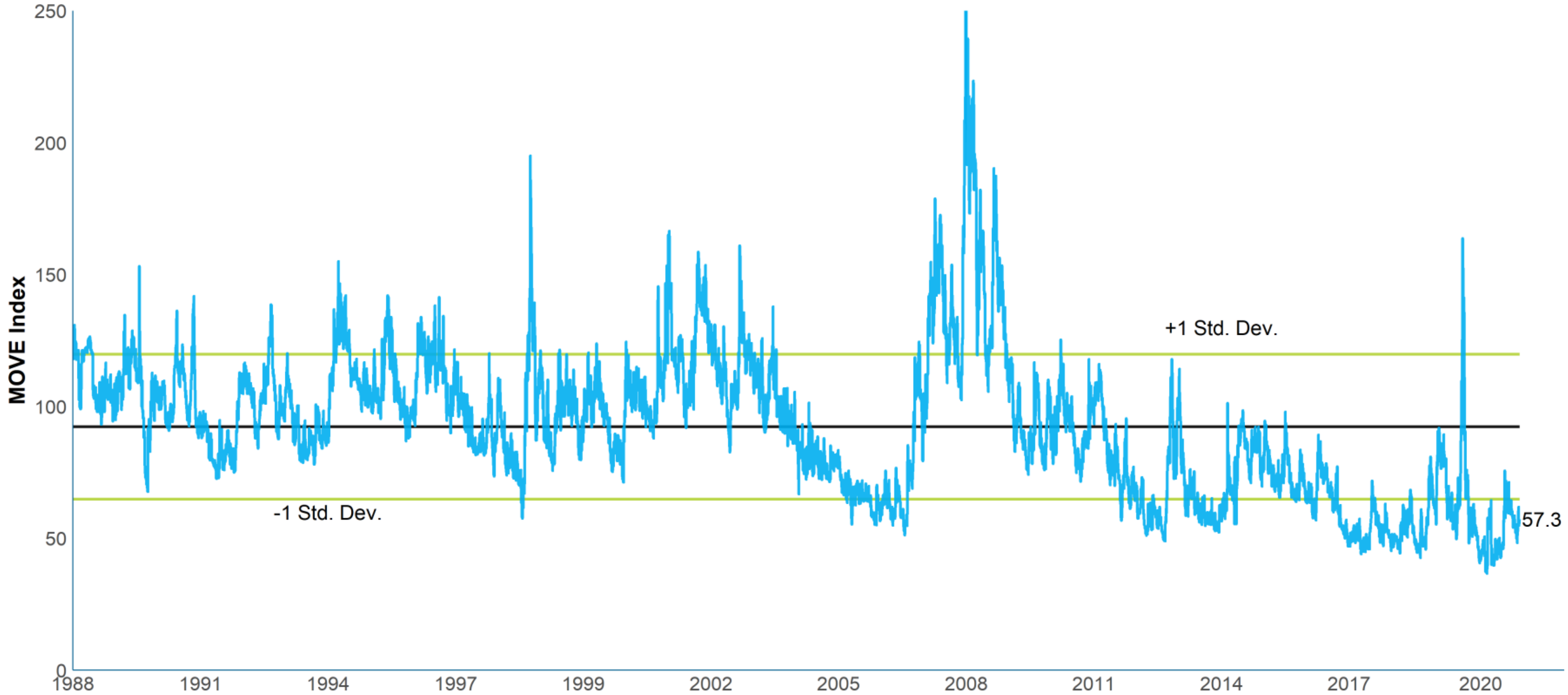
Equity Volatility[1]
(As of June 30, 2021)



- This chart details historical implied equity market volatility. This metric tends to increase during times of stress/fear and while declining during more benign periods.

[1] Equity Volatility – Source: Bloomberg, and Meketa Investment Group. Equity Volatility proxied by VIX Index, a Measure of implied option volatility for US equity markets.

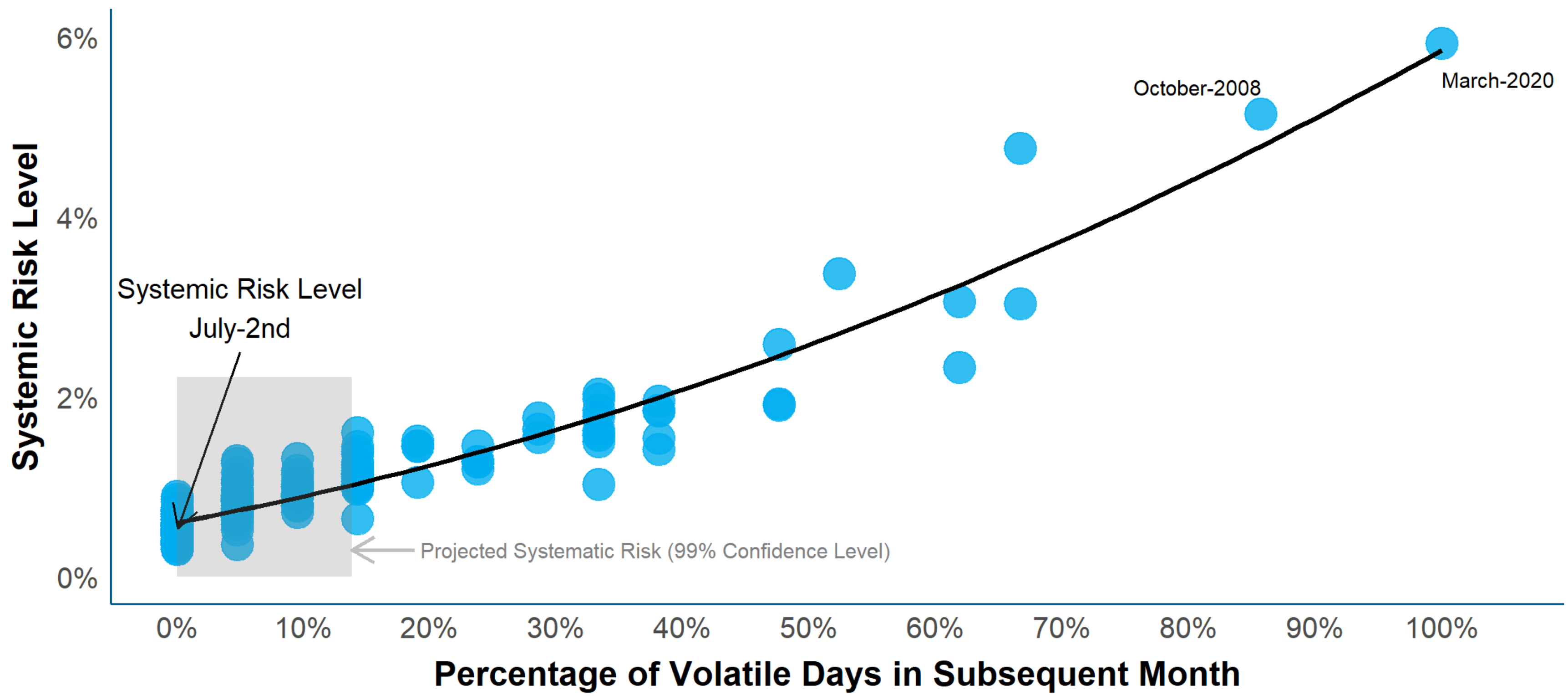
Fixed Income Volatility[1]
(As of June 30, 2021)



- This chart details historical implied fixed income market volatility. This metric tends to increase during times of stress/fear and while declining during more benign periods.

[1] Fixed Income Volatility – Source: Bloomberg, and Meketa Investment Group. Fixed Income Volatility proxied by MOVE Index, a Measure of implied option volatility for US Treasury markets.

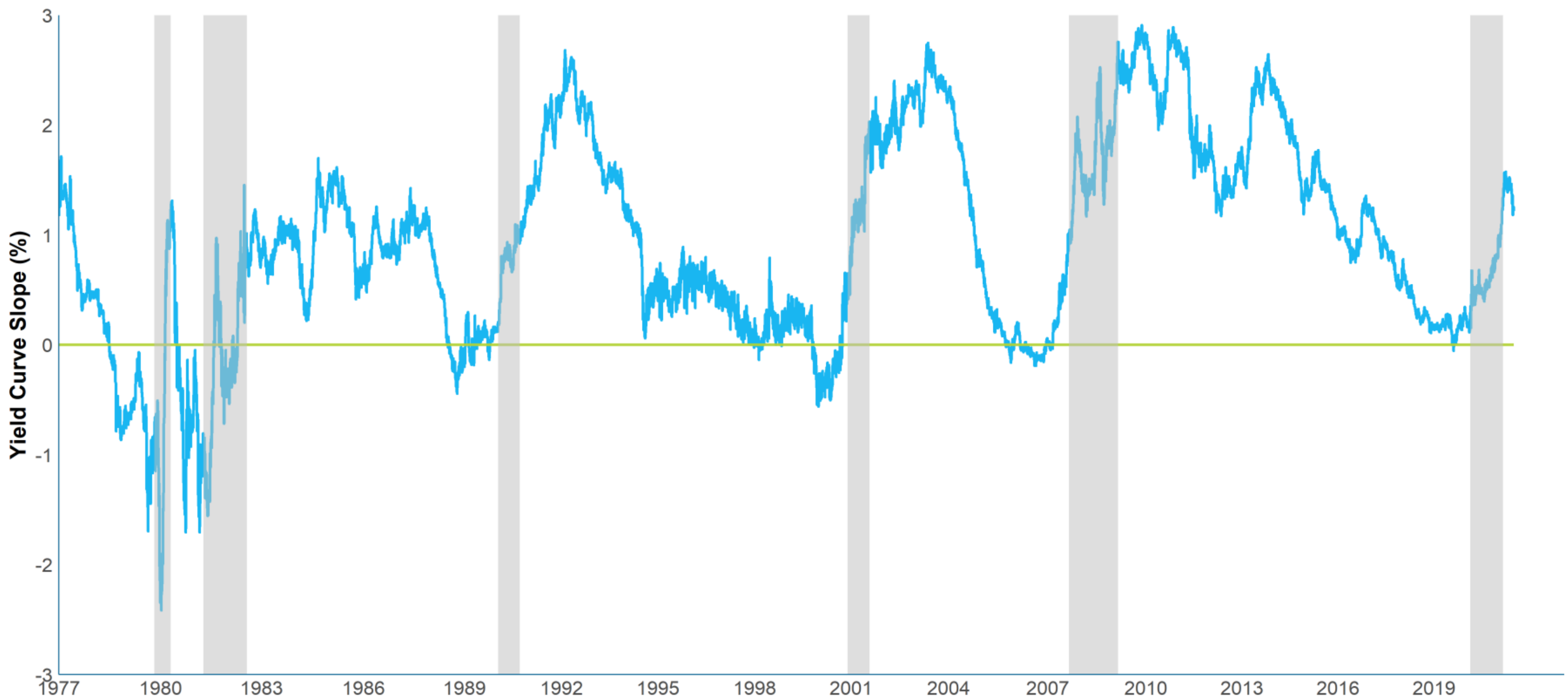
Systemic Risk and Volatile Market Days[1]
(As of June 30, 2021)



- Systemic Risk is a measure of 'System-wide' risk, which indicates herding type behavior.

[1] Source: Meketa Investment Group. Volatile days are defined as the top 10 percent of realized turbulence, which is a multivariate distance between asset returns.

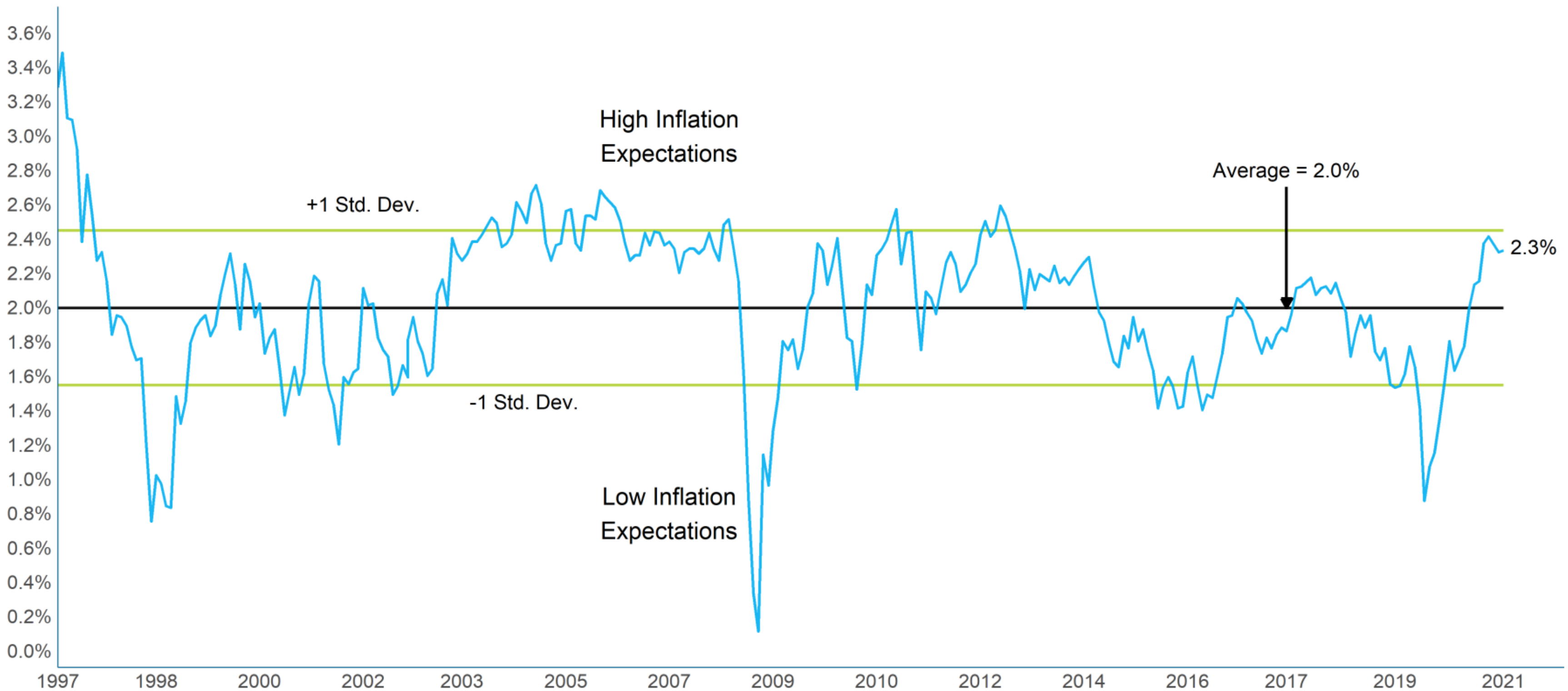
Yield Curve Slope (Ten Minus Two)[1]
(As of June 30, 2021)



- This chart details the historical difference in yields between ten-year and two-year US Treasury bonds/notes. A higher (lower) figure indicates a steeper (flatter) yield curve slope.

[1] Yield Curve Slope (Ten Minus Two) – Source: Bloomberg, and Meketa Investment Group. Yield curve slope is calculated as the difference between the 10-Year US Treasury Yield and 2-Year US Treasury Yield.

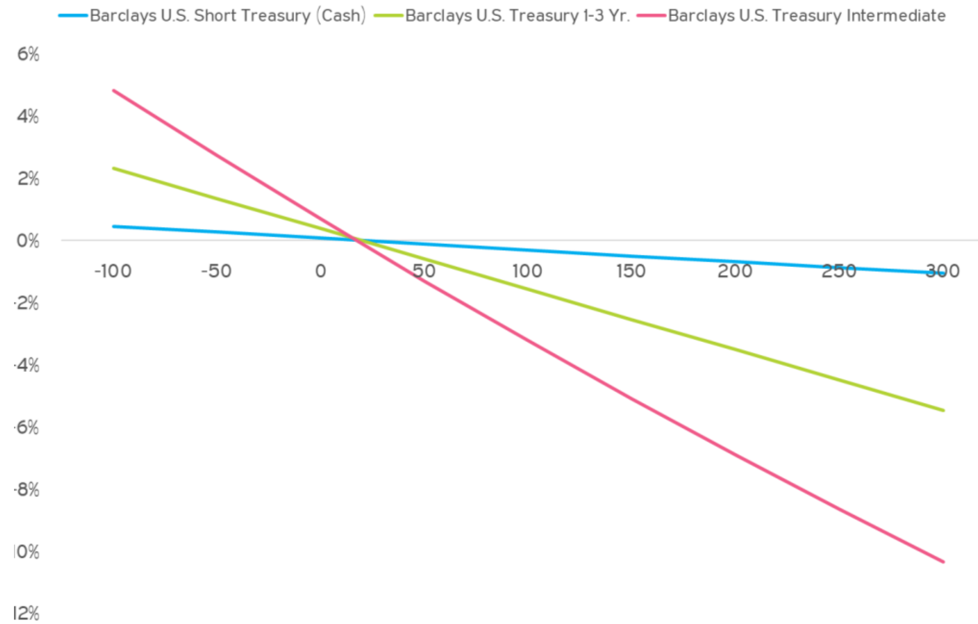
Ten-Year Breakeven Inflation[1]
(As of June 30, 2021)



- This chart details the difference between nominal and inflation-adjusted US Treasury bonds. A higher (lower) figure indicates higher (lower) inflation expectations.

[1] Ten-Year Breakeven Inflation – Source: US Treasury and Federal Reserve. Inflation is measured by the Consumer Price Index (CPI-U NSA).

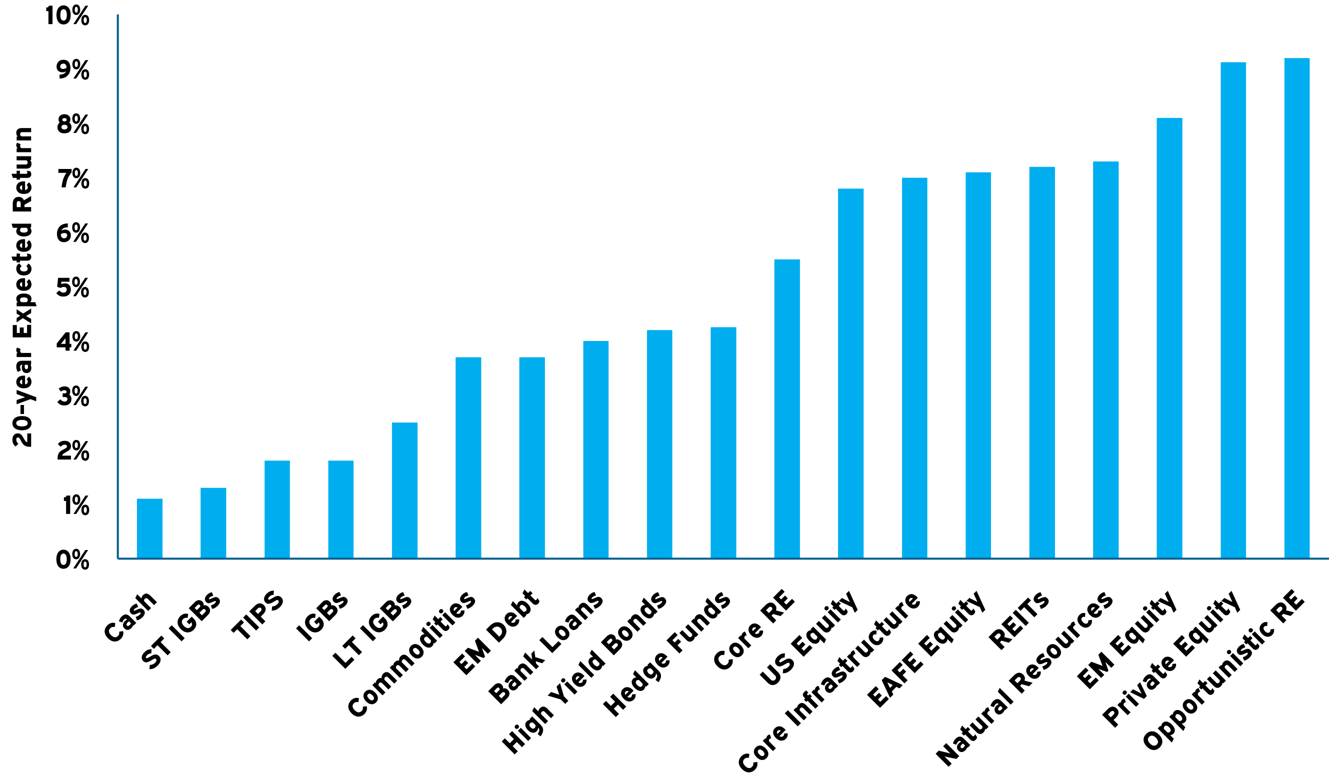
Total Return Given Changes in Interest Rates (bps)[1]
(As of June 30, 2021)



	Total Return for Given Changes in Interest Rates (bps)									Statistics	
	-100	-50	0	50	100	150	200	250	300	Duration	YTW
Barclays US Short Treasury (Cash)	0.4%	0.3%	0.1%	-0.1%	-0.3%	-0.5%	-0.7%	-0.9%	-1.1%	0.38	0.06%
Barclays US Treasury 1-3 Yr.	2.3%	1.3%	0.4%	-0.6%	-1.6%	-2.6%	-3.5%	-4.5%	-5.5%	1.94	0.36%
Barclays US Treasury Intermediate	4.8%	2.7%	0.7%	-1.3%	-3.2%	-5.1%	-6.9%	-8.7%	-10.4%	4.03	0.67%
Barclays US Treasury Long	23.0%	12.0%	2.0%	-6.8%	-14.6%	-21.2%	-26.8%	-31.3%	-34.7%	18.76	2.03%

[1] Data represents the expected total return from a given change in interest rates (shown in basis points) over a 12-month period assuming a parallel shift in rates. Source: Bloomberg, and Meketa Investment Group.

Long-Term Outlook – 20-Year Annualized Expected Returns[1]



- This chart details Meketa's long-term forward-looking expectations for total returns across asset classes.

[1] Source: Meketa Investment Group's 2021 Annual Asset Study.

Appendix

Data Sources and Explanations[1]

- US Equity Cyclically Adjusted P/E on S&P 500 Index – Source: Robert Shiller and Yale University.
- Small Cap P/E (Russell 2000 Index) vs. Large Cap P/E (Russell 1000 Index) - Source: Russell Investments. Earnings figures represent 12-month "as reported" earnings.
- Growth P/E (Russell 3000 Growth Index) vs. Value (Russell 3000 Value Index) P/E - Source: Bloomberg, MSCI, and Meketa Investment Group. Earnings figures represent 12-month "as reported" earnings.
- Developed International Equity (MSCI EAFE) Cyclically Adjusted P/E – Source: MSCI and Bloomberg. Earnings figures represent the average of monthly "as reported" earnings over the previous ten years.
- Emerging Market Equity (MSCI Emerging Markets Index) Cyclically Adjusted P/E – Source: MSCI and Bloomberg. Earnings figures represent the average of monthly "as reported" earnings over the previous ten years.
- Private Equity Multiples – Source: S&P LCD Average EBITDA Multiples Paid in All LBOs.
- Core Real Estate Spread vs. Ten-Year Treasury – Source: Real Capital Analytics, US Treasury, Bloomberg, and Meketa Investment Group. Core Real Estate is proxied by weighted sector transaction based indices from Real Capital Analytics and Meketa Investment Group.

[1] All Data as of June 30, 2021 unless otherwise noted.

Appendix

Data Sources and Explanations[1]

- REITs Dividend Yield Spread vs. Ten-Year Treasury – Source: NAREIT, US Treasury. REITs are proxied by the yield for the NAREIT Equity Index.
- Credit Spreads – Source: Barclays Capital. High Yield is proxied by the Barclays High Yield Index and Investment Grade Corporates are proxied by the Barclays US Corporate Investment Grade Index.
  - Spread is calculated as the difference between the Yield to Worst of the respective index and the 10-Year Treasury Yield.
- EM Debt Spreads – Source: Bloomberg, and Meketa Investment Group. Option Adjusted Spread (OAS) for the Bloomberg Barclays EM USD Aggregate Index.
- Equity Volatility – Source: Bloomberg, and Meketa Investment Group. Equity Volatility proxied by VIX Index, a Measure of implied option volatility for US equity markets.
- Fixed Income Volatility – Source: Bloomberg, and Meketa Investment Group. Equity Volatility proxied by MOVE Index, a Measure of implied option volatility for US Treasury markets.
- Systemic Risk and Volatile Market Days – Source: Meketa Investment Group. Volatile days are defined as the top 10 percent of realized turbulence, which is a multivariate distance between asset returns.
- Systemic Risk, which measures risk across markets, is important because the more contagion of risk that exists between assets, the more likely it is that markets will experience volatile periods.

[1] All Data as of June 30, 2021 unless otherwise noted.

Appendix

Data Sources and Explanations[1]

- Yield Curve Slope (Ten Minus Two) – Source: Bloomberg, and Meketa Investment Group. Yield curve slope is calculated as the difference between the 10-Year US Treasury Yield and 2-Year US Treasury Yield.
- Ten-Year Breakeven Inflation – Source: US Treasury and Federal Reserve. Inflation is measured by the Consumer Price Index (CPI-U NSA).

[1] All Data as of June 30, 2021 unless otherwise noted.

Meketa Market Sentiment Indicator

Explanation, Construction and Q&A

Meketa has created the MIG Market Sentiment Indicator (MIG-MSI) to complement our valuation-focused Risk Metrics. This measure of sentiment is meant to capture significant and persistent shifts in long-lived market trends of economic growth risk, either towards a risk-seeking trend or a risk-aversion trend.

This appendix explores:

- What is the Meketa Market Sentiment Indicator?
- How do I read the indicator graph?
- How is the Meketa Market Sentiment Indicator constructed?
- What do changes in the indicator mean?

Meketa has created a market sentiment indicator for monthly publication (the MIG-MSI – see below) to complement Meketa's Risk Metrics.

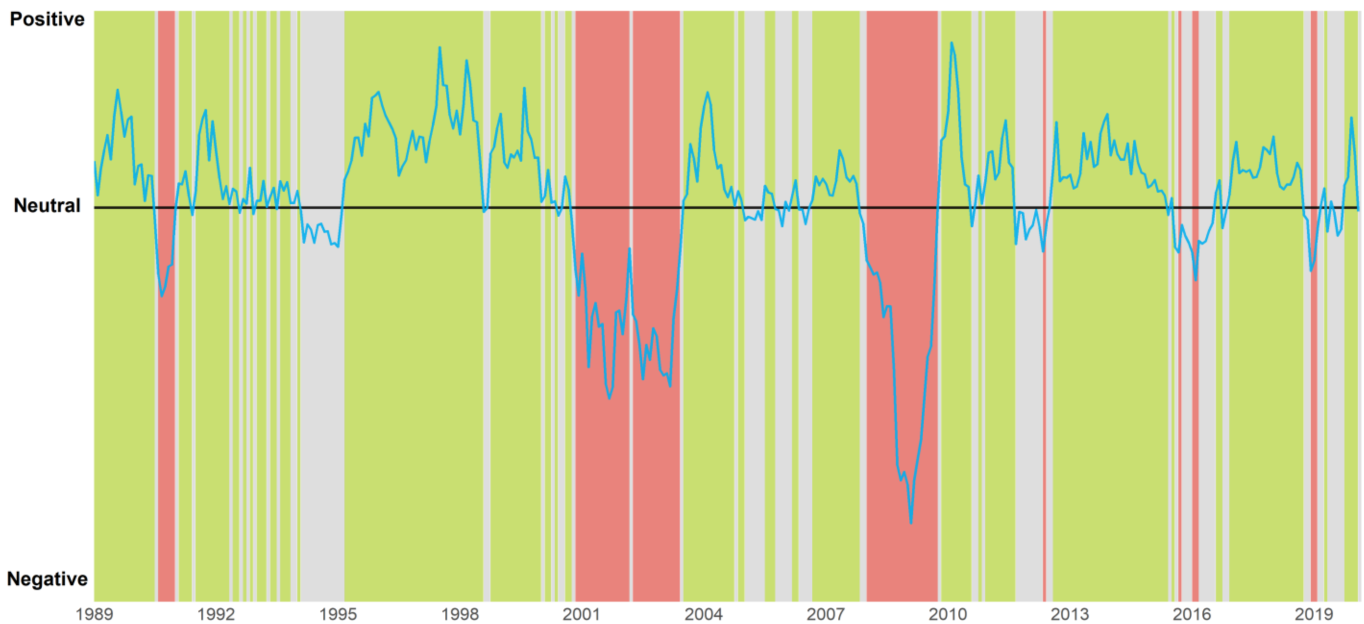
- Meketa's Risk Metrics, which rely significantly on standard market measures of relative valuation, often provide valid early signals of increasing long-term risk levels in the global investment markets. However, as is the case with numerous valuation measures, the Risk Metrics may convey such risk concerns long before a market corrections take place. The MIG-MSI helps to address this early-warning bias by measuring whether the markets are beginning to acknowledge key Risk Metrics trends, and / or indicating non-valuation based concerns. Once the MIG-MSI indicates that the market sentiment has shifted, it is our belief that investors should consider significant action, particularly if confirmed by the Risk Metrics. Importantly, Meketa believes the Risk Metrics and MIG-MSI should always be used in conjunction with one another and never in isolation. The questions and answers below highlight and discuss the basic underpinnings of the Meketa MIG-MSI:

What is the Meketa Market Sentiment Indicator (MIG-MSI)?

- The MIG-MSI is a measure meant to gauge the market's sentiment regarding economic growth risk. Growth risk cuts across most financial assets, and is the largest risk exposure that most portfolios bear. The MIG-MSI takes into account the momentum (trend over time, positive or negative) of the economic growth risk exposure of publicly traded stocks and bonds, as a signal of the future direction of growth risk returns; either positive (risk seeking market sentiment), or negative (risk averse market sentiment).

How do I read the Meketa Market Sentiment Indicator graph?

- Simply put, the MIG-MSI is a color-coded indicator that signals the market's sentiment regarding economic growth risk. It is read left to right chronologically. A green indicator on the MIG-MSI indicates that the market's sentiment towards growth risk is positive. A gray indicator indicates that the market's sentiment towards growth risk is neutral or inconclusive. A red indicator indicates that the market's sentiment towards growth risk is negative. The black line on the graph is the level of the MIG-MSI. The degree of the signal above or below the neutral reading is an indication the signal's current strength.
- Momentum as we are defining it is the use of the past behavior of a series as a predictor of its future behavior.



How is the Meketa Market Sentiment Indicator (MIG-MSI) Constructed?

- The MIG-MSI is constructed from two sub-elements representing investor sentiment in stocks and bonds:
  - Stock return momentum: Return momentum for the S&P 500 Equity Index (trailing 12-months).
  - Bond yield spread momentum: Momentum of bond yield spreads (excess of the measured bond yield over the identical duration US Treasury bond yield) for corporate bonds (trailing 12-months) for both investment grade bonds (75% weight) and high yield bonds (25% weight).
  - Both measures are converted to Z-scores and then combined to get an "apples to apples" comparison without the need of re-scaling.
- The black line reading on the graph is calculated as the average of the stock return momentum measure and the bonds spread momentum measure[1]. The color reading on the graph is determined as follows:
  - If both stock return momentum and bond spread momentum are positive = GREEN (positive).
  - If one of the momentum indicators is positive, and the other negative = GRAY (inconclusive).
  - If both stock return momentum and bond spread momentum are negative = RED (negative).

[1] Momentum as we are defining it is the use of the past behavior of a series as a predictor of its future behavior. "Time Series Momentum" Moskowitz, Ooi, Pedersen, August 2010. *http://pages.stern.nyu.edu/~lpederse/papers/TimeSeriesMomentum.pdf*

What does the Meketa Market Sentiment Indicator (MIG-MSI) mean? Why might it be useful?

- There is strong evidence that time series momentum is significant and persistent. In particular, across an extensive array of asset classes, the sign of the trailing 12-month return (positive or negative) is indicative of future returns (positive or negative) over the next 12-month period. The MIG-MSI is constructed to measure this momentum in stocks and corporate bond spreads. A reading of green or red is agreement of both the equity and bond measures, indicating that it is likely that this trend (positive or negative) will continue over the next 12 months. When the measures disagree, the indicator turns gray. A gray reading does not necessarily mean a new trend is occurring, as the indicator may move back to green, or into the red from there. The level of the reading (black line) and the number of months at the red or green reading, gives the user additional information on which to form an opinion, and potentially take action.

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